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The Effectiveness of the Elliott Waves Theory to Forecast Financial Markets: Evidence from the Currency Market

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Abstract

The purpose of this paper is to investigate the capability of a technical analysis to be used as a valuable tool in forecasting financial markets. After discussing the primary theoretical and methodological differences that oppose the fundamental analysis and technical analysis and introducing the Elliott waves theory, the paper focuses on the results obtained after applying this method to the currency market. The results show that during the period from 2009-2015, the exchange rate between the U.S. dollar and euro could be forecasted with great accuracy. A potential future pattern is also proposed for the exchange rate beginning in March 2017. The research confirmed the usefulness of Elliott's model for predicting currency markets, and the effectiveness of the fundamental analysis theories generally adopted for academic studies was evaluated.

Keywords: technical analysis; Elliott waves; currency market

1. Introduction

Financial market forecasting continues to be a core issue for academic scholars as well as professional investors. In the financial field, predictions involve information analyses and influence the ways these analyses may drive decision-making processes when buying or selling financial assets.

Two types of approaches are usually adopted in the field of financial market prediction: fundamental analyses and technical analyses. Professional investors and traders are typically more likely to support and use technical analyses in predicting the market value of financial assets, while fundamental analyses are most commonly used by academic researchers. The debate between these two approaches mainly focuses on the capabilities of their various models to succeed in forecasting financial performance using different tools. Technical analysts use a visual approach based on the application trend models on price charts, and fundamentalists use mathematical models to investigate and evaluate asset prices.

Fundamental analysts usually sustain the supremacy of their approach by arguing that their models are supported by theory, which cannot be said for the technical approach to predicting asset prices. Moreover, theoretical and empirical financial studies in the field of market efficiency assume a random walk model for asset pricing, which excludes any possibility for technical analysts to forecast future prices (Fama, 1970). Thus, technical analyses are also referred to as "voodoo finance," and the difference between fundamental and technical analyses is argued to be similar to the difference between astronomy and astrology (Lo et al., 2000).

On the other hand, technical analysts argue that data previously collected contain important information that can be used in predicting future prices and that their models are used by a multitude of traders and fund managers. Moreover, some studies rejected the random walk theory and provided a large amount of evidence supporting technical trading. Brock et al. (1992), Lo et al. (2000), LeBaron (1999), and Neely (2002), among others, argued that substantial gains exceeding the market gains could be made using a visual analysis (Zhu and Zhou, 2009).

The purpose of this exploratory study was to investigate the capability of one of the most commonly used technical methods for financial market prediction: the Elliott waves theory. The method has been applied to the currency market to verify whether the future exchange rates for the usd/euro could have been predicted using this technical analysis. The forex market was chosen because there is evidence that a technical analysis could be a

useful tool for currency managers (Gehrig and Menkhoff, 2006).

The paper consists of three additional sections. In the second section, the primary traits of the Elliot waves theory in predicting financial markets are presented. In the third section, the results obtained by the waves model in predicting the euro/usd exchange rate are provided. The final section discusses the conclusions.

2. Theoretical Background

The wave theory is the result of an analysis of the stock market carried out by Ralph Nelson Elliott in the 1930s, but it is still relevant and used by many traders and institutional investors. To better understand the way the waves theory was employed to assess financial assets in the empirical part of the paper, in this section, the main theoretical elements of the wave theory according to the codification proposed by Prechter and Frost (1978) are described.

The Elliott waves theory, as all other technical analyses, mainly focuses on studying a time series in market prices and assumes that historic patterns are able to predict future patterns.

The Elliott model is composed of impulse waves (indicated by numbers) and corrective waves (indicated by letters). There are several accepted annotations to label Elliott waves for the different degrees of tendency. For this work, the annotations listed in Table 1 were used.

Table 1. Elliott impulse waves and corrective wave labels in different degrees (source: adapted from Prechter and Frost, 1978)

Degree	Labels for impulse waves	Labels for corrective waves
Grand Supercycle	[I] [II] [III] [IV] [V]	[A] [B] [C]
Supercycle	(I) (II) (III) (IV) (V)	(A) (B) (C)
Cycle	I II III IV V	A B C
Primary	[1] [2] [3] [4] [5]	[a] [b] [c]
Intermediate	(1) (2) (3) (4) (5)	(a) (b) (c)
Minor	1 2 3 4 5	a b c
Minute	[i] [ii] [iii] [iv] [v]	[a°] [b°] [c°]
Minuette	(i)(ii)(iii)(iv)(v)	(a°) (b°) (c°)
Subminuette	i ii iii iv v	a° b° c°

For each degree of a trend, an impulse wave is composed of five lower degree waves (sub-waves), and it moves in the same direction of the higher-degree trend. On the other hand, corrective waves are composed of three lower degree waves, and they move against the higher degree trend.

When connected, impulse waves and corrective waves form structures of five and three waves of increasingly higher degree trends.

First, the formation of impulse waves will be discussed, followed by the formation of corrective waves in the context of an up-trend theoretical model. The labeling of the waves was based on the definitions explained in Table 1.

In Figure 1, the first small sequence is an impulse wave, defined as “minor” in table 1, that ends at the peak labeled 1. This first section of the graph illustrates two indications. First, it indicates the beginning of a sequence of three “minor” corrective waves, which will form a lower degree wave labeled 2. Second, it indicates that a wave of a higher degree, an “intermediate” wave, labeled (1), will be present in the up-trend.

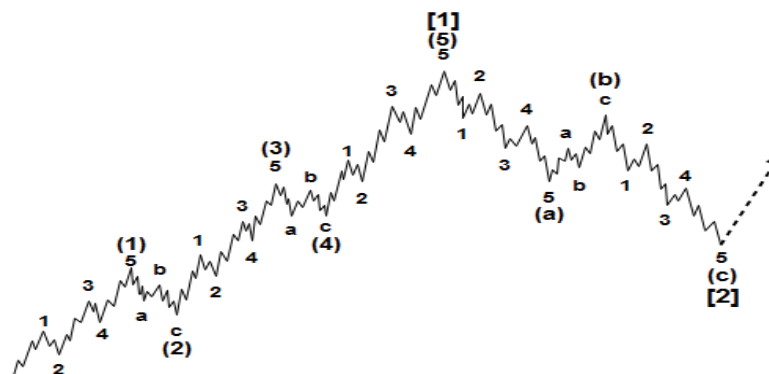


Figure 1. Theoretical model of waves in an up-trend (Source: adapted from Prechter and Frost, 1978)

Waves 1, 2, 3, 4, and 5 are all “minor” waves and form a large impulse sequence of “intermediate” degrees, labelled (1).

As in wave 1, which is a wave of a “minor” degree, the structure of the “intermediate” impulse wave, labelled (1), indicates two aspects. First, it predicts the beginning of a sequence of three corrective waves (a, b, and c waves of “minor” degrees) that will form a wave of “intermediate” degree, labeled (2). Second, it suggests that the wave of a higher degree will exist in an up-trend as the a “primary” wave labelled [1].

The waves (1), (2), (3), (4), and (5) are all “intermediate” degrees and form a larger impulse wave labeled [1]. Wave [1] of the “primary” degree, as described, anticipates both the formation of an impulse wave of a “cycle” degree in the up-trend and the formation of three corrective waves of “intermediate” degrees (a), (b), and (c), which form the wave labeled [2] of a “primary” degree.

It is important to note that at each peak of “wave one,” regardless of its degree, 1, (1), or [1], the implications are the same. The graph in Figure 1 only shows the construction of two of the five waves that will form the “cycle” waves [1] and [2] and does not show the formation of “minute,” “minuette,” or “subminuette” sub-waves.

For the corrective waves shown in Figure 1, the waves a, c, (a), and (c) are also impulse waves of lower degrees constituted by five sub-waves. This is because they move in the same direction of the next trend; that is, respectively, one of the waves, (2) or (4), are “intermediate” degrees, and [2] is a “primary” degree. Waves b and (b) are corrective waves composed of three sub-waves because they move against the wave of a higher degree, (2) and/or [2].

A simple distinction between impulse and corrective waves has been described; however, it is necessary to provide clarification for the two types of waves. For the impulse waves, Elliott defined “motive waves” as having two categories of waves: impulses and diagonal triangles.

The most common motive wave is an impulse wave, and the main rules to be observed when labeling a wave as an impulse are as follows:

- 1) Wave “two” never retraces more than 100% of wave “one” of the same degree.
- 2) Wave “three” is never the shortest among the impulse waves (1-3-5).
- 3) Wave “four” never enters the territory of wave “one,” except for highly liquid markets with a very high leverage, where this condition can occur in intraday observations.

The diagonal triangle is another motive wave model, but it is not an impulse wave, as it has one or two different characteristics. Diagonal triangles replace impulses in specific positions of a wave’s structure. As with impulses, the corrective sub-waves do not entirely retrace the previous impulse sub-waves, and the third sub-wave is never the shortest; however, the diagonal triangles are the only five wave structures in the direction of the main trend, where wave “four” typically overlaps wave “one.” In rare occasions, a diagonal triangle may end in a truncation.

There are two types of diagonal triangles: ending diagonal and leading diagonal.

An ending diagonal is a special type of wave that occurs primarily in the fifth wave when the previous wave has formed very quickly. Rarely, wave C, in a formation A B C, ends with this type of figure. In double or triple threes, they appear only at the end in wave “C.” In all cases, they are located in correspondence to the end points of the larger models, indicating the end of it.

The ending diagonals have wedge shapes, where each sub-wave, including those of the waves 1, 3, and 5, is divided into “three” and not “five” waves. An example of an ending diagonal is illustrated in Figure 2.

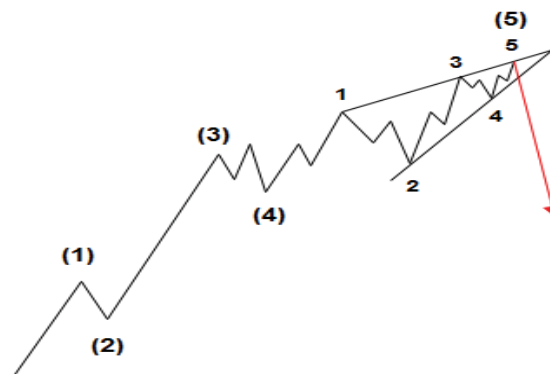


Figure 2. Theoretical model of an ending diagonal (Source: adapted from Prechter and Frost, 1978)

The leading diagonal is typically formed in the impulse wave “one” and in wave “A” in corrections. The characteristic overlapping of waves 1 and 4 and the convergence of the boundary lines of the wedge shape remain the same as the ending diagonal; however, the subdivisions are different, forming a 5-3-5-3-5 pattern (not 3-3-3-3-3), as in Figure 3.

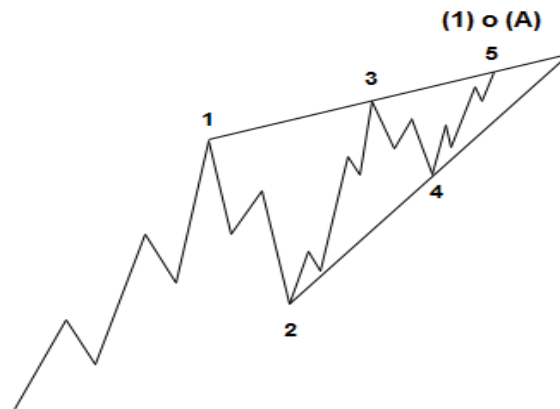


Figure 3. Theoretical model of a leading diagonal (Source: adapted from Prechter and Frost, 1978)

It is necessary to clarify certain aspects of corrective waves and to introduce rules to be observed when labeling them. Corrective waves are not as easy to identify as motive waves. For this reason, an analyst should pay more attention when the market is in a correction phase than when prices are in an impulse tendency. The most important rule, which was derived from studying various corrective patterns, is that corrections are never composed of five sub-waves. For this reason, an initial five-wave movement against the larger trend is never the end of a correction but only a part of it.

There are four categories of corrective models:

- 1) Zigzag (5-3-5; there are three types: single, double, and triple);
- 2) Flat (3-3-5; there are three types: regular, expanded, and running);
- 3) Triangles (3-3-3-3-3; there are four types: three varieties of contraction [ascending, descending, and symmetrical] and one variety of expansion [symmetrically inverse]);
- 4) Double threes and triple threes (combined structures).

One single zigzag in a bull market is a simple model of three bearish waves labeled A, B, and C. The sequence of the sub-wave is 5-3-5, and the upper part of wave B is significantly lower than the beginning of wave A, as shown in Figure 4.

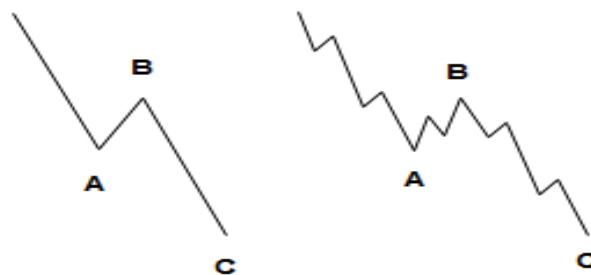


Figure 4. Theoretical model of a Zigzag (Source: adapted from Prechter and Frost, 1978)

A flat correction differs from a zigzag correction because the sequence of sub-waves is 3-3-5, as shown in Figure 5. In these cases, wave C generally only terminates very slightly beyond the end of wave A, unlike in the zigzags, where it ends significantly further.

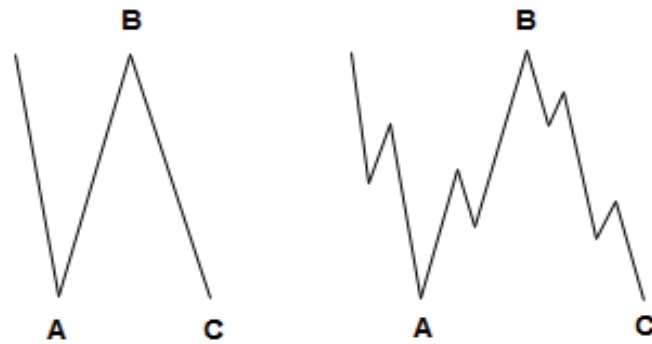


Figure 5. Theoretical model of a regular Flat (Source: adapted from Prechter and Frost, 1978)

The variety called “expanded” is much more common, which contains an extreme price beyond the price of the preceding impulse wave. In the expanded flat, wave B terminates beyond the starting level of wave A, and wave C ends beyond the end of wave A, as shown in Figure 6.

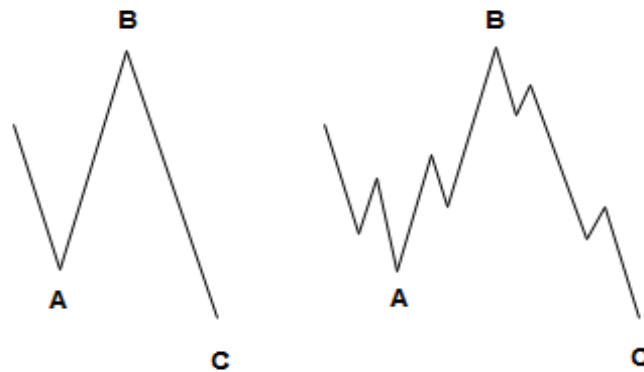


Figure 6. Theoretical model of an expanded flat (Source: adapted from Prechter and Frost, 1978)

A more atypical figure is the defined running flat, where wave B terminates far beyond the beginning of wave A, as in a flat expanded, but wave C is unable to cover the entire distance of A (Figure 7).

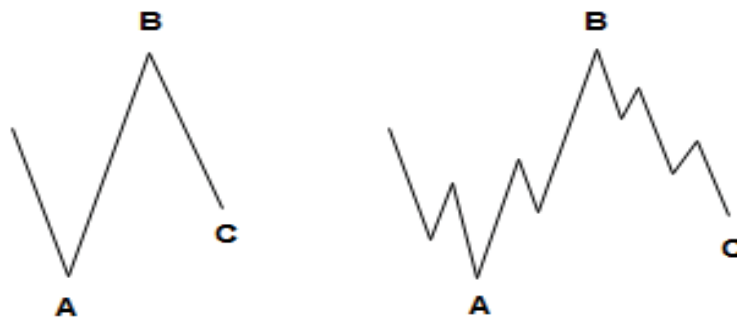


Figure 7. Theoretical model of a running flat (Source: adapted from Prechter and Frost, 1978)

The triangles reveal a balance of forces, producing a lateral movement that is usually associated with a decrease in volatility. The triangles contain five overlapping waves that are divided into 3-3-3-3-3 and are labeled a-b-c-d-e. A triangle is delimited, connecting the terminal points of waves A and C and B and D. There are two varieties of triangles: the contraction triangle and the expansion triangle. Within the range of contraction, there are three types: symmetrical, ascending, and descending. Furthermore, there are no variations in the expanding triangle (Figure 8).

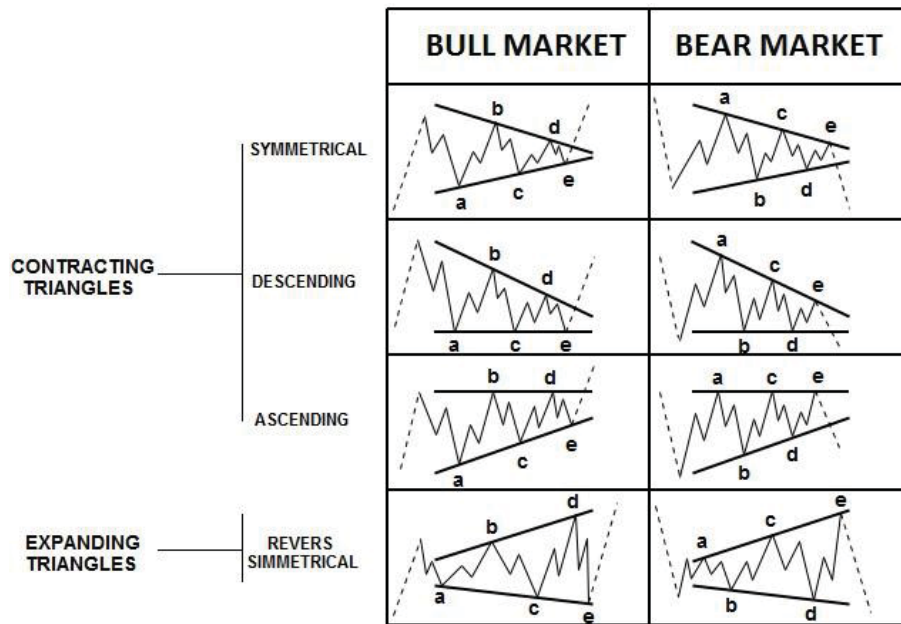


Figure 8. Theoretical model of a triangle (Source: adapted from Prechter and Frost, 1978)

Figure 8 shows the triangles defined within the area of the previous prices, which can be called “regular triangles”; however, it is extremely common in contraction for wave B of a triangle to exceed the beginning of wave A. In this case, a “running” triangle is observed, as shown in Figure 9.

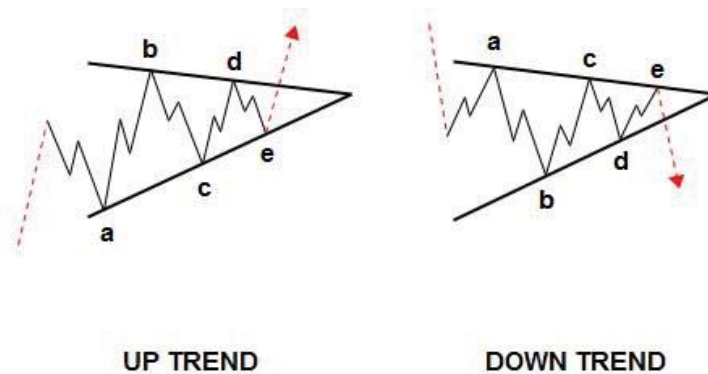


Figure 9. Theoretical model of a running triangle (Source: adapted from Prechter and Frost, 1978)

Triangles can usually be observed in positions that precede the last impulse wave of the higher degree model, or as wave four in an impulse, in wave B in an ABC, in wave X of a double or triple zigzag, or in a combination (double threes and triple threes). It is rare to observe their positions in a second wave of an impulse. In the stock market, when there is a triangle in the fourth wave, wave five will be an impulse or a fast-ending diagonal and will have a size similar to the distance of the widest part of the triangle. In highly liquid markets, it usually forms a fifth extended wave. If a fifth wave following a triangle goes beyond the distance measured from the two extremes of the triangle, is highly likely that it will form an extended wave. Often, at the point where the boundary lines of a contraction triangle reach an apex, it precisely coincides with a breakthrough in the market.

Elliot referred to the combinations of corrective patterns as “double threes” and “triple threes.” A single “three” is any zigzag or flat, whereas a triangle is an allowable final component of such combinations. In this context, it is also referred to as “three.”

A double or triple three is a combination of simple types of corrections composed of various types of zigzags, flats, and triangles. Their presence indicates that the market is moving sideways. Each simple corrective model (three) is labelled W, Y, and Z. The corrective waves within the combinations are labeled X. Though they may take the form of any correction model, they are typically zigzags. Figure 10 shows an example of a double three formed by a regular flat and a triangle.

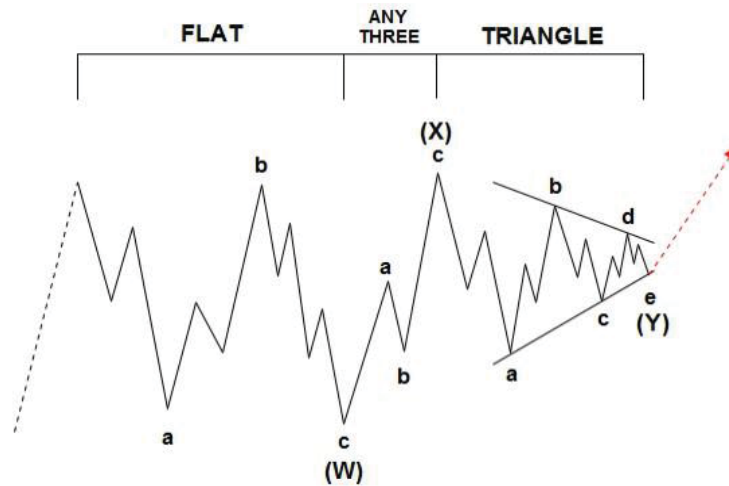


Figure 10. Theoretical model of a double three (Source: adapted from Prechter and Frost, 1978)

In addition to the essential rules that govern the labeling process of motive waves and corrective waves, it is necessary to introduce guidelines that can provide further assistance in identifying the waves.

The first guideline is represented by the extension. Most impulses contain what Elliott called “extensions.” Extensions are stretched impulses with several subdivisions. The majority of impulse waves contain an extension in one, and only one, of their three sub-waves (Figure 11).

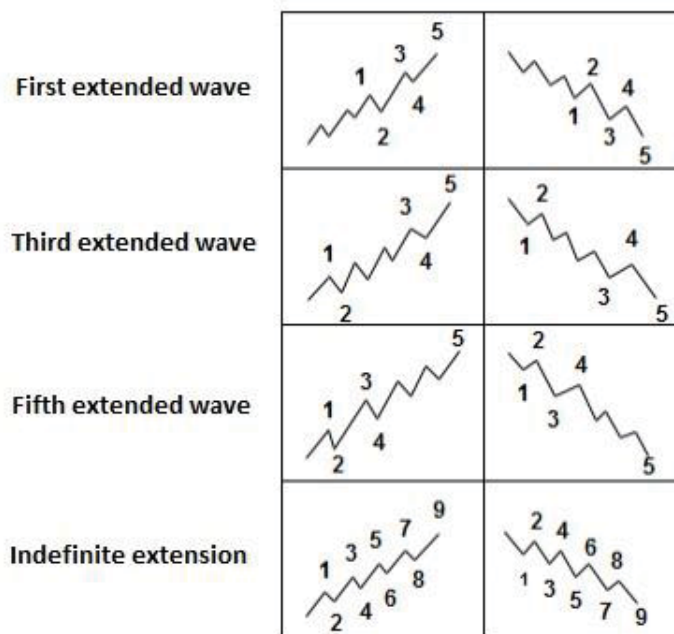


Figure 11. Theoretical model of an extension (Source: adapted from Prechter and Frost, 1978)

The second guideline involves truncation. Elliott used the term “truncation” to describe a situation where the fifth wave does not move passed the end of the third wave. Thus, a price pattern can be defined as a truncation only if the fifth wave contains the necessary five sub-waves (Figure 12). The truncation often occurs due to a strong third wave.

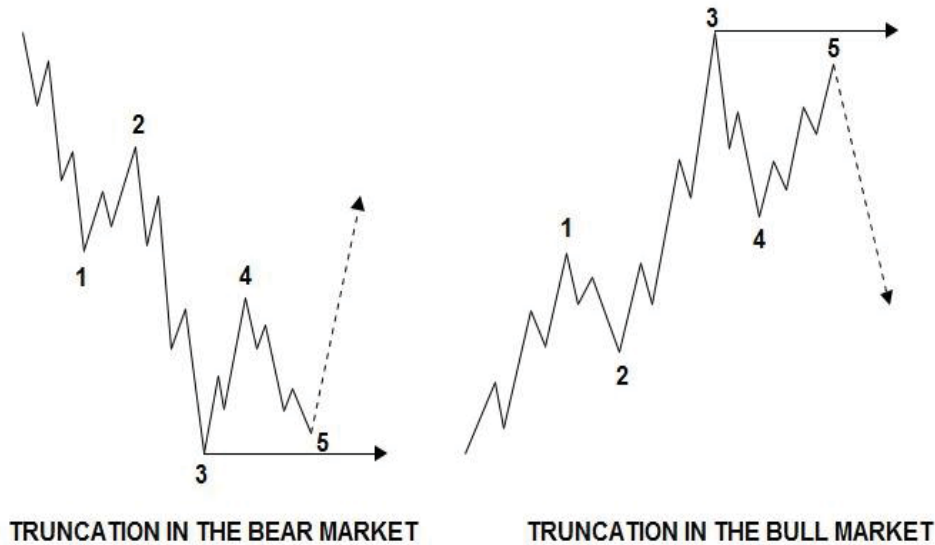


Figure 12. Theoretical models of truncation (Source: adapted from Prechter and Frost, 1978)

The alternation guideline, which provides an additional approach to labeling the waves, is of fundamental importance and informs the analyst regarding what not to expect from the formation of the next wave. This guideline instructs the analyst not to assume a repetitive behavior of the market. The alternation is manifested in both the impulse and the corrections. If wave 2 of an impulse is a sharp correction, wave 4 would move on the side, and vice versa. The sharp corrections do not make a new extreme price; that is, they do not go beyond the end of the previous impulse wave. They are almost always zigzag and only occasionally are double threes that begin with a zigzag. The side corrections are composed of flat triangles and double or triple threes and usually form a new extreme price, which is beyond the previous impulse wave's end (Figure 13).

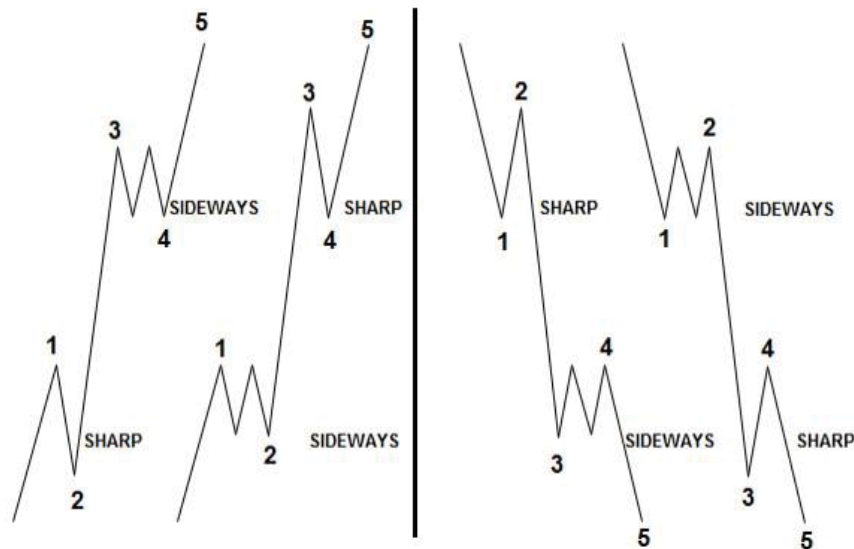


Figure 13. Theoretical model of an alternation in impulse waves (Source: adapted from Prechter and Frost, 1978)

For corrections, on the other hand, if a large correction begins with a flat (a b c) in the A wave, the B wave will almost certainly have a zigzag (a b c) (Figure 14), and vice versa.

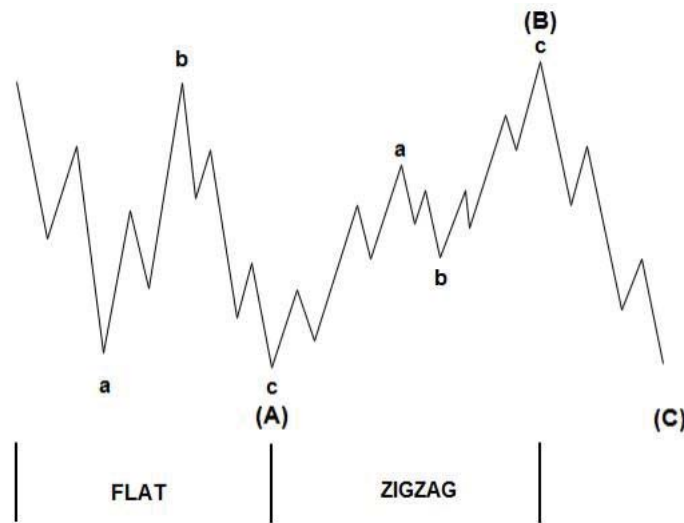


Figure 14. Theoretical model of an alternation in correction waves (Source: adapted from Prechter and Frost, 1978)

An additional guideline for corrections involves the maximum retracement that tends to be observed. The retracement does not go beyond the point registered by the fourth wave of a lower degree, especially when they are fourth waves (Figure 15).

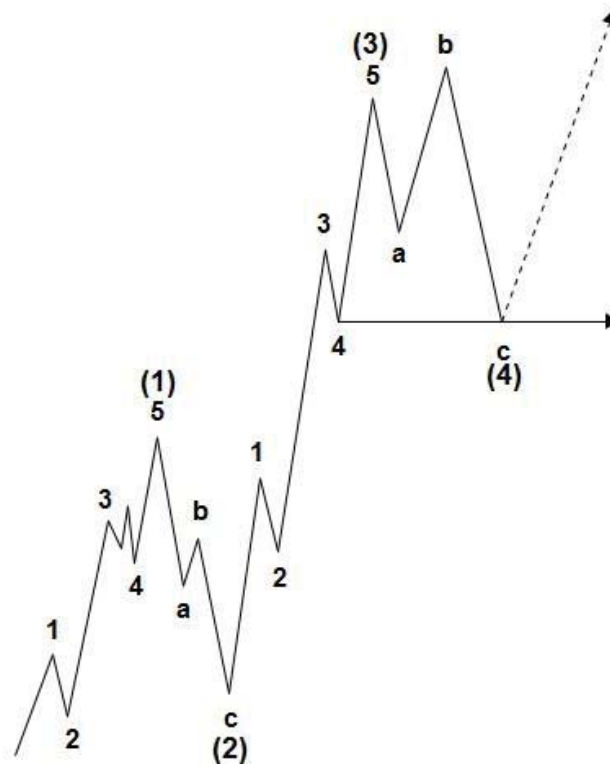


Figure 15. Theoretical model of retracement for the fourth waves (Source: adapted from Prechter and Frost, 1978)

Still, regarding the guidelines, it should be noted that when the fifth wave of an impulse is an extension, the resulting correction is often located at the level of support of the lower degree wave two of the previous extension, as shown on the left in Figure 16. On the right of Figure 16, there is an example of an expanded flat correction.

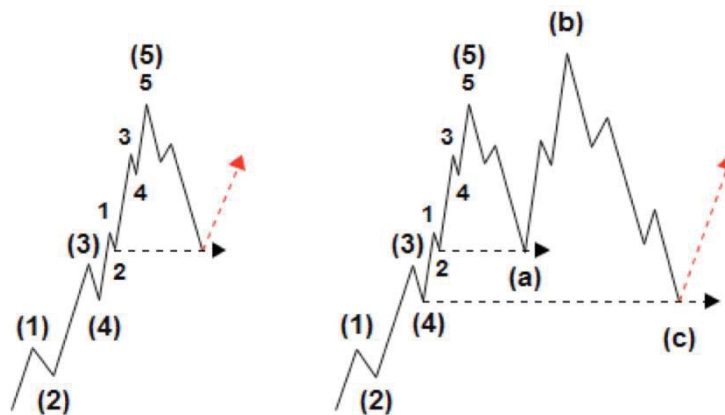


Figure 16. Theoretical model of retracement after the fifth waves (Source: adapted from Prechter and Frost, 1978)

Elliott noted that channels of parallel trends indicate the upper and lower limits of the impulse waves, often with considerable accuracy. They are useful in determining the objectives of the waves and in providing evidence about the future pattern. The technique used to identify the channel of an impulse wave requires at least three peaks. By connecting the points labeled 1 and 3 and then drawing a parallel line from the point labeled 2, as shown in Figure 17, the line provides an estimated limit for wave four.

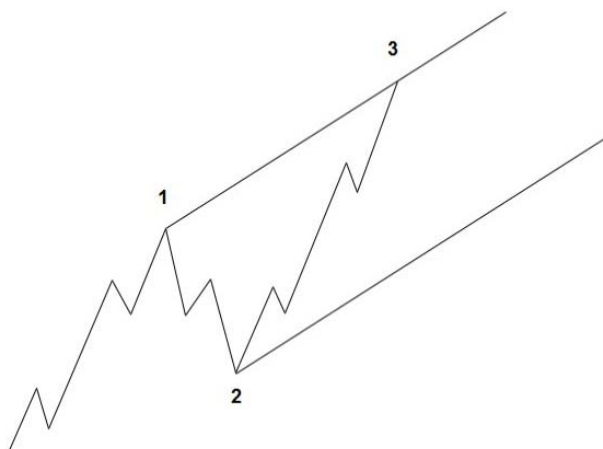


Figure 17. Theoretical model of a temporary channel (Source: adapted from Prechter and Frost, 1978)

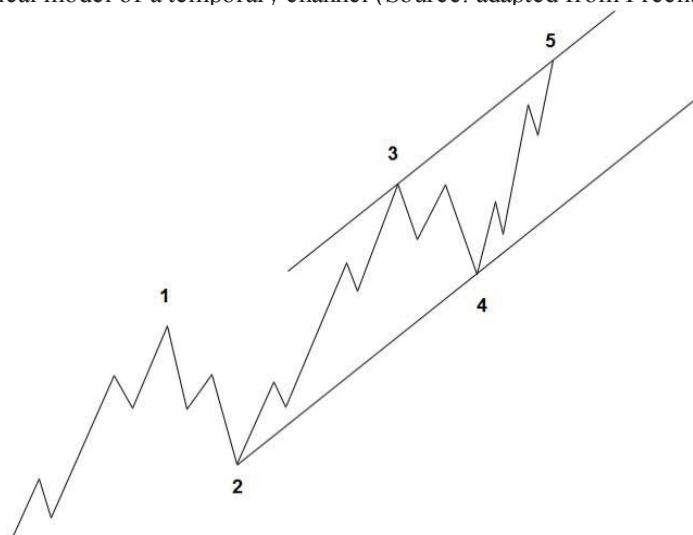


Figure 18. Theoretical model of a definitive channel (Source: adapted from Prechter and Frost, 1978)

If the fourth wave ends in a point that touches the parallel line, rebuilding the channel is necessary to estimate the movements of wave five. The channel should be drawn to connect with the end of waves 2 and 4, and if wave 1 and wave 3 are extended, the upper parallel must begin from the peak of wave 3 to more accurately predict the end of wave 5 (Figure 18); however, if wave 3 is extended and almost vertical, the upper parallel must begin from the top of wave 1.

The final and most important of the guidelines is the analysis of the Fibonacci ratio, which indicates the proportion between the different waves in time and extent. At the end of each bull phase, the size of the correction that follows will be determined (measured arithmetically or in percentage terms) based on the Fibonacci retracements.

There are two categories of relationships: retracements and multiples of motive waves and corrections.

As shown in Figure 19, extreme corrections often tend to retrace 61.8% or 50% of the previous wave, particularly when they occur in wave 2 of an impulse wave, in wave B of a larger zigzag, or in wave X of a double or triple zigzag.

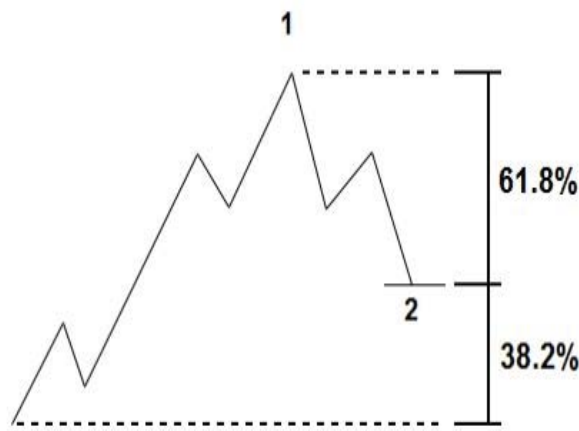


Figure 19. Theoretical model of the Fibonacci ratio in a zigzag correction (Source: adapted from Prechter and Frost, 1978)

The lateral corrections tend to retrace 38.2% of the previous impulse wave, especially when they are wave 4, as shown in Figure 20.

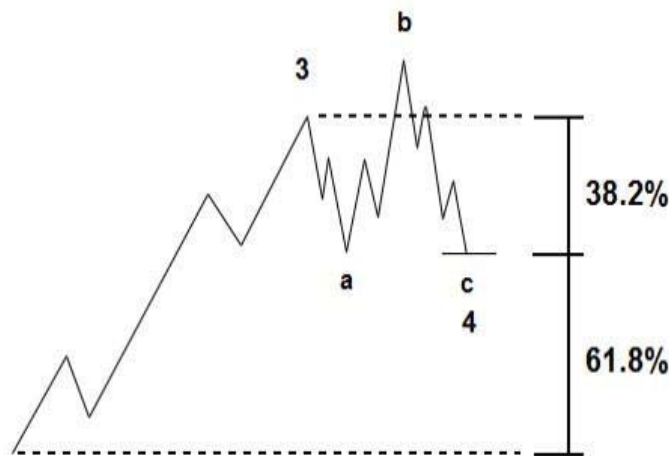


Figure 20. Theoretical model of the Fibonacci ratio in flat corrections (Source: adapted from Prechter and Frost, 1978)

Waves 1, 2, and 3 of an impulse tend to be related based on the Fibonacci mathematical, and these waves' relationships usually occur in percentage terms. When wave 3 is extended, waves 1 and 5 tend towards a 0.618 ratio, as shown in the first image to the left in Figure 21. Another typical development involves the length of wave 5. If wave 5 is extended, its magnitude will have a Fibonacci ratio of 1.618 times the length between wave

1 and wave 3, as shown in the middle image of Figure 21. When wave five is not extended, the relations that occur are 38.2% and 61.8%. In rare cases when wave 1 is extended, waves 3 and 4 will both have a magnitude equal to 61.8% of wave 1, as shown on the right in Figure 21.

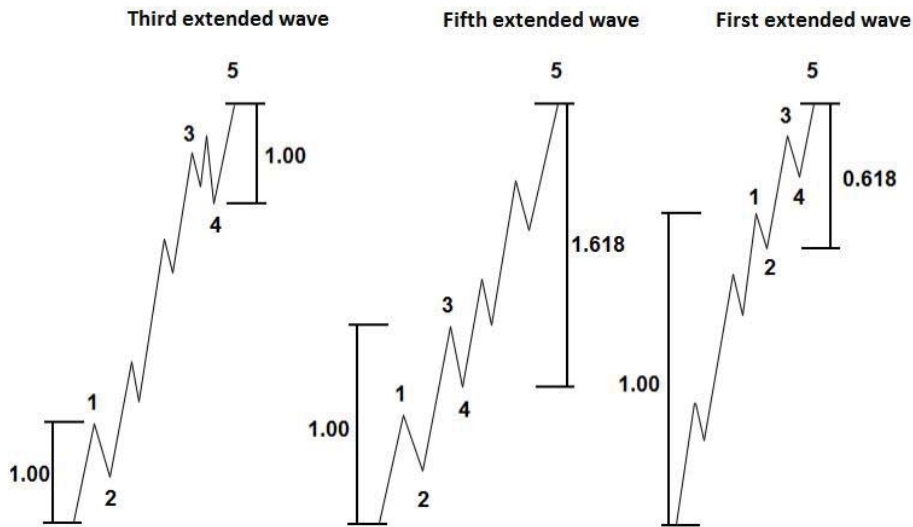


Figure 21. Theoretical models of the Fibonacci ratio in impulse waves (Source: adapted from Prechter and Frost, 1978)

There are additional examples. If the first wave is not extended, wave 4 often divides the price range of the impulse wave of a greater degree of which it is part according to a certain percentage of Fibonacci. In some cases, when wave 5 is not extended, the last part will be 38.2% of the total distance, as shown to the left in Figure 22, or 61.8%, as shown on the right in Figure 22. The point where wave 4 makes the retracement changes may be its beginning, its end, or the extreme point in a counter-trend.

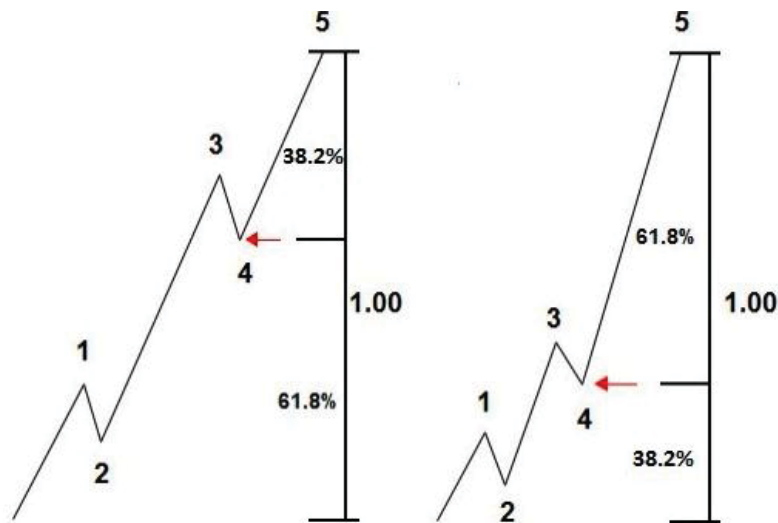


Figure 22. Other theoretical models of the Fibonacci ratio in impulse waves (Source: adapted from Prechter and Frost, 1978)

In a zigzag, the length of wave C is generally equal to that of wave A, as shown in Figure 23 to the left. Moreover, it is not unusual that wave C equals a target of 161.8% or 61.8% of the length of wave A. This same relationship is also true for the double three, as shown in Figure 23 to the right.

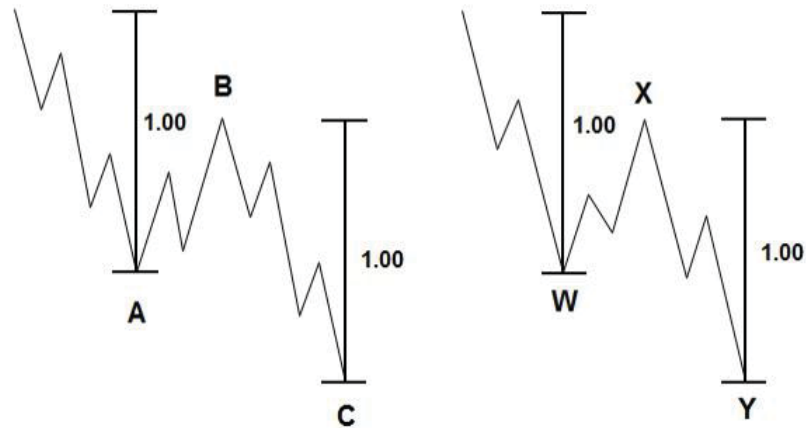


Figure 23. Theoretical model of the Fibonacci ratio in zigzag and double three corrections (Source: adapted from Prechter and Frost, 1978)

In a regular flat correction, waves A, B, and C are typically approximately equal, as shown to the left in Figure 24. In an expanded flat correction, wave C is often 1.618 times the length of wave A. Sometimes, wave C will end beyond the end of wave A at about 0.618 times the wave length of A. Both trends are illustrated on the right in Figure 24.

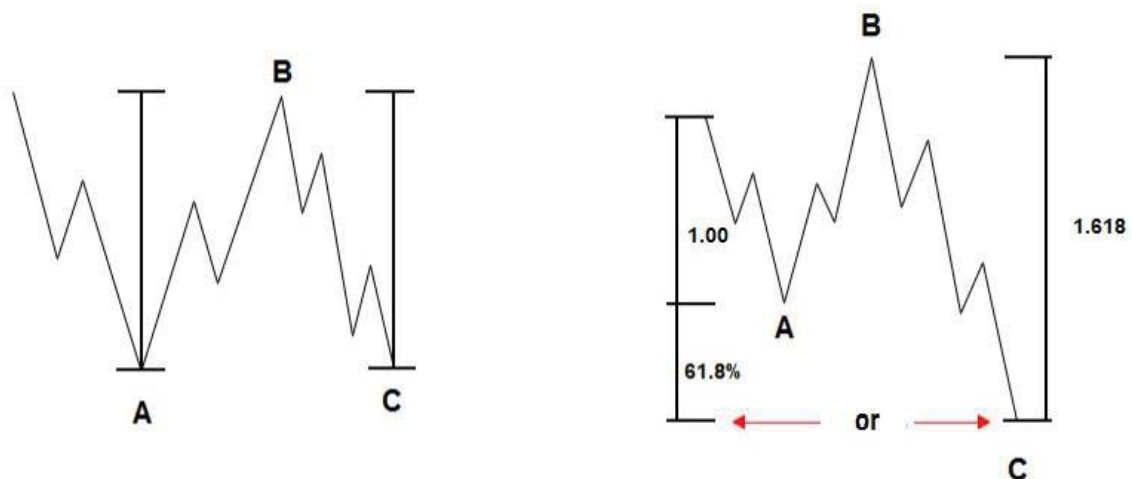


Figure 24. Theoretical model of a Fibonacci ratio in flat corrections (Source: adapted from Prechter and Frost, 1978)

In a triangle, at least two of the waves are alternately linked by the Fibonacci ratio of 61.8%. For example, wave “e” will be 61.8% of wave “c,” wave “c” will be 61.8% of wave “a,” or wave “d” will be 61.8% of wave “b.” In an expanding triangle, the previously identified multiple of 61.8% becomes 161.8%.

By observing the behavior of the Elliott waves and their extraordinary correlation with the Fibonacci numbers, it is evident that this feature is an accurate and beneficial approach to predicting future patterns of the market.

If all degrees of a trend move into the market at the same time, it is likely that the market will have several valid Fibonacci ratios. Consequently, the set of all valid points that follow the Fibonacci ratios will form a single turning point in a wave of a higher degree, which is also related to the Fibonacci ratio. Figure 25 illustrates an example to clarify this assertion. Analyzing the figure provides evidence of the complete formation of primary wave [1] in the course formation of primary wave [2]. Primary wave [2] is likely an expanded flat formed by wave (a) and wave (b), which measure 1,382 times, and wave (a) and wave (c), which measure 1,618 times wave (a). Observing wave (c) in the formation shows that at the point indicated by the arrow, there will be a change in the market because it is at that point that different ratios in different degrees of waves simultaneously occur. In other words, the point indicated as the “target” shows the wave [2] retracement over wave [1] of 61.8%, the amplitude of wave (c) of 161.8% of wave (a), and the wave amplitude of 5 equal to wave 1.

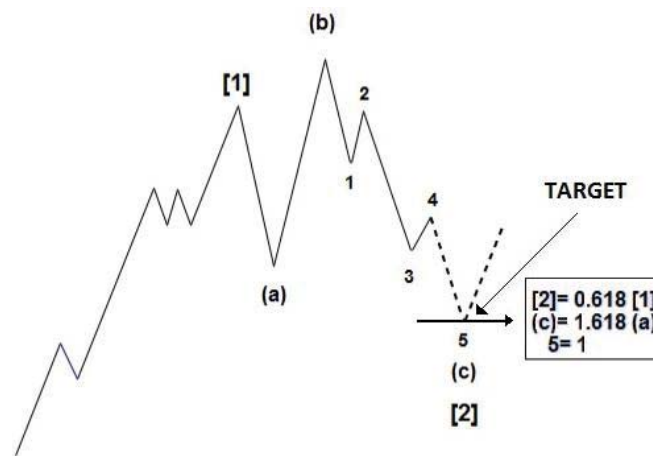


Figure 25. Theoretical model of the Fibonacci ratio in higher-degree waves (Source: adapted from Prechter and Frost, 1978)

Several studies have tested the Elliott waves theory with good results. Dharmaraj and Balaji (2011) used the triangle pattern analysis and thrust wave analysis to predict the market of commodities. They found that the wave theory was a useful tool in predicting gold and silver prices. Nurlana (2015) analyzed the same model using Black-Litterman as a framework for portfolio optimization. Atsalakis et al. (2011) used a neuro-fuzzy logic technique to forecast the trend of the stock prices, and the results derived were highly encouraging. The following section discusses the application of the methodology described to the currency market to verify the capability of the wave model introduced by Elliott to forecast the exchange rate between the euro and the United States dollar from 2009 to 2015. In addition, the pattern of the exchange rate from March 2017 is forecasted both for a preferred scenario and an alternative scenario.



Figure 26. Weekly euro/usd exchange rate, 2009-2017 (Source: Author’s processing)

3. Results and Discussion

In this section, the effectiveness of the Elliott waves theory in forecasting the currency exchange rate is demonstrated. The study was based on the euro/usd exchange rate in the years between 2009 and 2017. The

following graphs were generated using data and images taken from the ProRealTime trading platform.

In Figure 26, the formation of cycle grade wave A is shown. This wave is produced by the sub-waves [a], [b], and [c] of a lower grade (primary grade). The pattern meets the basic rules for labeling Elliott waves, as described in the previous section. In fact, wave [c] measures 100% of wave [a]. From 2015 to date, the market has been in a correction phase, which should lead to the formation of a cycle grade wave B, formed by a set of three primary sub-waves, such as by wave [a] (completed) and by waves [b] and [c] (in formation).

Figure 27 highlights both the formation of the primary waves [a], [b], and [c] that form wave A of a greater degree (cycle) as well as the formation of wave [a] (complete) and [b] (in formation), forming the cycle grade wave B. For the formation of wave A, there is wave [a], which is a zigzag formed by the sub-waves (a), (b), and (c) of an intermediate grade, and then wave [b], which is a running triangle formed by the sub-waves (a), (b), (c), (d), and (e), where wave (d) measures 61.8% of wave (b) and wave (e) 61.8% of wave (c). Finally, wave [c] is formed by the lower degree (intermediate) sub-waves (1), (2), (3), (4), and (5), where wave (3) is not the shortest wave, and wave (5) measures 38.2% of wave (1) at the end of wave (3) beginning from the end of wave (4). Moreover, the channel guidelines described in the previous section were met. In fact, the channel was obtained by connecting the ends of waves (2) and (4) and then by drawing the parallel line from the end of wave (3).

For wave B (in formation since 2015), on the other hand, there are waves (w), (x), and (y) of an intermediate degree that form a primary wave [a] (double three), where wave (y) measures 100% of wave (w). Consistent with section 2, the significance of the accuracy of the Fibonacci ratio is evident by observing the arrow in the graph. The exchange rate is currently forming wave [b] of a primary degree, with wave (a) of an intermediate grade already completed and wave (b) in the course of formation.



Figure 27. Daily euro/usd exchange rate, 2009-2017 (Source: Author’s processing)

In Figure 28, waves (w), (x), and (y), all of intermediate degrees, form a primary grade wave [a]. In turn, these waves are formed by three lower grade (minor) waves. In fact, wave (w) is formed by waves a, b, and c, where wave c is nearly 161.8% of wave a. Wave (x) is composed of waves w, x, and y, where wave y is slightly more than 161.8% of wave w, and wave (y) is formed by the sub-waves a, b, and c, where wave c measures 161.8% of wave a with extreme precision.

Since mid-May 2016, the market has been in the formation of wave [b], where the first sub-wave (a), formed in turn by the sub-waves a, b, and c, and wave c, which measures the 100% of wave a, seems to be completed.

Wave (b), on the other hand, is still in formation. Currently, it seems to be a running triangle, where wave d measures 61.8% of wave b, and wave e measures 61.8% of wave c. If so, there will be five minor waves in a down trend (1, 2, 3, 4, and 5), which will form an intermediate wave (c). In turn, wave (c) will complete the primary wave [b].



Figure 28. 4-hour euro/USD exchange rate, 2016-2017 (Source: Author’s processing)

As Elliott suggested when using the waves theory, analysts must always have two scenarios: a preferred and an alternative scenario. The latter is a useful tool as a backup plan for analysts if the assigned labels do not adhere to the principles and guidelines of the theory.

In Figure 29, the alternative scenario is shown. In this case, the preferred scenario and the alternative are equal to the formation of a cycle degree wave A, which is in turn formed by the primary degree waves [a], [b], and [c].

A different analysis begins in 2015, where minor degree waves w, x, and y, with wave y measuring slightly more than 100% of wave w, form an intermediate wave (a). Since mid-2016, the formation of minor degree waves w, x, and y (with wave y accurately measuring 161.8% of wave w) can be observed, which in turn form the intermediate wave (b) (December 2016). Therefore, according to the alternative scenario, the market will be in the beginning of a new phase of an impulsive up-trend that will form five minor degree waves (1, 2, 3, 4, and 5) that will generate an intermediate wave (c). Wave (c) will have three possible targets: 100%, 161.8%, or 261.8% of wave (a), which in turn will complete the primary degree wave [a].



Figure 29. Alternative scenario for daily euro/usd exchange rate, 2009-2017 (Source: Author’s processing)

4. Conclusion

Using the Elliott waves theory, it has been demonstrated that a clear prediction can be obtained for both the past and the future patterns of the exchange rate between the euro and the U.S. dollar. On May 7th, 2014, at the end of the formation of a running triangle that formed wave [b], as can be seen in the graph in Figure 27, it has been forecasted in advance that the descending pattern of the euro/usd will change from 1.40 to 1,046 on March 13th, 2015 (wave [c] in Figure 27). In fact, in addition to the descending starting point after the formation of the primary wave [b], which was in turn formed by the five sub-waves of lower degrees (a), (b), (c), (d), and (e), it was possible to forecast the potential target as well, as shown in the daily graph of Figure 27. The waves theory anticipated the formation of the primary wave [c], formed in turn by the sub-waves of intermediate degrees (1), (2), (3), (4), and (5). The final wave (5) of an intermediate grade, according to the Elliott model, should have ended at 1.041, which is 100% of wave [a], and is close to the value of 1.0460 reached on March 13th, 2015.

By analysing the formation of the waves as of March 20th, 2017, it was noted that since March 2015, the market has been in a considerable correction wave. In the preferred scenario, the change is expected to fall to 0.9930 or 0.9410, respectively 100% or 161.8% of wave (a), before ascending again; however, in the alternative scenario (Figure 29), the market will be in the formation of wave (c), and this wave has several potential targets (to be monitored by labeling waves in the lower time frame). The first is at 100% of wave (a), at 1.1470, and the second is at 161.8% of wave (a), at 1.2310; however, a third and less likely option could even be 261.8% of wave (a) at a value of 1.3970. If the alternative scenario is confirmed, after the completion of wave (c), the exchange rate between the euro/usd will be expected to descend again, forming 3 additional intermediate waves; however, the formation of a triangle was excluded.

This research has provided a substantial contribution to economic theory as well as to practice. The contribution to theory mainly includes empirical support for the Elliott waves model. The results show that the Elliott model has been a valuable tool in predicting the currency market for the period from 2009-2015 because the expectation for the mentioned pattern was fully confirmed by the actual pattern. A potential future pattern for the euro/usd exchange rate since March 2017 has been provided, which is the second primary contribution of the study. The practical implication of this second contribution is important, especially for traders and for firms that have suppliers or customers with whom they trade using different currencies, because in the preferred scenario,

the exchange rate is expected to fall at least to a value of 0,993 before ascending again. The primary limitation of the study is related to the future pattern because the forecast of the future pattern using the Elliott waves theory cannot be confirmed at this time.

Future research in the field could investigate the capability of the waves theory to forecast financial markets other than the currency market. For the equity market, for example, differences in forecasting prices could be tested using a fundamental analysis (such as the discounted cash flow model) and a technical analysis (such as the waves theory).

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Target Days versus Actual Days of Finished Goods Inventory in Fast Moving Consumer Goods

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Abstract

In a bid to maximize corporate profits, many multi-national corporations and even small medium enterprises create many products and place them on shelves at hypermarkets or supermarkets. We can observe an abundance of stock keeping units on shelves as well as observe a variety of such finished goods held by various fast moving consumer goods industries in the home appliance, beverage, canned food, clothes, soft-drinks, cordials and confectionery product ranges, just to name a few. From supplier, manufacturer, distributor, wholesaler and retailer, it appears that there is a constant flow of new products and stock keeping units held for these fast moving consumer goods. We can say that we humans are a rather wasteful species because a large proportion of products become obsolete or slow moving over time and organizations push products into the marketplace to gain competitive advantage and optimize profits. Hence, there is need to address this issue in the field of Supply Chain Management because resources on this planet are limited and we humans live in a very fragile planet. Yet, as population grows, we humans have become used to this over-abundance even though the resources within this planet are becoming more and more scarce. Consumption levels have increased with population growth and with capitalist thinking, virtually anybody can develop businesses that will create products to meet human needs. In the field of Supply Chain Management, managers set policies on when to order and how much to order and the average inventory that results from these inventory replenishment policies become targets. This paper attempts to compare target days of inventory with actual days of inventory held in warehouses for a single organization with many warehouses/ stock keeping units, in an attempt to understand further approaches that can be used to improve inventory waste within supply chains.

Keywords: average inventory, days cover policies, inventory control systems, order quantities, re-order points, safety stocks, stock in days, usage during lead time

1. Introduction

In the fast moving consumer goods (FMCG) industry, many stock keeping units (SKUs) are required to fill the increasing demand for products by humans. If we look at each and every product offered to consumers, many brands in different pack sizes are offered to consumers. These inventory held constitute a huge volume of working capital to organizations and many more end up as waste. In studies on food waste, for example, it was found that as much as around one third of all food produced for human consumption (equivalent to a staggering 1.3 billion tons), is lost or wasted annually, according to the United Nations Environment Program. Supermarket giant Tesco has indicated that it generated almost 30,000 tonnes of food waste in the first six months of 2013, of which, 41% was made up of bakery items and 21% from fruits and vegetables (Tesco, 2013). In addition, finished goods held on shelves may become slow moving over time. According to Ganeshan (1999), inventories can cost anywhere from 20% to 40% of inventory value a year so managing them in a scientific manner to maintain minimal levels makes economic sense.

1.1 Slow Moving Inventory

There are many reasons why inventory, in particular, finished goods, become slow moving or obsolete over time. Slow moving inventory are inventory that have slowed down in terms of demand. Solomon, Sandborn & Pecht (2000) found that a product could be classified as obsolete and slow moving when it is nearing the end of its product life cycle. The organization then attempts to significantly reduce design iterations, inventory expenses, sustainment costs, and overall life cycle product costs. Additionally, substitution of products or parts can

significantly and instantaneously reduce demand for specific items and lead to inventory obsolescence. According to Braglia, Grassi & Montanari (2004), slow moving and dead inventory items refers to a level of inventory which has either slowed down in demand and consumption or has never gone under the organization's pre-determined level in a given interval of time. Wintle and Patch (2003) have discussed that organizational policies, competing priorities, system support, and staff training have resulted in companies holding inappropriate quantities of slow-moving items. According to Romanies (2016), holding on to bad inventory for years without disposal or write off, will cost an organization investment opportunities, borrowing costs, storage costs, and management costs and it makes the financials look bad. Stock and Lambert (2009) indicated that the obsolescence cost is the difference between the original cost of the unit and its salvage value. Simchi-Levi, Kaminsky & Simchi-Levi (2009) indicated that obsolescence cost is derived from the risk that an item will lose some its value because of changes in the market. Damages and stock losses related to finished goods are easier to identify than obsolete or dead stock, and firms often focus on finished goods due to their identifiable high value and a higher risk of becoming obsolete. Hung (2000) indicated that policies exist within organizations where year-end accounting policies write off excess inventory as part of presenting a true and fair view of an organization's finances especially for year-end purposes.

As a Supply Chain Manager, two important decisions that need to be made in inventory management for FMCG items are to determine when to order and how much to order. If the Supply Chain Manager gets both these decisions right, product availability and an optimized inventory level will help the organization maximize sales as well as optimize working capital for the organization, therefore reducing inventory waste. Setting when to order and how much to order policies, will also allow the Supply Chain Manager to determine the target days of inventory not only at SKU level but also at group (categories) or total levels.

Table 1. How inventory is measured

	Description of inventory measure
Volume	Either in sales units, cases, pallets, container loads, weight, length or liters.
Value	Sales units multiplied by cost of goods sold or sales price for revenue earned.
Turns	Cost of goods sold / average inventory investment in raw materials, work-in-process & finished goods.
Cover	Inventory cover in seconds, minutes, <i>days</i> , weeks, months (usually days), usually determined as the current quantity in stock divided by the anticipated future daily rate of usage or sales.
Lead Times	Length of time taken to obtain or supply a requirement from the time a need is ascertained to the time the need is satisfied.
Service Levels	The actual service level attained in a period, usually the number of times an item is provided on demand over the number of times the item has been demanded.
Stock-outs	Expressed as a percentage of demand not met within the total stock population during a given period.

Besides value and volume of inventory, the most common measure of inventory is days cover (Table 1) of inventory in finished goods, sub-assemblies, components or raw material. According to King and King (2015), days cover is widely used because it relates directly to lead time. It allows Supply Chain Managers to decide if inventories are appropriately sized to satisfy the reason for having inventory at that spot in the process. Supply Chain Managers in a bid to reduce the complexity of managing many SKUs, resort to some form of classifying inventory into categories of inventory, hence, inventory replenishment rules can be set for a smaller range of products as opposed to determining the related replenishment levels at each SKU level.

Once days of inventory are established as a target for SKUs or inventory categories or as a total, Supply Chain Managers can compare actual days of inventory with target days, but the task of doing this can be quite complex as there are specific calculations to be routinely done. With the use of Excel spreadsheets, simpler tasks for project management and routine calculations can be determined (Kidman, 2011). For manufacturers whose business models are based on rapid product lifecycles and speed, legacy Enterprise Resource Planning (ERP) systems are used but these can be a bottleneck. Legacy ERP systems are designed for transactional data and delivering order shipment, but these systems aren't capable of scaling to meet the challenges supply chains face today. Hence, the issue of managing large databases of data, particularly 'big data' remains a challenge for Supply Chain Managers today (White, 2014). According to SCM World's latest Chief Supply Chain Officer Report, 64% of supply chain executives consider big data analytics a disruptive but important technology, setting the foundation for long-term change management in their organizations (Columbus, 2015).

1.2 Problem Statement

With economic slowdown a global reality, companies are increasing their efforts to reduce capital requirements

and find operating efficiencies (Wintle & Patch, 2003). It is no longer grow at any cost but the cost of generating sales, more specifically return on assets (ROA) with return on investment (ROI) carrying significant weight. As part of the overall effort to become more efficient and compete in tough economic conditions, organizations need to review their approach to inventory management for significant and short-term results. Hence, the discussion on the problem statement in this research looks specifically at how inventory is measured and how we can attempt to reduce inventory held to minimize inventory waste. There has been more emphasis within various industries to improve days cover or inventory turnover performance in make to order versus make for stock environments and the evidence suggests that there is much scope to improve days cover or inventory turnover in make for stock environments.

1.3 Higher Inventory Turnover (or Days of Inventory) in Make to Order versus Make for Stock Environments

We can note from the literature that generally, two types of mutually supportive concepts exist for lean (make for stock) and agile (make to order) manufacturing. Lean manufacturing is appropriate when market conditions are basically stable, demand is smooth and standard products are produced, whereas agile manufacturing is appropriate when the environment is more turbulent and more product variety is present (Vazquez-Bustelo, Avella & Fernandez, 2007). We can note that in make to order (Just-in-time or JIT) environments, many variables have been researched to determine relationships between JIT manufacturing practices and performance outcomes (Mackelprang & Nair, 2010). Table 2 shows such variables.

Table 2. Variables to determine relationships between JIT manufacturing practices and performance outcomes

Variables used in make to order environments			
Set-up time reduction	Multi-function workers	Repetitive master schedule	Kanbanpull system
Small lot sizes	Small-group problem solving	Preventive maintenance	MRP adoption to JIT
JIT deliveries from supplier	Training	Equipment layout	Accounting adaption to JIT
Supplier quality levels	Daily schedule adherence	Product design simplicity	

Note. MRP = Material Requirement Planning

However, in make for stock environments, product availability has become the number one priority and in such an environment of high product availability, the probability of waste in the form of obsolete inventory held in warehouses is generally high as outdated values are perceived to be high especially for fresh food (Mertens, 2013). In addition, attempting to push inventory through the distribution network, customer service has become the number one objective with attempts to reduce cost coming a close second. In a study conducted in the US (Table 3), inventory related importance tend to focus on stock-outs, cash flow, inventory turns, lead times, fill rates whereas inventory obsolescence ranked a distant sixth (Fraser & Brandel, 2007).

Table 3. Ranking of inventory management objective in US study (Fraser & Brandel, 2007)

Inventory management objective	Ranking
Stock-outs	1
cash flow	2
inventory turns	3
lead times	4
fill rates	5
Inventory obsolescence	6

In another study by Eroglu and Hofer (2011), 54 manufacturing companies in the US showed that the shape of inventory-performance relationship varies considerably across industries. Eroglu and Hofer (2011) began their studies by stating that limited evidence exists for inventory leanness leading to improved firm performance. The Japanese experience of JIT production has shown that there are benefits associated with efforts to reduce inventory lead time and the associated inventory cost (Pan & Yang, 2000). However, not all products can apply the JIT-in-time strategy because consumers of fast moving consumer goods expect the product to be on the shelf at the time of purchase.

1.4 Evidence Supports Inventory Turnover Performance is Significantly Poorer in Make for Stock Environment

In studies by Niu (2013), it was made known that Apple Inc. had the best supply chain in the world for 4 straight years (Figure1).

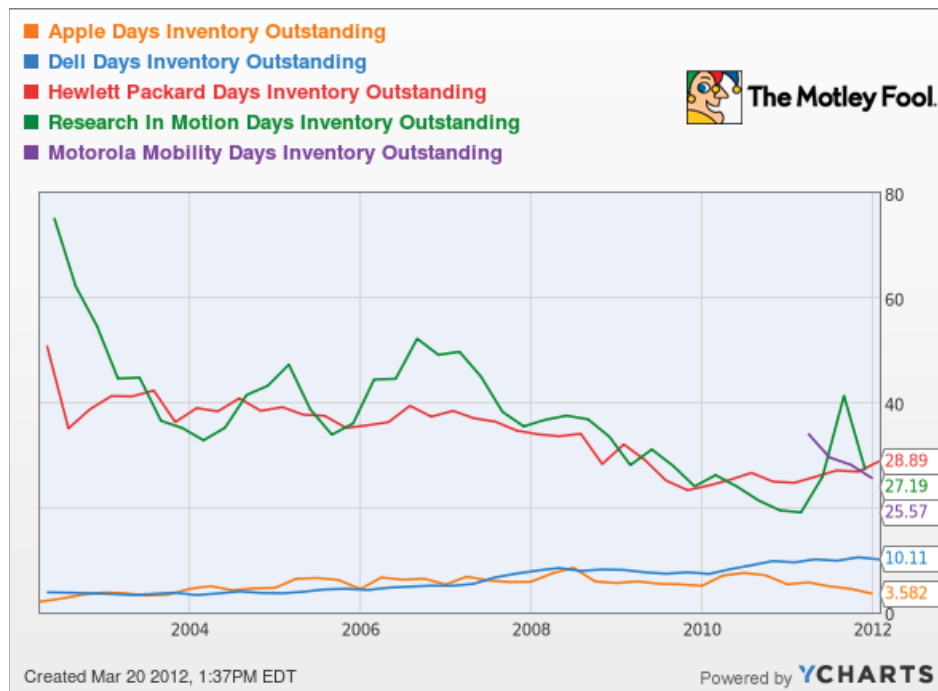


Figure 1. Comparison of inventory Turnover and Days of Inventory (2002-2012)

In Figure 1, we can note that the measures reflect reduced inventory in make to order industries for laptops, smartphones and electronic products, whereas there is much scope for improvements in inventory performance in make for stock industries.

Table 4. Inventory turnover in leading organizations

Inventory turnover in organizations			
Make to order organizations		Make for stock organizations	
Dell Computer	90	Coca-Cola	14
Nissan	150	Home Depot	5
McDonalds	112	Anheuser Busch	15
		Johnson Controls	22

Table 4 shows that organizations that are in make to order environments tend to move their inventory faster than those in make for stock organizations (Heizer & Render, 2017). Based on comparisons of inventory turnover between these organizations, we can note that there is significantly more inventory in make for stock compared to make to order environments. The main reason for this as explained earlier is that inventory related importance among companies tend to focus on product availability as a main objective (Fraser & Brandel, 2007) because consumers will not wait for the product when they attempt to make a purchase. Consumers in make to order environments may wait for products after an order has been made, for example in laptop assembly or car manufacture. An exception could be true in the case of McDonalds, where customers are able to wait just long enough in the queue from order of product to receiving the product during drive-ins, in particular.

2. Literature Review

The literature review for the area of study attempts to introduce the fast moving consumer goods industry and the scope of inventory held within warehouses in the FMCG business for make for stock type business. This then leads to the literature involving inventory categorization (or classification) which then leads to how inventory categories are used to determine target days of inventory to be compared with actual days of inventory (Stock In Days or SID) held. The mathematical models of inventory management, in particular, those that decide when to order and how much to order are looked at, as these directly impact the amount of days inventory is held in a business. Inventory control systems using fixed order period systems and fixed quantity review system and the calculation of safety stock using desired service levels will also be reviewed to determine when to order. How much to order using days cover policies as well as the economic order quantity (EOQ) and production order quantity (POQ) models will be researched as order quantities form a main part of how much inventory is held. It can be deduced that the bigger the order quantity, the higher the average inventory held.

2.1 Inventory Performance and Days of Inventory

In the study by Oliva and Watson (2011), days of inventory performance was used as a performance measure of operational effectiveness. Actual days of inventory for this study uses the formula:

$$\text{End period inventory in sales units/ sales units ordered annually multiplied by 365 days} \quad (1)$$

Formula (1) is used to determine days of inventory of finished goods for the fast moving consumer goods business held in warehouses. In financial accounting, the measure of days in inventory (or average turnover period, or days of inventory held) carries the same information as the inventory turns measure (Business Encyclopedia, 2016). Whereas turns is a rate, the SID measure expresses the same information as a number of days per turn. In preparing year-end accounts, analysts usually use 365 days while some analysts prefer 360 and use sales revenue or cost of goods sold divided by average inventory held to determine inventory turnover. However, in this study, the end period sales units divided by the sales units ordered annually is used and obsolete inventory for such businesses will impact days of inventory which impacts warehouse space and working capital if inventory is not carefully managed. To continue with the literature on days of inventory, we need to review literature on inventory control systems and mathematical models used in inventory and how re-order points and order quantities are determined that will impact days of inventory held.

2.2 Inventory Control Systems

The managerial procedure for implementing an inventory policy is inventory control. The accountability of control measures units at a specific location and tracks additions and deletions (Bowersox, Closs & Bixby Cooper, 2010). Inventory is held for a variety of reasons and these could be due to unexpected changes in customer demand, the presence of many situations of a significant uncertainty, lead times or economies of scale offered by transportation companies (Simchi-Levi et al, 2009). Hence, Longo and Mirabelli (2008) suggested the use of a decision making tool and compared the effects of demand versus inventory control policies, lead times, customer's demand intensity and variability in an advanced supply chain management tool based on modeling and simulation. Hence, when inventory is held, inventory control systems are used to control the level of inventory and for the fast-moving consumer goods industry, inventory control systems are usually favored.

2.3 Mathematical Models Used in Inventory

The literature states that there are common models that can be found to determine:

- When to order? – the Re-order point (sometimes called the Re-order level or R)
- How much to order? – the quantity to be ordered (or Q).

These questions will help a Supply Chain Manager to determine the right level of inventory to be held to ensure optimized working capital held in relation to the desired customer service levels required by the market. Knowing when to order and how much to order is determined using inventory control systems. Inventory control systems can be illustrated below using Figure 2 (Krajewski, Ritzman & Malhotra, 2010).

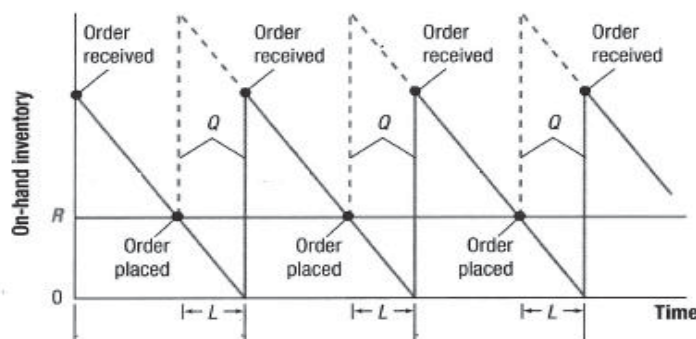


Figure 2. Inventory control system (demand and lead time constant)

Note. L = Lead time; R = Re-order level; Q = Quantity

When inventory reaches a user defined re-order point or level (R), an order (Q) is placed periodically. In the real world today, consistency of demand happens less frequently and so inventory control systems that cater for inconsistent demand have been developed, two of which use the following methods:

- Fixed quantity review system (also called continuous review policy), and

- Fixed period order system (also called periodic review method)

2.4 Fixed Quantity Review System

When demand is uncertain and not constant, the time between orders (TBO) is illustrated in Figure 3 (Krajewski et al, 2010). TBO is not consistent between products and an organization may choose this type of inventory control system and calculate replenishment order quantities based on target days or batch sizes and fix the order quantity over the review period. Simchi-Levi and Kaminsky (2008) suggested that categories of inventory with higher order volume should have a high-frequency continuous review policy (e.g. daily or weekly review) whereas categories with lower order volume should be reviewed using the periodic review method (e.g. monthly or longer).

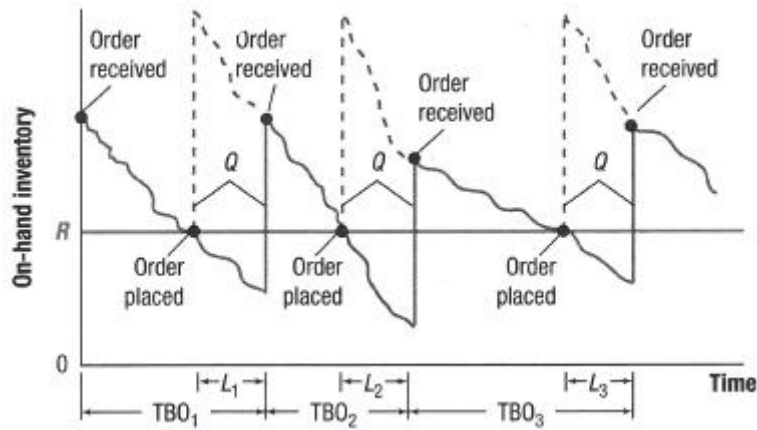


Figure 3. Fixed quantity review system (continuous review)

Note. TBO = Time between orders

2.5 Fixed Period Order System

In the fixed period order system, the on-hand inventory is reviewed periodically (usually end-of-month) and could be used for demand that can be lumped periodically for bulk purchases. Quantities (Q) ordered are not fixed but the review period (P) is fixed as per Figure 4 (Heizer & Render, 2017).

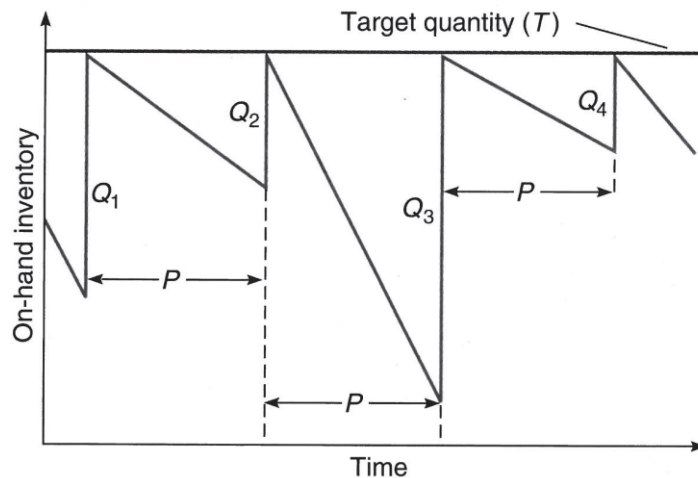


Figure 4. Fixed-period order system

Note. P = Review period

2.6 Determining the Re-order Point

Reid and Sanders (2010) wrote that not all items in the company’s inventory are equal and do not need the same level of control. Krajewski et al (2010) wrote that in order to determine when the re-order point is during the lead

time, the usage during the lead time is determined. Daily usage during the lead time can be firstly determined by dividing annual demand by 365 days. 365 days is used instead of working days (usually about 250 days) because financial statements use 365 days in the determination of days of inventory, irrespective of actual days worked and this is a standard measure in the field of accounting although some analysts prefer 360 days (Business Encyclopedia, 2016). Daily usage is then multiplied by the lead time days to determine R. However, when demand is uncertain, safety stocks are needed to cover fluctuation in demand.

2.7 Calculating Safety Stocks Using Desired Service Levels

If no demand fluctuation exists, we can determine R (or the re-order point) to re-order an item, as the daily average usage multiplied by the lead time in days. In a study, Beamon (1998) looked at setting of safety stock levels using single echelon approximations of lead time, demand and supply variation to achieve a desired inventory performance.

According to Heizer and Render (2017), if the demand fluctuates and a desired service level of say 90% (or higher) is required, we can use normal distribution tables to determine the Z-score, thus applying :-

Re-Order Point = Average demand during the lead time + Z-score multiplied by the standard deviation (σ) of the data distribution (2)

The Z-score helps determine a single number that can be applied to the standard deviation (Render, Stair Jr., Hanna & Hale, 2013) to determine the probability of meeting fluctuating demand.

The standard deviation of the sampling distribution will equal the population standard deviation divided by the square root of the sample size (n).

$$\sigma_{\bar{x}} = \frac{\sigma_x}{\sqrt{n}}$$

$\sigma_{\bar{x}}$ is the standard deviation of 'x' number of samples (3)

2.8 How Much to Order?

In the inventory control system model (Figures 3 and 4), Q is the quantity to order. Several approaches can be made to determine the quantity to order.

- Q determined is based on days cover policies
- Economic Order Quantity model
- Production Order Quantity model

2.9 Order Quantity Determined Using Days Cover Policies

This is a general rule of thumb policy that uses days cover policies to determine how much to order. Organizations may order a month's inventory at a time, simply because they pay their creditors monthly payments. This can be considered a weak policy because the Q ordered will determine the average level of inventory held (Figure 5).

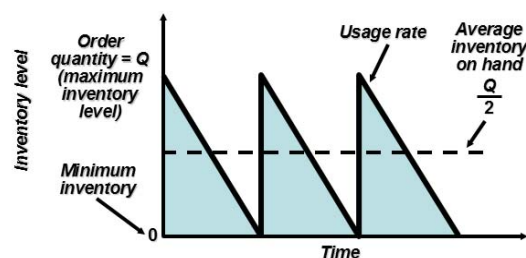


Figure 5. Average inventory is Q ordered divided by 2

When quantities are ordered, average inventory held is determined by the formula:

$$\text{Average Inventory (or target inventory held)} = Q/2 \quad (4)$$

Q/2, or the midpoint between the time inventory arrives and the time it depletes to zero (if no safety stocks are held) will result in a 2-week inventory held if 4 weeks of inventory is ordered. In many JIT environments, only a

few days of inventory is held (for example, Toyota keeps 2-3 days of inventory and Dell keeps about 4-5 days of inventory) whereas in FMCG industries, quantities ordered based on categories may be set at lower days replenishment for items with higher volume as opposed to higher days replenishment for items with lower volume.

2.10 Economic Order Quantity (EOQ)

Harris (1915) developed the EOQ model that attempted to equate holding costs and ordering costs. EOQ uses the formula where EOQ is the square root of $2DxS/IC$, where D =annual demand, S =setup or ordering costs and I =the holding cost, as a fraction of standard cost (C) of the product. From Figure 6, we can gather that ordering costs tend to increase as we order more frequently. Additionally, the bigger the quantity ordered, the higher the average inventory will be held, since average inventory is determined as Q divided by 2. Hence, the most economical order quantity occurs when holding costs equate with ordering costs (Heizer & Render, 2017).

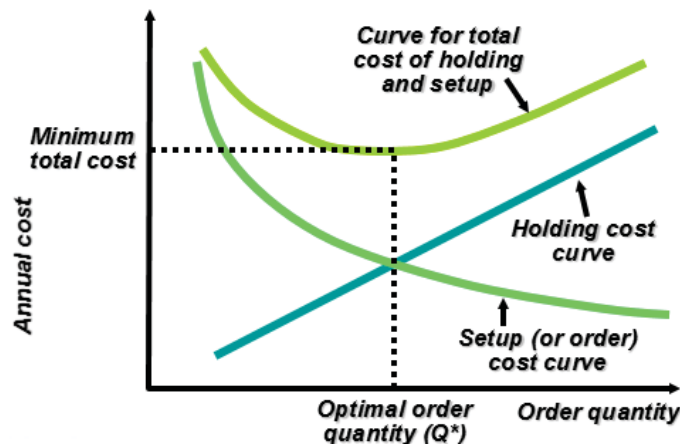


Figure 6. Economic Order Quantity (EOQ) model

EOQ is excellent for use when demand is consistent and stable. Hence, it could be used for replenishment of shelf stock (in a department store) and for re-ordering medical supplies (in a hospital). However, the EOQ model has its limitations, because it assumes that demand is constant throughout the year. In real life, this is hardly so, but some products, example pharmaceutical products purchased monthly by patients undergoing various treatments may exhibit consistent monthly demand patterns.

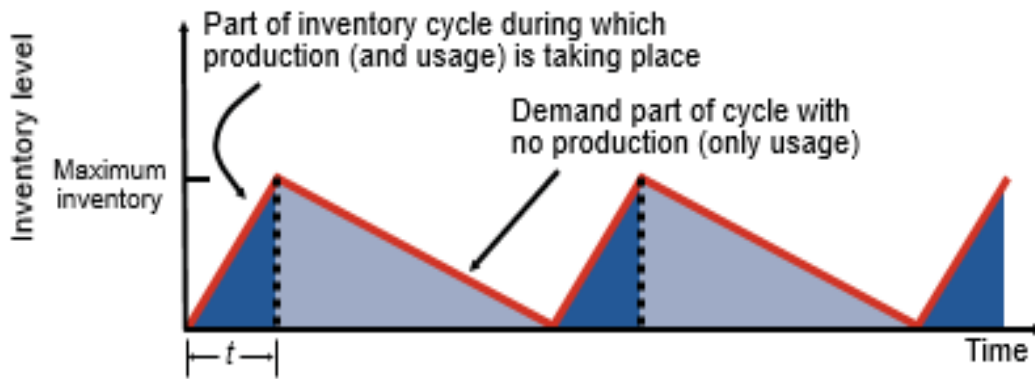


Figure 7. Production order quantity

2.11 Production Order Quantity (POQ)

The POQ model is a variation of the EOQ model and is used when units are produced and sold simultaneously. The EOQ model was criticized (Tersine et al, 1999) as the EOQ calculation was considered inappropriate for determination of lot sizes for in-house production. Therefore, holding costs are marginally lower as units produced and sold offset each other by daily production and daily demand (Figure 7). The EOQ formula is thus adjusted to reflect this where the square root of $2DxS/IC$ now becomes the square root of $2DxS/IC (1-d/p)$ where d =daily demand and p =daily production (Heizer & Render, 2017).

2.12 How Much to Order Determines Average Inventory Held

Earlier, we mentioned that Q divided by 2 provides us with average inventory held. However, when safety stocks are held, we can determine average (or target) inventory held as:

$$\text{Safety stocks} + Q \text{ ordered}/2 \tag{5}$$

On average, the level of inventory held based on user defined policies will be the level of safety stock and a point between the minimum and maximum of Q (or Q/2).

This then becomes the target inventory and the number of days to be held and the value of the inventory can be calculated. Safety stocks can be set arbitrarily at 2 weeks and set this way when standard deviation data is not readily available. When replenishment policies involving the amount of safety stock to be held are not reviewed regularly, an organization can be out of stock or hold excess inventory.

2.13 Inventory Categorization

Inventory categorization attempts to classify inventory into categories. The most common unit of measure used in inventory categorization is order volume and order volume is measured in either sales units, cases, pallets, container loads, weight, length or liters. This study uses:

Order volume as number of orders in sales units received in a year (where d are orders received daily and $\sum d$ is the sum of all orders for a stock keeping unit (SKU) during a year) (6)

A popular way of categorizing inventory (Reid & Sanders, 2010), is to classify volume of sales units by SKUs received into ABC categories (Figure 8).

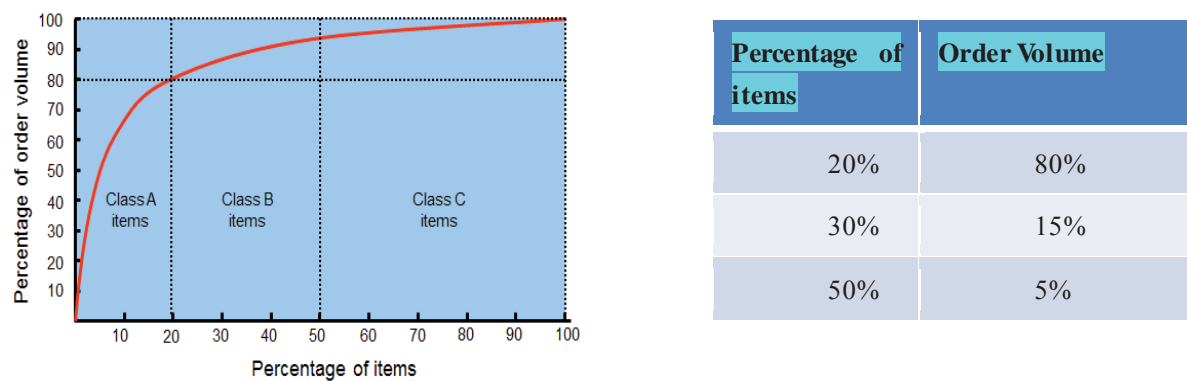


Figure 8. ABC classification of inventory, based on the order volume

Usually, as inventory is classified in groups called ABC groupings, Supply Chain Managers attempt to categorize the many number of SKUs into a few categories, so that common replenishment rules can be applied to the few categories.

2.14 Determining Target Days of Inventory Held Using ABC Analysis

We can demonstrate how inventory categories are used to determine target days of inventory held. For example, if we use A=0 to 80%, B=81 to 95% and C=96 to 100%, we can determine ABC categories based on order volume as per Table 5.

Table 5. How ABC categories are developed

No	Inventory items	Order Volume	Cumulative volume	Cumulative percentage	Grade
1	SKU1	50	50	50/100*100=50.00%	A
2	SKU2	30	80	80/100*100=80.00%	A
3	SKU3	9	89	89/100*100=89.00%	B
4	SKU4	5	94	94/100*100=94.00%	B
5	SKU5	3	97	97/100*100=97.00%	C
6	SKU6	2	99	99/100*100=99.00%	C
7	SKU7	1	100	100/100*100=100.00%	C
	Total	100			

Hence, we can determine target days of inventory as per the method below. We begin by looking at average withdrawal rate per day for each ABC category of inventory (Table 6).

Table 6. Average withdrawal rate per day for ABC categories

Categories	Average withdrawal rate
A	80 units a day
B	14 units a day
C	6 units a day
Total	100 units a day

Supply Chain Managers may then set days cover policies for each category as per the parameters set (Table 7).

Table 7. Setting of re-order points (ROP) and order quantities (Q) days cover using inventory categories

Category	ROP (days)	Q (days)	ROP (units)	Q (units)
A	7	14	560	1120
B	14	28	210	420
C	28	84	140	420
Total			910	1960

The ROP is usually set based on days of lead time to obtain supplies plus safety stock (in days), usually to cover fluctuations in demand. According to Randall, Nowicki & Kulkarni (2016), the perfect formula for determining the right amount of inventory (also called the Science of theoretical minimums) helps Supply Chain Managers to minimize the level of inventory to optimize customer service, as both working level targets and customer service are conflicting in nature. Randall et al (2016) explain that lead time is the physical lead time and informational lead time. Informational lead time can be shortened through the use of technology and IT systems, so usage during the physical lead time and inventory to cover fluctuations in demand can help determine the re-order point for inventory items. Hence, in Theoretical Minimum Modelling (TMM), we can say that the re-order point will be:

Usage during the lead time (lead time in days multiplied by average daily usage) plus safety stocks (to cover the probability of meeting a percentage of total demand, usually about 95% at least) (7)

Using the data in Tables 5 and 6, we can derive average inventory (or $Q/2$), as calculated as $1960/2 = 980$ units and in terms of days this is 9.8 days held on average for the inventory policies in the example. If another 1000 units of safety stocks are held, formula for average inventory held will then be $Q/2 + \text{Safety stocks}$ or 19.8 days. Hence, target days of inventory for any given inventory policy can be determined and this can then compared with actual inventory held for management to consider policies that may reduce working capital or improve customer service.

2.15 The FMCG Industry

In the FMCG environment (for example, biscuits, soft drinks, ketchups, sauces, canned food, confectionery, snacks, cordials, soaps, detergents, shampoos, etc), finished goods need to be kept to meet the consumers' 'first moment of truth' (P&G, 2009) when the consumer has intentions to purchase. The second moment of truth is that the product must perform according to its functional feature after the purchase has been made. Therefore, if the product is not available on the shelf when it is about to be purchased, consumers may choose an alternative competitor product. Hence, in the FMCG business, inventory or product availability is a highly desired objective. However, in such an environment of high product availability, the probability of waste in the form of obsolete inventory is high. Various factors such as a slowing down of demand or a change of product specifications, for example, tend to influence such waste and there are problems associated with managing large amounts of stock keeping units within the fast moving consumer goods business which could lead to obsolete inventory, which are costs to an organization.

2.16 Warehouse Stock Keeping Units

In the fast moving consumer goods industry, warehouses are used by manufacturers and distributors to hold stock keeping units as an interface between the customer and the manufacturer. Since lead times vary between warehouses and manufacturers, inventory are held with the objective of meeting customer demand as it arrives. According to Simchi et al (2009), due to longer lead times and demand uncertainty, manufacturers tend to employ a push strategy and fill warehouses in anticipation of demand. A study on traditional arborescent supply chains tend to show a central warehouse supplying regional distribution centers who ultimately supply their customers (Figure 9).

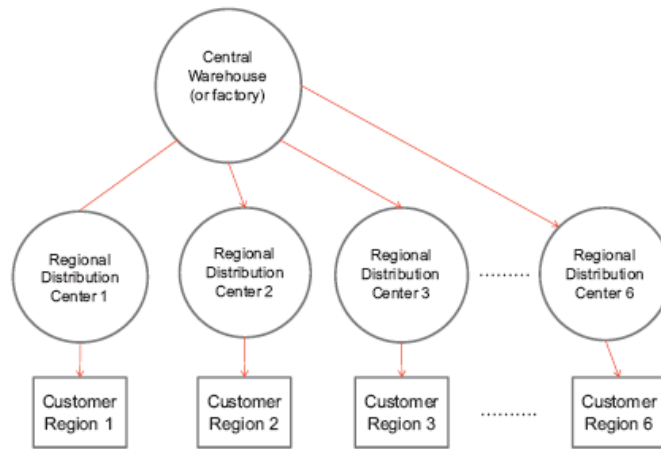


Figure 9. Traditional arborescent supply chains

The study by Cattani, Jacobs & Schoenfelder (2011) shows that there are weaknesses with this outbound supply chain structure. The system assumes a central warehouse supplies second-tier warehouses who serve uniquely defined regional customers. Cattani et al (2011) found that such multi-echelon systems do not achieve inventory optimization. On the other hand, a suggested single-echelon system (Figure 10) that considers a dual role central warehouse is preferred where the central warehouse supplies both regional and serves customers in the local region.

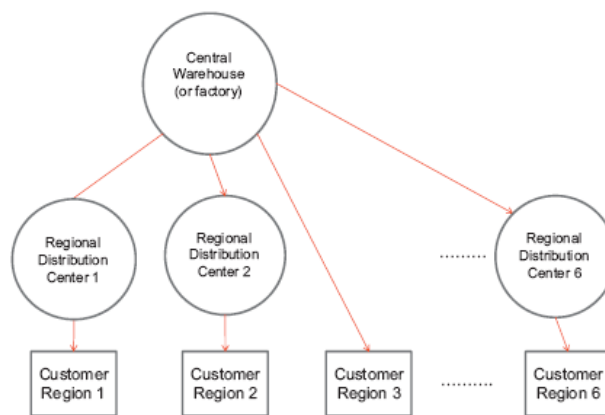


Figure 10. A supply chain with a dual role central warehouse

This study will look at days of inventory within the many warehouses in an organization and compare days of inventory held versus target days. The objective is to consider the potential reasons for the difference and to make recommendations as to how to improve the variance.

3. Research Methodology

A simulation consisting of order volume for ABC categories and inventory parameters will provide a target days cover of finished goods inventory which can then be compared with actual on-hand days cover of inventory. The comparison will yield many results that will consider differences that could explain whether inventory held could be lowered to meet working capital targets or increased to meet customer service objectives. Based on the literature, a simulation-based optimization framework involving simultaneous perturbation stochastic approximation (SPSA) is usually presented as a means for optimally specifying parameters of internal model control (IMC) and model predictive control (MPC) based decision policies for inventory management in supply chains under conditions involving supply and demand uncertainty (Schwartz, Wang & Rivera, 2006). The effective use of the SPSA technique serves to enhance the performance and functionality of this class of decision algorithms and is illustrated with case studies of actual data involving the simultaneous optimization of controller tuning parameters and safety stock levels for supply chain networks. Original studies were inspired from semiconductor manufacturing but this study looks at a fast moving consumer goods organization. The results of the simulation will demonstrate the comparison of days cover target versus actual days of inventory held so that conclusions can be drawn.

3.1 Using Case Study Data for Inventory Modelling

While the structured questionnaire seems to be most popular with most researchers (Viera, Yoshizaki & Ho, 2009), much research into the area of supply chain and inventory management have used different approaches such as field data collection, interviews with supply chain practitioners, personal experience (Godsell & van Hoek, 2009), cited in Brandenburg (2013) as well as the case study approach. This study considers a case study approach and according to Adebajo, a single-case study research (2009) provides a statistical framework for making inferences from quantitative case-study data. In this study, a single case study will provide the researcher with the whole spectrum of order and inventory records for further analysis. Childe (2011) notes that there is research value of case reports of industries or operations management in practice. For example, from case reports, since the Industrial Age, many theories have continued to provide manufacturers with leading models and applications in the areas of inventory management, such as which items to make for stock or made to order, when to order and how much to order systems. In this study, the various formulas mentioned, will be used in spreadsheet modeling to derive the Theoretical Minimum of inventory to be held and ‘what-if’ finished goods simulation results (target days of inventory) will be used to make comparisons with actual inventory. To support this study, one-year of order volume data and a snapshot of inventory held will be used. A similar study (Hung Lau, 2012) also used 1 year of sales data in attempting to analyze demand management for downstream wholesale and retail distribution. The organization in this study is a FMCG manufacturer and distributor. The organization operates 28 warehouses and distributes the many SKUs on offer to wholesalers, retailers and even directly to supermarkets and hypermarkets. Order volume is based on annual orders received and inventory held is a snapshot of inventory in the 28 warehouses that it operates from.

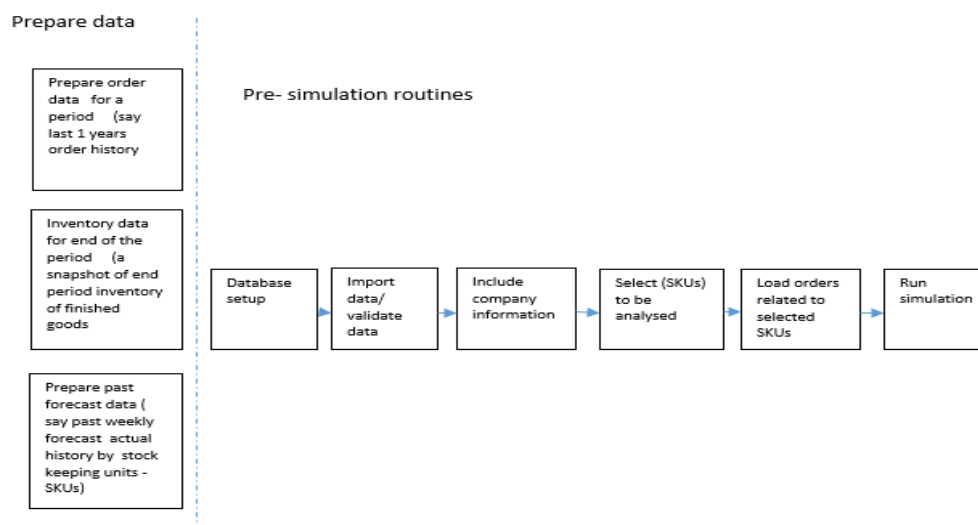


Figure 11. Process of data collection for developing a simulation

Table 8. A set of inventory parameters used to develop a scenario for inventory simulation

Categories	% of volume	ROP Lead time (days)	Safety stocks (days)	Q1	Q2 (days)	Q3
A	80%	2	14	14	10	7
B	Next 15%	2	14	31	24	16
C	Next 5%	2	14	62	48	31
Average inventory(days)				22.2	18.8	17.8

3.2 Process of Data Collection

The data will be collected using the process in Figure 11. This will allow the researcher to determine target days of inventory versus actual days for each warehouse.

3.3 Target Days versus Actual Days of Inventory by Warehouse

To determine the target days of inventory held, the organization under study used the following 3 inventory parameters (Table 8) to determine quantities to be manufactured (Q1, Q2 & Q3).

It was found that quantities to be manufactured against policy Q2 was suitable to be employed because installed capacity for a key process was found to be sufficient for quick replenishment when required. This is an important point in choosing a suitable inventory policy because the lead time policy of 2 days from receipt of order

quantities to be manufactured meant no queues if capacity were sufficient (Figure 12).

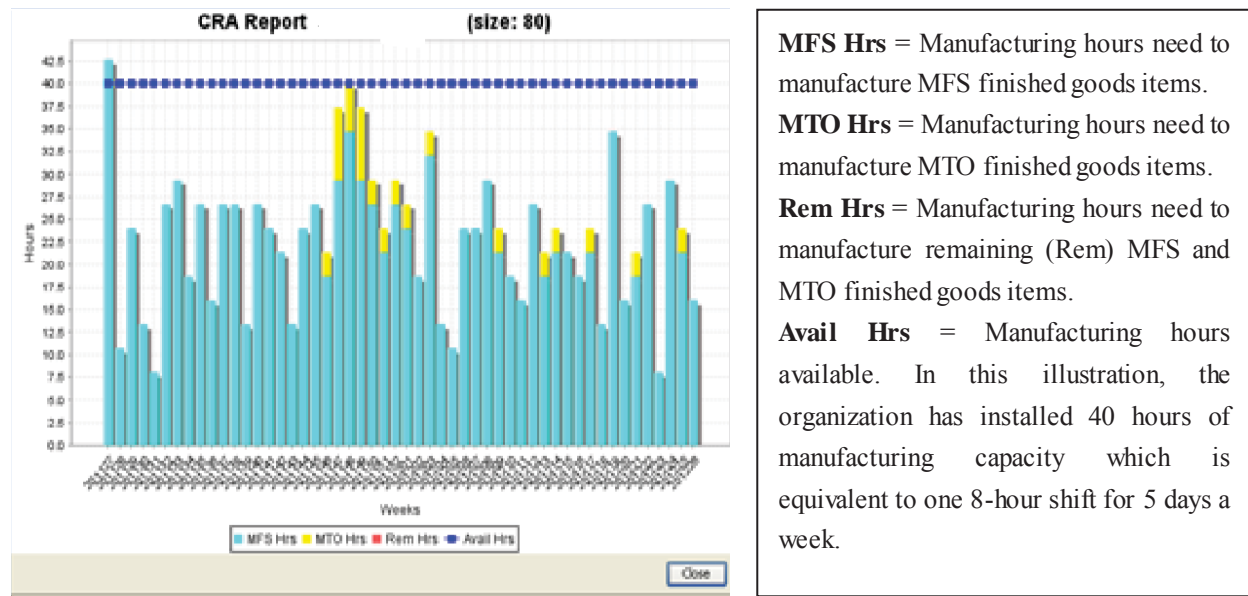


Figure 12. Installed capacity compared to anticipated demand for a key process

Table 9. Target days versus actual days of inventory by warehouse

Warehouse	Target SID	Actual SID
W001	18.37	34.01
W002	18.55	21.63
W003	17.53	17.6
W004	18.60	28.11
W005	18.45	17.33
W006	19.13	21.88
W007	19.46	25.26
W008	18.68	26.16
W009	19.40	18.5
W010	18.59	16.1
W011	19.13	12.86
W012	19.61	17.04
W013	18.57	27.1
W014	19.23	22.23
W015	18.64	19.24
W016	18.84	25.57
W017	18.89	16.48
W018	19.02	40.66
W019	19.94	24.36
W020	17.64	17.83
W021	18.98	25.65
W022	19.47	9.84
W023	19.26	25.29
W024	18.76	21.15
W025	19.64	29.12
W026	18.30	29.8
W027	18.43	27.75
W028	18.64	10.64

The chosen policy was then compared to the Actual SID and the results are shown in Table 9.

3.5 T-Test

To test the effectiveness of the chosen policy, the following hypothesis has been tested:

$$H_0: \mu_{\text{Actual SID}} \leq \mu_{\text{Scenario SID}}$$

$$H_1: \mu_{\text{Actual SID}} > \mu_{\text{Scenario SID}}$$

Based on the findings from Table 10, we can conclude that the variance of Scenario SID is significantly lower

than the variance of Actual SID and as calculated, the p-value is less than 0.05.

Table 10. t-Test: Two-Sample Assuming Unequal Variances

F-test (p-value= 0.0001)		
Target Stock in days versus Actual Stock in days Target SID Scenario Q (A=10, B=24, C=48 days)		
	Scenario SID	Actual SID
Mean	18.84821429	22.47107143
Variance	0.313518915	47.93498029
Observations	28	28
Hypothesized Mean Difference	0	
df	27	
t Stat	-2.75986806	
P(T<=t) one-tail	0.005130239	
t Critical one-tail	1.703288446	
P(T<=t) two-tail	0.010260477	
t Critical two-tail	2.051830516	

The P(F<=f) one tail values is less than 0.025 and the P(T<t) two-tail values is less than 0.05. Hence, we can conclude that there are statistically significant differences between the Target SID and Actual SID in this study.

4. Discussion

Based on the initial findings, the actual days of inventory held at 22.47 days is 21.1% higher than the target of 18.85 days. Thereby we can conclude that there are significant differences between the target and actual days of inventory held. Further discussions with the management of the organization showed that the process of inventory planning can be further improved on. Quantities ordered can be reviewed so that lower quantities can be considered since quantity ordered directly impacts average inventory held but sufficient small batch capacity must be installed. Re-order points can also include scientific methods of determining safety stocks, so that the probability of meeting demand will optimize levels of inventory held and meet incoming demand for less stock outs. One other reason given in the discussions was that inventory was at the wrong place when demand arrived. Perhaps, keeping inventory in a centralized warehouse would help improve this.

5. Limitations and Future Research

This study attempts to consider how target days are computed in inventory management and how they can be compared to actual days of inventory so as to determine how well Supply Chain Managers are managing finished goods inventory in fast moving consumer goods businesses. The field of Sales and Operations Planning (S&OP) which attempts to balance demand with supply covers a broader area involving forecasting, inventory categorization, inventory replenishment, material requirement planning as well as capacity and procurement planning. There is much scope to expand this study to include many other factors and therefore a major limitation of the study is that it does not cover the full scope of the Sales and Operations planning process. In addition, the study only covers one organization with multiple warehouses and did not cover broader industry players. Furthermore, in forecasting, many short term forecasting approaches may be considered and in inventory categorization, other variables in addition to order volume may also provide the Supply Chain Manager with additional variables that may allow different alternatives on which items to make for stock or make to order. But, the value of this study needs to be appreciated because at the heart of inventory management, a Supply Chain Manager could use the findings in this study to determine targets and compare them with actual inventory and based on the comparisons, the Supply Chain Manager may consider strategies to lower inventory, taking into account the growing cost of holding inventory with the aim of reducing slow moving and inventory waste.

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Strategic Marketing Issues for an Emerging Market Firm to go Global

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Abstract

Emerging markets, as of recent times, are going through phases of liberalization towards market economies, increasing privatization, and are witnessing an emphasis of emerging markets' governments towards globalization. There has been a rise in the contribution of emerging market firms to the economies of emerging markets. A study with a purpose to conceptualize strategic marketing issues for an emerging market firm to go global is significant, given that success in overseas marketing ventures is critical to sustain the phases of globalization. The challenge is to enter, obtain market share, and sustain in advanced economies and other emerging markets. This paper attempts to address the conceptualization and the challenge. The method of the study is to (i) define strategic marketing, outline and distinguish the different types of firms marketing overseas – international, multinational, and transnational / global; and (ii) analyze using extant literature, the aspects and issues of global entry and implementation of global marketing strategy. The study, post analysis, conceptualizes and postulates three moderating success factors, wherein consideration of these factors will aid the emerging market firm in improving its performance (i) acculturation processes in global businesses; (ii) achievement of global marketing synergies; and (iii) the importance of overcoming global negatives. Given that conditions for global entry and implementing global marketing strategy are met, and the three success moderating factors are addressed, the study recognizes that it is necessary to address the competitive forces in the global environment to be able to obtain an optimal share of the market. The study includes a discussion based on an in-depth interview with a leading garment exporter in Bangalore, India, to understand global entry and global marketing strategy implementation. In conclusion, it can be stated that that (i) an explicit process to address global negatives is required to overcome the perceptual gap of emerging market firms on deliverables; (ii) explicit attention to the achievement of global market synergies has to be given by global marketing strategists.

Keywords: transnational / global firms, global positives, global negatives, acculturation process, market acceptance barriers, global market synergies

1. Introduction

Emerging markets, as of recent times, are going through phases of liberalization towards market economies, increasing privatization, and are witnessing an emphasis of emerging markets' governments towards globalization. There has been a rise in the contribution of emerging market firms to the economies of emerging markets. As of the present, companies from emerging markets account for (Cuervo-Cazurra et. al, 2016) about 25 percent of the Fortune Global 500, up from 2 percent in 1995. Further multi-nationalization of emerging market (BRIC countries) firms is taking place with 24 firms from Brazil, 27 firms from Russia, 56 firms from India, and 180 firms from China, among the Forbes Global 2000 list of the largest publicly traded firms in 2015. A study with a purpose to conceptualize strategic marketing issues for an emerging market firm to go global is significant, given that success in overseas marketing ventures is critical to sustain the phases of globalization. The challenge is to enter, obtain market share, and sustain in advanced economies and other emerging markets. This paper attempts to address the conceptualization and the challenge.

In a very simple sense, strategic marketing pertains to important decision making in marketing. Marketing, as a concept, is the conceptualization, design, build-up, execution and monitoring of marketing programs to satisfy consumer needs and wants, while at the same time adhering to organizational objectives. The strategic emphasis to marketing refers to (for the purpose of this paper) (a) long term implications of the marketing decisions taken; and / or (b) huge investments made in the context of the marketing decisions. Given that markets are uncertain, contingency build-ups are an integral part of strategic marketing decision making.

The objective of strategic marketing or marketing strategy is to improve long term financial performance of the firm. However in the context of strategic marketing in the global context for emerging market firms, the objective could also be to obtain a long run market share overseas. Marketing of products overseas has other important implications such as improvement of product quality, adaptation to global needs and wants, and consequent trickle down of improved marketing practices in the domestic market. The context in a global situation could be very different from that existing within the domestic economy, and marketing strategy may have to be reformulated if not laid out afresh. Adaptation to country specific government attitudes and policies will be required. Resource allocation and investment decisions are complex. The value of foreign currency, especially the dollar, makes global expenditures large in emerging market terms, making tactical decisions, as well as strategic decisions, important and worthy of top management attention. All these factors suggest that a marketing strategy formulation for a firm going global is very important and needs separate study and attention.

2. Method

The study outlines the importance of strategic marketing issues for emerging market firms going global. The method of the study is to (i) define strategic marketing, outline and distinguish the different types of firms marketing overseas – international, multinational, and transnational / global; and (ii) analyze using extant literature, the aspects and issues of global entry and implementation of global marketing strategy. The study post analysis, conceptualizes and postulates three moderating success factors wherein consideration of these factors will aid the emerging market firm in improving its performance. The study includes a discussion based on an in-depth interview with a leading garment exporter in Bangalore, India, to understand global entry and global marketing strategy implementation. Conclusions of the topic of the study follow thereafter.

3. Analysis

3.1 Cross-Border Arrangements in Firms with Overseas Operations

3.1.1 International Firm

A domestic parent establishes a separate division or organization in the home country itself to deal with marketing in one or more host countries. Sales / marketing offices may be established overseas. The concept of home country and host country division is distinct. In international firms there is a movement across borders, of mostly goods through sales/ marketing offices or overseas distributors, and with support services through service offices or provided by the overseas distributor.

3.1.2 Multinational Firm

A multinational firm popularly known as an MNC, operating in the home country and called parent, establishes separate organizations in each host country, along with investments to produce and market in each of the host countries. The concept of home country and host country continues to exist with the division close to being distinct. MNCs are also multi-domestic in their character with adaptations of the market offering in strategy and culture being most evident. MNCs suggest extensive international operations. Multinational firms are seen to work with cross-border movement of (i) goods and support service; and (ii) financial capital.

3.1.3 Transnational Firm / Global Firm

It is a multinational firm with extensive international operations throughout the world, and exhibits cross border movement of (i) goods and support services; (ii) capital or money or investments; and (iii) people. The emergence of a transnational firm is closely linked with the emergence of an international service economy, supported by the movement of large intellectual capital to and from various host countries, and among countries. The concept of the global firm includes attempts to coordinate and integrate operations across borders to achieve potential synergies. There are efforts to rationalize investments in various countries and achieve optimal resource allocation. The divisions between home country and host country is minimal, as the management views the world market as a series of interrelated and interlinked markets. A cohesive organization culture tends to develop in the transnational / global firm, even though consumers' enculturated individuality, and the country's organizational culture impacted by ethnic cultures are deep rooted and tend to remain. The arrival of global firms could possibly signal the arrival of global consumers.

3.2 Global or Overseas Entry

The major decisions involved in going international (Kotler & Keller, 2016) include (i) deciding whether to go abroad; (ii) deciding which markets to enter; and (iii) deciding how to enter those markets.

First, in deciding whether to go abroad, the goals and objectives of the firm must permit the firm to do so. Attractive market opportunities must be present that can be successfully serviced by the domestic firm. If

necessary, firms should be willing to redefine the business definition to adapt to international markets. This includes customer benefits, customer segments, technology employed, and participation in various stages of the value chain. In addition there must be a strong motivation to go abroad, which could be higher profit opportunities abroad, huge markets abroad of which even a small share might suffice, or domestic customers going global who need to be serviced. Global motivations could also include (Aaker & McLoughlin, 2010) obtaining scale economies, global brand associations, global innovation, access to low cost labor or raw materials, access to national investment incentives or government incentives, cross subsidization, dodging trade barriers, and access to strategically important markets. The firm is best placed if it can leverage its core competencies in international markets. In taking the decision to go abroad, hurdles have to be overcome such as foreign government regulations, differences in culture, and lack of foreign experience. Further, the home country firm should be clear about the resources it is willing to commit to go global, whether these resources are adequate, and for how long it is ready to invest resources in the host markets.

Second, in deciding which markets to enter, the following factors are typically considered (a) market attractiveness as determined by the total market potential and the realizable demand for this particular firm; (b) whether the foreign country risk is identifiable and manageable; (c) whether the key success factors of that particular country can be successfully met by the inherent or developable strengths of this particular firm; in other words does the firm enjoy some key competitive advantages in relation to competition? (d) whether supplier sources can be identified, and if yes, are they attractive? and (e) favorability of the overall macro environment of the host country.

In deciding to enter a particular market, it is necessary to examine and understand the trading block to which the country belongs, and whether the firm's home country has reasonable trade flows with the host country's trading block. The prominent trading blocks are NAFTA, and European Community. Competition within the European trading block is intensifying as the member countries attempt to provide pan European products.

The pattern of entry into different countries is also to be noted. In general the pattern is decided by how the order book goes. However, it is not advisable to enter countries too fast, as the home firm may not be able to cope with the sudden growth of activities. It is best to enter those countries where deeper commitments can be made and where there is the possibility of deeper penetration.

Third, in deciding how to enter the market, there are typically five routes (a) indirect export, (b) direct export, (c) licensing, (d) joint ventures / alliances, and (e) direct investment.

When the company goes by the order book, indirect export is a preferred option. It is possible to have independent intermediaries and export through them. When the firm tries to make a concerted and planned effort to market in one or more countries, then direct export is preferred. An international sales office may be set up for this purpose. When the market is significant and when the home country firm can retain control over the value addition, then the licensing route can be chosen. Joint ventures / alliances can be forged mainly as a project specific measure to be able to imbibe host country procedures and culture. In the long run joint ventures will succeed when both the partners bring to the table a fair measure of value inputs that are not reasonably exchangeable; for example, a high technology firm such as GE brings in technological innovation and a firm such as WIPRO brings in developmental effort. Direct investment is warranted when there is a reasonable assurance of a sustained market that promises more than a fair share of returns. Choice of actual direct investments is based on experience, judgment, insight, foresight and analysis.

In the Indian context, though firms are fairly familiar with indirect export and direct export, a method to supplement direct export with investments in marketing, sales and servicing could be the route to take. This can be extended by participation in global assembly facilities and global outsourcing with time to come. The software industry is in this extended phase by being part of the global value chain.

The choice of the entry mode, being strategic, needs contingency planning, and given the limited information of foreign host markets, needs to be experimental or option based that has adequate flexibility in action setting (Buckley, 2014).

3.3 Global Logic

Global logic is a rationale for globalization or to go global. We can look for global logic in a number of areas that include the following (a) global customer logic; (b) global purchasing logic; (c) global information logic; (d) global competitive logic; (e) global industry logic; (f) global size logic; and (g) global regulatory logic (Jeannet, 1999).

3.3.1 Global Customer Logic

For a firm to go global, it is not enough if the overseas customers have similar need sets. It is necessary that the features and benefits demanded in the host markets are similar to the features and benefits provided in the home

market. In other words, it should be possible for the domestic firm to match up with global products on both features and benefits. In the cellular market, handsets marketed across the world have their features and benefits matched up with the requirement of the local markets.

3.3.2 Global Purchasing Logic

Does the overseas buyer use global sourcing methods? If yes, is the buyer firm open to products supplied from the considered firm's home country or is the buyer firm restricting itself to countries within the trading block or developed countries? Is the overseas buyer demanding supplies from the considered firm on a global basis, and hence behaving as a global customer? Does the exporting firm have core strengths to supply to a global customer? Can the exporting firm be a part of the value chain of the overseas or global buyer; for example, as in the automotive component industry? Have other home country firms, which have operations overseas, demanded supplies from the considered exporting firm?

3.3.3 Global Information Logic

Is it possible to get the home country firm's products and services listed in international magazines and trade catalogs where purchasers are most likely to look? Is it possible to get international certifications for quality, customer satisfaction, and for successful installation and usage in overseas markets? Can such certifications be advertised to home country firm's advantage? It should also be possible to advertise and provide information through the World Wide Web. Can the home country firm get superior reviews in trade shows and seminars? In short, wherever information is being traded before, during or after purchase, can the home country firm participate in the global circuit of information? If the answer is yes to these questions, then the exporting firm has global information logic.

3.3.4 Global Competitive Logic

The first step is to understand the competitive setting that exists for the particular industry or product market in which the firm is going to compete overseas. It is necessary to check if the market overseas is dominated on a country by country basis with national players, resulting in a situation that the considered exporting firm encounters different players in different countries. It is also necessary to examine if the overseas market has a regional or trading block competitive setting. It could also be possible that the competitive logic is global as in the carbonated soft drink markets with Coca-Cola and Pepsi being the global players. The second step, given the competitive setting, is to check whether the firm can adapt itself to the competitive setting. The considered firm has to get 'favorable intentions to buy' from customers in a given competitive setting. In short, the exporting firm has to be a visible competitor, to obtain global competitive logic.

3.3.5 Global Industry Logic

When the key success factors (KSFs) of an industry are the same worldwide, then global industry logic is said to exist. Further the logic is strengthened when resources can be shared worldwide. One example is the software industry. Another would be the paint industry.

3.3.6 Global Size Logic

Certain firms such as those in the pharmaceutical industry operate on high R&D budgets with large lead times that they need a critical mass to succeed. So they enter as many markets as possible. Domestic firms needing such size, should actively confirm that other dimensions of market acceptance of such products are favorable. Market acceptance is discussed in the sections to follow.

3.3.7 Global Regulatory Logic

The global regulatory environment is improving considerably with the economy in many newly industrializing markets moving towards – LPG – liberalization, privatization and globalization. There is a strong case for similar regulatory environments across countries when the technological standards are all global or are moving towards one common standard. When regulations differ across countries, it is necessary to adapt products as required, so as to serve those markets. However due to the forces of globalization, customers are ultimately served by firms that are a part of a network of a connected global value chain. The issue is how the firm should be a part of this network and provide value so that a sustainable place in world markets could be obtained.

3.3.8 Global Logic Index

It is possible to give an index rating to each of the seven logic elements and then give a weighting to each of the logic elements as decided by the type of product market, firm resources and capabilities, and the global market forces that includes the competitive forces and the global context. A weighted index for global logic could then be derived which indicates the intensity with which the efforts of the firm to take its products overseas is supported.

3.4 Implementing Global Marketing Strategy

Once global motivations and global logic have been worked out successfully and the firm has laid out its process of entering global or overseas markets, then various aspects of implementing the global marketing strategy have to be considered, as outlined below (Douglas & Craig, 1995).

3.4.1 Globalization vs. Adaptation Strategies

Global standardization vs. adaptation is a central theme of the marketing program. A global approach will guide a homogenous market across countries and standardization will pervade. A multinational approach on the other hand will regard the global market as an inter-linkage of nation markets that have to be separately catered to. A glocal approach standardizes the core elements and localizes other elements. For an emerging market firm to go global, it is advisable to toe the line of adaptation, as developed markets are mature and are at an advanced stage of need-want gratification. However there may be certain product markets where standardization across countries will prevail.

In considering adaptation, the simplest adaptation to consider is that of communication to suit the needs of overseas markets. Certain markets may demand a certain degree of forward invention in product or service wherein advanced procedures or methods are to be used in the development or production of goods and services. This usage of forward invention has to be communicated to the overseas buyer to signal quality. With regard to price, it is best to follow the market-based dictates as to what price is optimal in a particular country. Distribution is a critical area where assistance of overseas sellers may have to be enlisted to complete the selling cycle.

3.4.2 Deciding on the Marketing Organization

Depending on the stage of internationalization of the firm, an appropriate marketing organization can be evolved. An export department is the most basic with independent overseas distributors. An international division with overseas sales organizations could be next. A global organization with investments and facilities in multiple countries that are all inter linked could be targeted in instances when the assured market is reasonable and sustainable. Challenges in the marketing organization of emerging market multinationals include (i) evolution of governance mechanisms for emerging market multinational firms that need to be dealt with in cooperation and subtlety; (ii) managing their overseas subsidiaries; (ii) transferring knowledge from the overseas subsidiary; and (iii) knowledge management of the emerging market firm, when the overseas subsidiary happens to be from advanced economies (Meyer and Peng, 2016). Tightly coupled with these aspects of deciding on marketing organization, is the need to recognize the importance of filling institutional voids in the market society and institutional environments of host markets, when host markets are themselves other emerging markets.

3.4.3 Phases of International Marketing Development

In entering a particular country market it is useful to check the stage of international marketing development of the main competitors in the product market or industry. In general there are three phases (a) Initial foreign market entry; (b) Local or national market expansion; (c) Global rationalization.

If the product category in the overseas market is in the initial stage of evolution, then it is convenient for home country firms to enter overseas markets and to modify consumer preferences and create an image. The strategic thrust would be a 'geographic market extension' of the firm's domestic position. However if the overseas market is mature and the firm concerned is in the stage of initial overseas market entry, then the challenges and barriers in the overseas market depending on the maturity of the industry there has to be assessed.

If the product category in the overseas market is in the next stage of local market expansion that could possibly mean home country firms have to obtain a beachhead in the overseas market. A beachhead signals that a firm has to obtain a foothold in the overseas market; the foothold or beachhead accrues to the firm when it has obtained significant market share in the product category in the overseas market, and has the sustainable competitive advantages to support and further the significant presence it has obtained, This implies that the home country firm entering directly will have to work that much harder to make an impression on the foreign customer. It could also mean that the home country firm has to provide or demonstrate considerable value addition over competitors. It may become necessary to tailor marketing strategy programs country by country. Further, the home country firm may have to acquire overseas, some local products / brands to create an immediate beachhead and subsequently leverage competencies in brand name, technical expertise, and corporate reputation. To maintain efficiency, the home country firm might have to market to several closer countries, and share advertisement, promotional and distribution costs. The strategic thrust would be to obtain an immediate beachhead.

If the competing firms are in a stage of global rationalization, then the home country firm is well advised to attempt to be part of the global value chain of the customer without getting into a head-on confrontation with

globally rationalized competitors. Global rationalization indicates the coordination and integration of decision systems and operations across nation borders and optimal allocation of resources worldwide.

It has been researched (Cuervo-Cazurra and Ramamurti, 2014) that the gradual construction of international value chains in highly competitive and dynamic international markets with a transition from domestic to international management phase, is still a major challenge for Brazilian multinational enterprises.

3.4.4 Partial Global Strategies

A true global operator is one whose asset distribution strategies and market coverage strategies are both global. Companies such as General Motors emphasize asset globalization, whereas firms such as Swatch try to operate from the home base as much as possible and emphasize market global strategies. When globalization is implemented, typically the globalization paradigm is applied to one or a few dimensions of marketing strategy. It is rarely, if ever, applied to all dimensions of marketing strategy. Accordingly we have different categories of partial global strategies such as (a) global branding strategy; (b) global advertising strategy; (c) global product strategy; (d) global account strategy; (e) global R&D strategy; and (f) global segment strategy.

It is for the home country firm to understand the dimension on which it can globalize successfully, whether it is in particular segment, or whether it is in servicing a global customer worldwide; that means the firm has to select, one or more among the partial global strategies mentioned above in (a) to (f). This identification of its core strength of globalization will improve its ability to implement marketing strategy.

3.4.5 Developing a Global Mindset

To successfully implement global marketing strategy, a corporate global mindset is useful. The evolution of a corporate global mindset involves the following (a) global teams and task forces; (b) global functions such as global marketing and global finance; (c) global organization; (d) global responsibilities; (e) global market understanding; (f) formal global strategy; (g) global mandates / objectives; (h) global information technology; and (i) global competition under consideration.

4. Findings / Postulates and Results: Moderators of Success in Global Marketing Strategies

In recent times, several countries especially the emerging markets have undergone a phase of deregulation with accompanying liberalization or market reforms, to align domestic firms to market based economies. In addition, the governments of emerging markets such as India have placed emphasis on building the export economy with appropriate globalization incentives also called export incentives. In this scenario it is important for firms going global or for firms of developed markets who are already in multiple countries, to examine more closely the moderating factors that contribute to success of their global marketing strategies. Aspects of such factors are outlined below.

4.1 Importance of Acculturation Processes in a Global Business

4.1.1 Market Aspect of a Global Business

Consumers in host markets have strongly grounded enculturated individualities in their home markets, and marketers addressing overseas markets should put in place programs and processes for communication to and acculturation of host market consumers so that they can appreciate the home country's culture and achieve superior need-use gratification. When marketing to advanced countries, these host country consumers are in an advanced stage of need-want gratification and need-use gratification, and thus it is more difficult to provide value beating propositions to them; under such conditions acculturation helps in supporting home country marketers in host markets. Further when selling to foreign organizations in business to business (B2B) markets, trickle down of best practices occurs better if acculturation processes and programs are in place.

4.1.2 Organization Aspect of a Global Business

One of the key differences between international trade / commerce and global industry is that international trade may not require as much acculturation of overseas consumers, as a global industry business would require. As such minimal acculturation is required of international firms. Multinationals, as the term suggests, operate in multiple nationalities and evolve multi-domestic strategies, and acculturation may not be imperative for business success. However in organizations that are transnational and where global movement of people across borders is significant, acculturation is imperative and must be attended to, for the successful operation of transnational and global companies. Further in transnational / global companies, owing to the rationalization of decision systems and operations, and their integration worldwide, a cohesive organization culture tends to develop; one that has far reaching impact on performance.

4.1.3 Resistance to Acculturation

One of the most important concepts of acculturation processes is cultural distance, seen as a triangulation of geographical separation, affective connection and historical familiarity between the home country and host markets / countries. In acculturating consumers / customers in host markets, firms need to keep in mind that the cultural distance from the home market to host market is different from the cultural distance of the host market to the home market (Buckley, 2014). Tightly coupled with the postulate of acculturation processes, for host country / overseas consumers as well as for a global business organization, is the issue of resistance by overseas country consumers and their organizations that are nested in country and ethnic culture ethos, to such acculturation processes. As such it is important to take into cognizance host country / overseas sentiments, the context of their society, and the imperative for globalization by host country / overseas governments. It is also necessary to delicately balance such programs and processes of acculturation so as to not ignite adverse reactions but smoothly transit both consumers and participating organizations to enhanced realizations of the market offerings by the international / global businesses.

4.1.4 Development of a Cohesive Global Organization Culture

The counter-play of acculturation of global businesses and the resistance to acculturation by individual overseas country cultures is propelled by the need for the global business to succeed as guided by global systems and procedures. In this scenario, the development of a global mindset (as brought out in 3.4.5 above) leads to the evolution of a cohesive global organization culture that could exhibit one or more aspects of firm specificity, industry specificity, and market specificity. It has to be noted that the development of a cohesive global organization culture is also impacted by cultural distance. Further, in transnational / global companies, owing to the global rationalization of decision systems and operations, and their integration worldwide, the cohesive global organization culture tends to get reinforced, and has far reaching impact on business performance and success.

4.2 Achieving Global Marketing Synergies

With increasing trends towards globalization and international business, both by firms in developed countries as well as by firms of emerging markets, achieving global marketing synergies become important to gain a competitive edge. Global marketing resonance occurs when key success factors (KSF) of the global market are met by partial global strategies (given that complete global strategies are not practically achievable); some examples are those of global R&D, global branding, global customers or global accounts. Global transactional facilitators of information, servicing, financing and logistics need to be in place and well-tuned to conduct global commerce. With the advent of the world-wide web, these capabilities have increased. Global product strategies are to be in place, appropriately adapted for each country or region, simultaneously mapped to stages of international market development. Cross border synergies on account of pricing through appropriate transfer pricing mechanisms, have to be appropriately exploited. Firms could also take the path of (i) home country manufacture and global marketing with local delivery that includes servicing, warehousing, packaging facilities and use of local logistics; or (ii) global marketing with global sourcing along with local manufacture and local delivery. The use of relational capabilities for achieving global efficiency could at times be exploited in particular contexts of geographies and product markets. Further large firms need to undergo periodic reconfiguration of management control to suit changing business environment. Also beneficial in achieving synergies could be periodic rescaling to suit to changing tastes and preferences among consumers and, consequently, changing demand conditions. Consequent redo of metrics and key performance indicators may be required.

For large global organizations, global rationalization is an imperative that needs consideration to achieve global synergies. The ultimate goal of global strategy should be to achieve optimal integration and rationalization of operations and decision systems on a global scale. Potential synergies arising from coordination and integration of strategy and of decision systems across country and product markets has to be captured, and maximal efficiency in the optimal allocation of resources worldwide achieved. Focus on the unique competitive advantages provided by the multi-country character of operations is thus the key to success in the global marketplace. Global rationalization could also suggest the emergence of global consumers.

In the Indian scenario, achievement of global marketing synergies has been effectively attempted by some firms (Chattopadhyay et. al, 2012). The most common synergy providing market strategy is called 'leveraging of strong domestic market position' as has been the case with Indian cellular firms attempting to garner share in African markets. The second synergistic market strategy is the 'cost leader or frugal engineering strategy' that was adopted by Tata Motors in launching and marketing the economy car - Tata Nano, with the firm attempting

to combine country specific strengths such as low labor cost, and firm specific competencies such as engineering expertise. The product did not capture the imagination of the consumer as an effective economy value proposition car as, probably, the consumer had higher aspirations from an economy car than what Tata Nano could provide. The third synergy providing market strategy is the 'niche customizer strategy'; a strategy driven by customer insights to obtain local needs, superior technical capabilities, and small volume manufacturing with high quality and high profit. One such example would be the Indian high quality vegetarian restaurant business – Saravana Bhavan -- that has wide presence in South India and international presence in countries including USA and Singapore. The fourth market strategy attempting synergy is the 'global brand builder' that could include (i) a disruptive or breakthrough innovation followed by a reverse innovation as was attempted with the Tata Nano (ii) acquisitions to obtain beachhead followed with active pursuit such as Tata acquisitions of Tetley tea, Jaguar and Land Rover cars; and (iii) pursue further what starts of as organic growth, as is the case with the Indian software industry firms – Wipro, Infosys, TCS and HCL.

4.3 Overcoming Market Acceptance Barriers or Overcoming Global Negatives

Rationales for going global are positive factors and may be called global positives. Restrictions and hurdles for going global, and obstacles to successful market acceptance of an emerging market firm's products in an overseas market are negative factors and may be called global negatives. For successful implementation of a marketing strategy overseas, it is not enough to identify the strengths or global positives and form a justification based on them; but it is also necessary that the global negatives be addressed and overcome.

The first step in overcoming global negatives is to identify the global negative/s. To aid identification of the global negatives, the exporting firm needs to identify the source of the global negative/s. A single global negative could have multiple sources. The source could be the consumer, the government, the channel, and the competition. Consumer related global negatives could be (i) need / benefit/ feature related; (ii) image related, which could include the image of the brand, image of the firm, and image of the home country; (iii) habit / attitude related; (iv) there could be a risk of purchase in factors such as quality and servicing to overseas customers of home country products; and (v) there could be other global negatives specific to a firm or product market that can be uncovered by research. Government related global negatives could be (i) policy related; (ii) attitude related; and (iii) other global negatives specific to a given bilateral relation between two countries that have to be uncovered through a careful study of home country – host country government relationship. Channel related global negatives could be (i) image related and may be of the brand, firm, home country or a combination of them; (ii) terms and conditions related; (iii) because of too many competitors vying for the same channel; and (iv) other specific channel negatives specific to a given product market. Competition related global negatives could be (i) the presence of global competitors in host country markets; (ii) presence of strong national competitors in host country markets; (iii) high intensity of rivalry between firms of the same industry; (iv) low margin and high expenses making competition even more difficult; and (v) specific competitive related negatives, specific to a given geography of a product market. Global negatives could be categorized into strong global negatives and weak global negatives.

The second step is to identify the resource requirement to address the source, and correspondingly the global negative. The firm has to check if the resource requirement is within the capacity of the organization, and how best the negative can be addressed, given the resources of the organization. If the resources are not within the capacity of the organization, then the firm has to raise these issues with the respective trade associations, or the industry support forums to bring in joint action.

The third step is to lay out the time period and the processes / procedures required to overcome or meet some of the challenges of the global negative. The firm has to consider whether it would continue to market the product and simultaneously address the negative, or if a sequential action is desirable. If sequential action is needed then it needs to put its marketing efforts on low key and step up its efforts and campaigns to address the global negative. Assistance of home country governments in disseminating information and organizing events to overcome negatives may play an important role. It needs to be examined if the global negative manifests itself differently in different countries, or it is the same across countries where the considered firm is marketing its products; in such a case a country by country campaign or a single campaign covering all markets would be appropriate respectively.

The last step would be to establish performance indicators to the process of overcoming global negatives, measure these performance indicators and manage them to achieve desired results. Some common performance indicators could be customer satisfaction, channel acceptances, government clearances, improved brand equity,

and higher brand recall. The firm needs to check on a periodic basis, how the improvements in addressing global negatives compare with the actual resources invested, and the lessons derived for the future.

Overcoming market acceptance barriers or global negatives is ideally supposed to take a firm forward in terms of representation in overseas markets. The objective would be to move the firms from a negligible representation or from an entry position, to a significant or even a beachhead position in the market, from where it could build on its technical expertise and capabilities. This should happen provided the global logic has been worked out carefully.

We take two global negatives – problems in branding and problems in servicing -- and address some issues of overcoming market acceptance barriers.

4.3.1 Branding

Lack of a clear global theme could be one source of the problem in branding. The other is that whenever a branding scheme is proposed overseas, it is better to be right the first time. Emerging market brands should attempt at less teething problems at the outset. Otherwise it could lead to image and identity problems. A brand is a promise of delivery on some dimension of product, service or image. If this promise is not delivered, there could be problems in branding. Global brands are built by not only delivering the right promises but considerable expense in advertising and promotions. For emerging market firms going overseas, such expenses may be very high, and other methods to build awareness and a sense of ownership in the product needs to be examined; for example, contests on a continuous basis. More often than not, the lack of marketing expenditure results in a weak brand. Quality associations need to be upped to better project the images of products coming from newly industrializing countries; this may occur through premier dealerships, track record of service, and adhering to technical specifications consistently.

For large established firms in global markets, extant literature offers prescriptions for firms towards global brand leadership (Aaker & Joachimsthaler, 1999). These include the sharing of insights and best practices across countries, establishment of uniform brand-planning process across markets and products, assignment of global brand managers to create cross-country synergies, and the need to execute brilliant brand-building strategies. Adaptation to local conditions is as important as the global planning process, and this aspect can be circumvented by glocalization of brand building programs.

4.3.2 Servicing

The first and simplest problem occurs when the ambience at the overseas service center does not exude a reassuring style. The second is more fundamental and occurs when the product itself has basic quality problems. The third occurs when the customer does not perceive value in the servicing offer. Customer dissatisfaction may be avoided for such problems with the least expenses, if timely interventions are made. Mobility in servicing provisions across the country or region markets go a long way in communicating the global nature of the brand.

4.3.3 Addressing Competition

It is necessary to categorize the competition into (a) global competitors, (b) national competitors, and (c) local competitors. It is also necessary to distinguish competition into (a) near competitors, and (b) distant competitors.

The firm may need to take into account both near and distant global competitors. In the case of national competitors, the firm needs to emphasize near competitors than distant competitors. In the case of local competitors, it needs to only look at near competitors.

In a niche market, a unique position may pay off. In the case of a segment market, it may be well worth to examine the alignment of the considered firm with the dominant global competitor, as there might be positive linkages in the market for that position. In any case, the competitive position maps need to be plotted and an appropriate positioning strategy needs to be chosen. This is an important exercise in addressing competition.

Competitor strengths, weaknesses and strategies need to be studied before decisions are made for the marketing mix of the home country's products. An inventory of strengths of near global and near national competitors needs to be compared with the home country firm's strengths to get a realistic estimate of the realizable market.

Dynamic reactions to competition can be addressed mainly with respect to the first main competitor and the second main competitor, as otherwise a plethora of reactions are possible that may send confusing signals to the market.

5. Discussion

There have been, as of recent times, initiatives adopted by governments of emerging markets such as India, to

encourage start-ups. In such a scenario, many small emerging market start-up firms can go overseas, especially in the apparel and fashion industries, where India has inherent cost advantages due to low cost labor. It is thus interesting to examine how such start-up firms of emerging markets fare overseas especially in the developed countries of Europe and North America. Research on entrepreneurial strategies for emerging markets indicates positive relationship between firm performance and having a foreign parent; negative relationship between firm performance and number of products / services offered; and requirement of an executive social capital for better initial firm performance (Collins and Reutzler, 2016).

The ensuing discussion was derived after an interview with a leading apparel exporter based in South India, a start-up in 2006 that has two foreign parents, and specializing only in formal shirts (range is narrow). By investing overseas, the company wants to come closer to the customer and also provide better value to the customer by eliminating intermediaries in the process.

The strength of the firm is in low cost, efficient manufacturing that is leveraged through buying houses, offices of customer. Global customer logic is integrated overseas by the buyer (for example, J C Penney), who builds and maintains the product designs. This way the apparel manufacturer acts as a service center for making the apparel ready. The fabric of particular mills in India is also specified by the overseas buyer. Global purchasing logic exists clearly. The buyer buys from among a group of countries after clearly identifying the quality and servicing characteristics of various vendors in these countries through a detailed vendor rating system. The presence of global industry logic is clear as the key success factors are the same worldwide.

Addressing the global negatives, India is perceived as a source for low value, high volume items such as shirts and ladies tops, although this perception is slowly changing and small volumes of suits are being exported as well. Some advantages in cotton yarn, however, are seen. The firms here are being seen as less responsive to customer needs/benefits/features. The firms are also being seen as not providing enough value to the customer. The firms are not able to supply enough to satisfy the large requirements of apparel of the customer. There is a customer perception that Indian firms are less able to make sophisticated products such as suits. Further the customers perceive a risk in buying sophisticated products. When there is a clear economic benefit that clearly outweighs this perceptual gap, then they will source sophisticated products from India. With respect to the government, India actively encourages modernization by giving interest subsidies for fresh investments in this sector. Garmenting has been removed from the small scale sector so that larger firms can compete. This indicates that the regulatory logic for going abroad for apparel is positive. There are image problems in the channel.

Global competitive logic used to be influenced by the allocations made through the quota system. With respect to the current apparel market environment, quotas have been abolished in the post WTO period, and buyers are free to source their entire requirements of apparel from low cost suppliers. This indicates the presence of global competitive logic. As such firms in countries on quotas with high cost structure have closed, and a huge amount of consolidation of apparel making units across borders have taken place. The product category image continues to be weak for India, with China still being the leader of trade in apparel. China used to offer better value by offering better quality garments at cheaper prices, but now finds the cost going up. The market share of China is declining, with countries like Bangladesh with costs much lower increasing their market share. In the apparel market there are two categories of players – converter firms who do the bulk of the business (approx. 90%) and only take responsibility for sampling and manufacture; and the other category are the ‘full package’ firms (approx. < 10%) who take all responsibilities except retailing (this includes – design, sampling, manufacture, shipping, warehousing, and distribution). Bangladesh is the lowest cost country in the world and operates on the converter model. Sri Lanka has many foreign firms who set up shop on their land and go by the ‘full package’ process.

In the above environment, the problems have to be addressed at the micro or firm level, as well as the macro or industry level. Awareness building and education of buyers was cited by the interviewee as an important aspect of resource deployment at the macro level, suggesting the importance of global information logic.

6. Conclusions

Strategic marketing is important decision making in marketing, and many marketing decisions in the process of a firm going global are strategic in nature given their high revenue / investment / expense impact and /or because of the long term implications it carries to the marketing processes of the firm. The strategic nature of decision making for a firm going global also arises owing to uncertainty in global markets, and hence there is a need for contingency planning.

Motivators and positive factors are a must for a firm to go global. Positive factors also called global positives are exemplified by global logic. Global logic can exist in customers, purchasing, information, industry, size,

competition, and regulation. Existence of global logic for a firm suggests it has a reason for globalization. Therefore, global logic is a must for global entry. Global entry also involves decisions such as (a) whether to go abroad, (b) which markets to enter and (c) how to enter those markets.

There are a number of factors involved in successfully implementing global marketing strategy. These include globalization vs. adaptation, the marketing organization issues, identification of phase of international market development, partial global strategies, and development of global mindset. The important aspect for an emerging market firm going overseas is to address global negatives or to overcome market acceptance barriers. Apart from firming up on global logic, it is necessary to examine that hurdles, obstacles and negative factors (in consumer psychology, in the business environment, and in the market place), are addressed to make the emerging market firm's products and services garner a reasonable share of the overseas market and make it truly global. All firms going global have to accommodate in their strategies and processes, an affinity to acculturation to truly achieve a cohesive global culture in their organizations and the product markets. Last but not the least is the increasing imperative in the face of competition, for the firms to achieve all possible synergies in the global market place that gives them an edge in securing business for their firms.

Given that conditions for global entry and implementing global marketing strategy are met and the three success moderating factors are addressed, the study recognizes that it is necessary to address the competitive forces in the global environment to be able to obtain an optimal share of the market.

In summary, it can be stated that that (i) an explicit process to address global negatives is required to overcome the perceptual gap of emerging market firms on deliverables; and (ii) explicit attention to the achievement of global market synergies has to be given by global marketing strategists.

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Suitability of Multiple-choice Questions in Evaluating the Objectives of Academic Educational Process of Accounting Specialization

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Abstract

This study attempt to investigate and explore the use of multiple-choice questions (MCQs) at Jordanian public and private universities, from the point view of faculty member who are teaching accounting specialization and use MCQs in examinations of accountancy subjects. The study seeks to identify the extent MCQs can achieve regarding level of knowledge among students, assess the deep understanding and In-depth learning to measure and evaluate the range of learning in subjects of accounting specialization. To achieve the objectives of the study, a questionnaire designed according to the requirements of Ministry of Education in Jordan and the International Accounting Education Standard Board (IAESB).Based on analyzing responses and examining hypotheses, results clarify that MCQs are not enough tools to achieve the educational objectives concerning accounting subjects, in both theoretically and practically aspects. It was clear that there are no significant differences between the opinions of faculty members, neither public nor private universities. The study recommends that there is a need to re-consider the use of MCQs as a tool to evaluate the students' abilities and skills in subjects of accounting specialization.

Keywords: multiple-choice questions, accounting education, accounting exams

1. Introduction

1.1 Introduce the Problem

Recently, It is very obvious that faculty members at Jordanian universities adopting significantly MCQs in university exams as a tool to evaluate the educational process. MCQs being used almost on a large scale in all academic fields, taking into consideration that accounting subjects basically a practical major that relies on practical and theoretical framework aspects as a field of social science based on theory and philosophy.

The statement of problem of this study identifies the ability and suitability of MCQs to achieve goals of education of accounting specialization at Jordanian universities, both practical and theoretical aspects.

It is well known that each type of tests has its advantages and disadvantages, as of multiple-choice test have its own feature of educational assessment, and educational references in general determined the foundations for selection of successful test type to be convenient for assessment of student's abilities and skills.

Problem of the study is stated in the following question:

Can MCQs achieve the educational objectives of accounting subjects at Jordanian universities in general, both theoretical and practical aspects?

This question is divided into the following two sub questions:

- i. Can multiple-choice questions achieve the educational objectives of accounting subjects concerning the theoretical aspect?
- ii. Can multiple-choice questions achieve the educational objectives of accounting subjects concerning the practical aspect?

1.2 Explore Importance of the Problem

Multiple choice questions (MCQs) are used to examine university students in order to insure that the educational

objectives are achieved, regardless of method used whether MCQs, open book or oral questions. The use of any of these methods aims to make sure that the purpose of educational process has been achieved and to be certain that students have acquired knowledge and deep understanding of the contents of subjects which have been taught.

The choice of test method is an absolute unrestraint to the instructor, but the purpose and the appropriateness of the test method considered important indicators in comparison between the types of available tests, as there are many types of tests such as essay and objective questions which are related to a different advantages and disadvantages of each method to conduct a measurement, evaluation and assessment of the educational process.

The aim of current study is to focus on the most common types of questions in accounting specialization, which is the MCQs; it's widely used in professional examinations such as Certified Public Accountant (CPA) and Certified Managerial Accountant (CMA) and others. Recently, this type of questions widely used in university tests (Zucker, 2003).

It is worthy mentioned that there is a distinction between the concept of learning and the concept of education or teaching of accounting, the latter concept is the focus of this study, while the concept of learning is concerned to change or modify relatively constant behavior through training and the student's role here is an initiator and the Instructor is a coordinator, the teaching or education specifically is disciplined and oriented process, including three basic operations as follows:

- i. Design process and planning whereby the input of teaching is organized in the form of syllabus to achieve the specific objectives of the educational process.
- ii. The implementation process and the actual application of the plan during the semester.
- iii. Assessment process, the achievement level of teaching system objectives can be met and evaluated (Zaytoun , 2001).

In regards of accounting specialization, the International Accounting Education Standard Board (IAESB) issued a set of eight international standards for the education of accounting -International Education Standard (IES) which concerns with learning and teaching the accounting subjects, the international standard for Accounting education 3IES # "measuring the capacity and professionalism to help professional organizations in assessment, development and management of the written tests, which contains the guiding principles for the measurement and evaluation process (www.ifac.org).

The importance of this study is related to the academic and educational field at Jordanian universities and clarifies the effect of MCQs with regard to the level of educational outcomes of graduates, and importance of the study can be summarized in the following points:

- i. Verify the outputs of the educational process for the students of accounting regarding information and skills they acquired in their field of specialization.
- ii. Verify the validity of marks obtained by the student based on is compatible with the volume of useful information and skills received by student.
- iii. Verifying the reliability of results based on MCQs and appropriateness of selected questions in assessment of student performance.

1.3 Study Objectives

The study aims to:

1. Evaluate the use of MCQs to assure achieving the educational objectives concerning accounting subjects in Jordanian universities in general, regarding both theoretical and practical aspects.
2. Evaluate the use of MCQs are suitable to assure the ability in achieving the educational objectives related to the theoretical aspects in accounting subjects.
3. Evaluate the use of MCQs are suitable to assure the ability in achieving the educational objectives related to the practical aspects in accounting subjects.

1.4 Limitations of the Study

In view of the study features and for the purpose to obtain accurate and reliable results, the study focuses were mainly on the followings:

- i. Emphasis in Education and academic teaching, but did not address learning and vocational training.

- ii. University education of bachelors degree only, and did not deal with education of pre graduation or post graduates stages such as MA and PhD.
- iii. University education of accounting specialization, and did not address the other academic fields.
- iv. Accounting subjects that are taught within the syllabus of accounting specialization, but did not address non-accounting subjects that are taught within the syllabus of accounting specialization.

1.5 Describe Relevant Scholarship

The use of MCQs style repeatedly in university education makes many researchers in the field of education in general and university education in particular, to consider the possibility of using MCQs in evaluating and achieving educational goals, several numbers of individuals of different academic fields including specialists in the universities work field have touched and addressed this matter, including a study of (Tsul, Lau & Fong, 1995) which used the cognitive style test on students and its impact on their skills in handling and solving issues related to MCQs with the mysterious content which related to financial accounting subject, a classification of students was done based on previous classification of a study prepared by (Witkin, Moor, Goodenough, & Cox, 1977) which identified the variables of cognitive style of students that associated with individual differences of students and what distinguishes students from each other in terms of being aware of the information, methods and strategies that student adopted to receive knowledge and how to deal with are what distinguishes the response of each student as a way of thinking, Witkin has classified cognitive style to two dimensions (independent and dependent), the first dimension is an independent style, a type of students aware of the parts separately from the cognitive domain, and thus they have a greater capacity of analysis and sensual perception when they analyze the problems they face, as the second dimension is the cognitive style based on domain, a type realizes parts based on the cognitive domain, therefore, they are not being able to deal with the stimuli or problems independently, but rely on the cognitive domain obligatory and typically as they have a low awareness of sensory. The study found that the cognitive domain of individuals have a major impact on the results, students who have an independent cognitive domain achieved more marks than students who are classified as those with dependent cognitive pattern. This was pointed out by (Gul, Teoh, & Shannon 1992) When the workers of the teaching field use a MCQs style have to conduct their assessment of the questions accurately. The results and performance of the students don't depend on their knowledge and scientific abilities only, but also, on the differences of cognitive style of each student, therefore, attention should be paid to students with dependent cognitive pattern on the cognitive domain in order for them to be treated evenly.

Study conducted by Laffitte (1984) has noted, that in the case MCQs which starts with the simple questions and then access to the most difficult questions is building confidence among the students and thus better results in exams. The study of Balch (1989) results indicated that the students achievements would be better if the order of questions of MCQs were arranged in sequence and is identical to the sequence of scientific subject that has been taught, and the opposite would be if they were randomly ask questions of scientific subject and this was referred to the sequence of questions in order Scientific subject that may provide signal to recover the information which helps memory recall. The use of MCQs widely referred to be more acceptable to both parties lecturer and student and this is what noted by Kuechler and Simkin (2003) study whereas, the use of MCQs facilitates the examination process, if a large number of students was involved, as well as limit the deceiving attempts of students by using more than a form of questions, whether by using different questions for each model or arranged the questions differently for each model, as the exam is executed relatively in a short period of time. Both researchers tried to test and evaluate the level of understanding and assimilation of scientific subject for students in case is relied on MCQs and the final conclusion is that this type of questions is not enough at all to measure the level of understanding and comprehension of the students, but at the same time they confirmed that most of the educational and professional institutions relied on MCQs, taking into consideration the availability of possibilities and financial resources in light of increase the number of students and teaching load on lecturers, the most favorable result is to rely on MCQs, in spite of they do not reach the level to measure and evaluate the level of understanding of the student, while the use of essay questions are more appropriate to evaluate and measure the level of understanding of the student and that were defined as (Constructed-response questions) in the sense that a student has to initiate and establish the answer clearly instead of depending on choosing the correct answer from the multiple alternatives for each question, also a study of Bridgeman and Lewis (1994) noted that the built exam on MCQs make lecturer capable of wider scope coverage of scientific subject and more from the use of essay questions.

Many studies have addressed the measurement of the ability of MCQs on the level of knowledge among students and assess the deep understanding they have with regard to the scientific subject that has been taught, and that's

what (Stupans, 2006) study tried to verify the possibility of checking the level of awareness of educational subject for students, whether use of MCQs style adopted, the results showed that if lecturer wishes in assessing the scope of student's understanding of basic scientific subject (Application of Knowledge), the use of essay questions that require analysis and assembly to reach the right solution is the best to assess the level of knowledge of the student.

The study of Buckles and Siegfried (2006) was conducted to examine the possibility of In-Depth learning evaluation for the scientific subject of the students by using the MCQs, eventually, the researchers found that it is possible to benefit from the use of MCQs in public matters related to the educational subject, and if the questions were prepared precisely and carefully then it is possible that some aspects can be assessed, but not all the necessary elements that related to deep understanding of the students, it has also been noted that the test (Bloom) to measure the understanding and analysis or questions that require combination and assembly can not be measured accurately by using the MCQs only, both researchers concluded that MCQs style is helpful if it is used to test general information related to the educational subject, it is preferred to use bank of MCQs for each teaching course, but only if prepared accurately, deep, quality and proven high-quality in advance which may help lecturers in the evaluation and examination of deep understanding of the education subject of the students. The study of (Ali, Carr, & Ruit, 2016) concluded that multiple-choice exam allows learners to detect areas of needed improvement, and instructors to encourage deep, rather than superficial, learning strategies. Other study of (Bible, Simkin, & Kuechler, 2007) have focused on the results of (238) students concerning the Intermediate Accounting subject after conducting their exams by using the essay answers style and MCQs style, the researchers concluded that the use of MCQs could be appropriate tool to assess the level of (Subject Mastery) of the student for the educational subject, but at the same time, the study noted that there are a limitations for the fact that the study adopted Intermediate Accounting only and neglected the rest of the major subjects, and therefore, researchers have pointed out the need to conduct additional and extensive studies before granting dependence on the results of their study.

In a similar study by Kim et al, (2009) researchers conducted a comparison among students answers for the same exams questions as long as students answers on each question in two way-style, firstly, essay answer (narrative) secondly, the MCQs style after analyzing and comparing the students answers, researchers found that the essay questions facilitate the evaluation of deep understanding (In-depth Understanding) with learning subject of the student, as for the students answers with MCQs style has enabled them to achieve good marks but without the possibility of stimulating or exciting or building practical thinking (Thought Processes) for the educational subject.

The current research focused in investigating the ability of MCQs style to measure and evaluates the range of learning and deep understanding of an educational subject within accounting specialty students at Jordanian universities. This is what the most of previous studies dealt with as an attempt to ensure that the use of multiple-choice questions style test method is an access to the desire educational objectives, both aspects (Tsul et al, 1995; Bible et al, 2007) have been focused in studying the results of the students in accounting specialty for more than one semester or comparing students' results in tests after the application of MCQs and essay style at the same time and for the same sample students.

The current study characterized and distinguished from the aforementioned studies for being mainly headed for teachers or lecturers as an attempt to find out their opinions about the possibility of assessing the quantity of learning and deep understanding of educational subject of students, relying on MCQs style in a large scale, as our study covered all accounting specialty courses that are taught at Jordanian universities specifically.

1.6 State Hypotheses and Their Correspondence to Research Design

Based on the problem statement of the study and objectives, the study relied on the following assumptions:

H01: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects in general, both practical and theoretical aspects.

H02: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects, theoretical aspect.

H03: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects, practical aspect.

H04: There are no statistically-significant differences between the faculty members of private and public universities in their assessment of suitability of multiple-choice questions to achieve the educational objectives of accounting subjects, theoretical and practical aspects

2. Method

2.1 Research Design

A questionnaire was designed to reflect the subject of the study and its objectives by reviewing literature and previous studies in connection with the subject study, it was mainly relied on the instructions related to the knowledge field of accounting specialization, based on the law and general instructions issued by Ministry of Education in Jordan, and educational goals issued by the (AICPA).

The following steps were followed in designing the questionnaire:

First:

Determine the accounting subjects that will be studied and adopted in the identified instructions and standards of the provision of the majors of Management Science " issued under paragraphs (A) and (K) of Article (7) of the law Commission of the (Accreditation and Quality Assurance Commission for Higher Education Institutions [HEAC], 2007), No. (20) And amendment No. (2010/5/32) Dated (18/2/2010) (www.heac.org.jo) for the accounting specialization, which identified the basic compulsory fields - the field of knowledge in the following subjects:

- Financial Accounting: Accounting Principles (1) - Accounting Principles (2) - Intermediate Accounting and companies (1) - Intermediate Accounting and companies (2) - Advanced Accounting.
- Accounting theory and international standards: Financial Statement Analysis - International Accounting Standards - accounting theory - International Accounting.
- Management Accounting and auditing: Management Accounting - Cost Accounting – accounts auditing - International Auditing Standards.
- Accounting systems: accounting information systems - Tax Accounting - Governmental Accounting - Banks and insurance accounting.

Second:

Determine the general educational objectives required to be achieved in the specialty of accounting in general, which has been relied upon by (American Institute of Certified Public Accountants [AICPA], 1999) and its amendments. The Core Competencies Framework, as a general framework of the basic skills (competencies-qualifications) that was issued "Which frames the educational objectives of the accounting specialization and must be achieved at a minimum, those skills were classified into three main types:

1. Functional skills (competencies - qualifications).
2. Personal skills (competencies - Qualifications).
3. Large administrative perspective skills (competencies - qualifications) broad business perspective.

This study focused on accounting subjects, in particular, functional Competencies have been adopted which have been identified by the (AICPA) in following educational objectives:

- i. Decision Modeling: (studying the company - identifying alternatives - selecting and applying solutions).
- ii. Risk Analysis: (understanding the risks of auditing and the risks of the project).
- iii. Measurement: (knowing the appropriate means to measure the performance and standards application).
- iv. Reporting: (preparing accounting reports and reports on the work accomplished and results).
- v. Research: (the ability to obtain the appropriate information to understand and apply that information).
- vi. Leverage of technology to develop and enhance functional competencies: (use of information technology for the development of the previous functional competencies).

2.2 Measures and Covariates

The questionnaire consisted of two parts:

- i. Demographic variables include qualification, professional, and years of experience, gender and age.
- ii. Second part Included 51 questions about the appropriate use of MCQs, in both theoretical and practical aspects, the questions have been ordered randomly, therefore the respondents options could be more neutral and objective.
 - a. Multiple choice questions, which are related to the achievement of educational objectives of accounting

subjects concerning theoretical aspect, had the following numbers:

1-2-7-10-16-19-21-23-25-34-35-36-37-38-39-40-41-45-46

b. Multiple choice questions, which are related to the achievement of the educational objectives accounting subjects concerning practical aspect,(Recording, Posting, Journalize adjusting entries, Preparing financial statements, financial equations, Managerial equations, quantitative technique analysis and using computerized accounting Software) had the following numbers:

3-4-5-6-8-9-11-12-13-14-15-17-18-20-22-24-26-27-28-29-30-31-32-33-42- 43-44-47-48-49-50-51.

2.3 Population and Sample of the Study

Study population consists of faculty members working at accounting departments at Jordanian universities, sample has been selected randomly from the study population, where part of the questionnaire was distributed to respondents directly and the other part was distributed to respondents through E-mails, the total number of distributed questionnaires was 85, and 62 questionnaires were returned and valid for the study analysis.

2.4 Validity and Reliability

Face validity was verified by a number of arbitrators of faculty member in Jordanian universities, questionnaire has been amended in light of their proposals, Cronbach Alpha was used to measure the reliability of study tool and the internal consistency of all questionnaire paragraphs, Cronbach Alpha was 95.5% which is sufficient for the purposes to test the reliability of study tool, which was very high and acceptable, while research results can be reliable when Cronbach Alpha is more than 60%.

3. Statistical Analysis and Testing Results

3.1 Distribution of the Study Variables

This study investigates the suitability of MCQs to evaluate the educational process of accounting subjects. The research instrument addresses the theoretical as well as the practical aspects of accounting subjects. Each of the theoretical and the practical aspect was treated as separate variable and the individual responses of each respondent to the items making up each of these two aspects of teaching were summed for each variable separately and the obtained sums, or totals, were tested for normality of distribution of the data using the Kolmogorov-Smirnov and the Shapiro-Wilk's tests at the 0.05 level of significance ($\alpha = .05$). The same procedure was followed in the case of the sum of responses to the theoretical plus the practical facets of teaching 'Overall total score', which defines a measure of the overall aspects of the academic accounting teaching (referred to hereafter as the 'overall measure'. Since the sample size is less than 2000 ($N = 62$), the researchers used the results of the Shapiro-Wilk's test of normality. Outputs of test for normality (Table 1) illustrate what follows:

i. Table 1 reveals that the total score of the theoretical aspect of MCQs has normal distribution. Since $p = 0.060 > \alpha = 0.05$, the null hypothesis, which states that the population is normally distributed, cannot be rejected. However, the histogram reveals that distribution of this variable differs from the normal distribution. This result is supported by the skewness and kurtosis values (Table 2), which are both different, and somewhat far, from zero.

ii. Table 3 uncovers that the total score of the practical aspects of MCQs do not have normal distribution. The associated probability is less than 0.05 ($p = 0.035 < \alpha = 0.05$). Therefore, the null hypothesis is rejected. This result is augmented by the histogram as well as by the skewness and kurtosis values (Table 2), which both differ from zero.

iii. Table 4 shows that the total score for the sum of the practical and theoretical aspects of MCQs have a normal distribution as the associated probability is higher than the level of significance ($p = 0.172 > \alpha = 0.05$). Accordingly, the null hypothesis accepted. This finding is reinforced by the fact that the skewness and kurtosis values are both different from zero (Table 2).

Based on the foregoing points, it is concluded that none of the three study variables has normal distribution.

Table 1. Test of distribution of MCQs for theoretical aspect

Tested Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Th-Tot	.081	62	.200*	.963	62	.060
Th-Tot-Inv	.146	62	.002	.812	62	.000
Th-Tot-SqRt	.096	62	.200*	.941	62	.005
Th-Tot-SqRtInvs	.130	62	.011	.866	62	.000
Th-Tot-Quad	.063	62	.200*	.981	62	.457
Th-Tot-QuadInvs	.190	62	.000	.683	62	.000
Th-Tot-Log	.112	62	.051	.909	62	.000
Th-Tot-Ln	.112	62	.051	.909	62	.000
Th-Tot-ZScr	.081	62	.200*	.963	62	.060

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Table 2. Descriptive Statistics of the theoretical, practical, and overall aspects of the academic

Accounting Subjects	Th-Tot	Pr-Tot	Thr-Pr-Tot
N Valid	62	62	
Missing	0	0	0
Mean	74.53	84.84	159.37
Std. Error of Mean	1.479	3.357	4.269
Median	76.00	83.00	154.00
Mode	76 ^a	64 ^a	130 ^a
Std. Deviation	11.642	26.429	33.612
Variance	135.532	698.498	1129.745
Skewness	-.637	.603	.362
Kurtosis	.757	-.057	-.190
Range	57	119	159
Minimum	38	41	96
Maximum	95	160	255
Sum	4621	5260	9881

a. Multiple modes exist. The smallest value is shown

Table 3. Tests of distribution of MCQs for practical aspect

Tested Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pr-Tot	.116	62	.037	.958	62	.035
Pr-Tot-Inv	.127	62	.014	.956	62	.027
Pr-Tot-SqRt	.102	62	.179	.976	62	.269
Pr-Tot-SqRtInvs	.109	62	.067	.975	62	.229
Pr-Tot-Quad	.129	62	.012	.889	62	.000
Pr-Tot-QuadInvs	.156	62	.001	.890	62	.000
Pr-Tot-Log	.088	62	.200*	.982	62	.476
Pr-Tot-Ln	.088	62	.200*	.982	62	.476
Pr-Tot-ZScr	.116	62	.037	.958	62	.035

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Table 4. Tests of distribution of the overall aspects theoretical, practical, and overall aspects of accounting subjects

Tested Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Thr-Pr-Tot	.097	62	.200*	.972	62	.172
ThrPr-Tot-Inv	.134	62	.008	.957	62	.031
ThrPr-Tot-SqRt	.110	62	.059	.979	62	.382
ThrPr-Tot-SqRtInvs	.128	62	.013	.972	62	.167
ThrPr-Tot-Quad	.124	62	.018	.937	62	.003
ThrPr-Tot-QuadInvs	.137	62	.006	.909	62	.000
ThrPr-Tot-Log	.121	62	.025	.979	62	.380
ThrPr-Tot-Ln	.121	62	.025	.979	62	.380
ThrPr-Tot-ZScr	.097	62	.200*	.972	62	.172

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

In view of the foregoing findings, the researchers attempted to normalize the data through standardization to the z-scale and seven Box-Cox transformations (inverse; square root; inverse square root; square; inverse square; log base e (ln); and log base 10 (log) transformations) and another run of the normality test was implemented. The results (Tables 1, 3, and 4) point out that at least standardization and/or one transformation could normalize the aforementioned variables but neither standardization, nor a single transformation, led to normalization of all three variables. Based upon this result, the researchers will employ non-parametric, rather than parametric, statistical techniques (e.g., the Wilcoxon Signed-Rank (One-Sample) Test and the Mann-Whitney U Test) in data processes and hypothesis testing.

3.2 Hypotheses Testing

The outputs of the normality test (Tables 1, 3, and 4 and Figures 1-6) illustrated that no study variable has normal distribution and that neither standardization, nor a single transformation, led to normalization of all three variables (Tables 1, 3, and 4). In consequence, researchers resorted to non-parametric, rather than to parametric, statistical techniques. In this regard, the first three null hypotheses were tested using the Wilcoxon Signed-Rank Test while the fourth hypothesis was tested by the Mann-Whitney U Test.

Testing the First Hypothesis

H01: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects in general, both practical and theoretical aspects.

A one-sample sign test, or a Kolmogorov-Smirnov test, or a Wilcoxon Signed-Rank (One-Sample) test can be used. Subsequently, soundness of this null hypothesis was examined by means of the Wilcoxon Signed-Rank test, which is the non-parametric equivalent for the one-sample t -test, using the Minitab Software, v. 16.2 (Minitab Inc.). This test evaluates whether the population medians on certain dependent variable are comparable, or not, with a test value, i.e., if the median value of the target variable is different from a hypothesized value.

The research instrument has 51 items related to the theoretical and practical aspects of accounting subjects, with five choices (i.e., levels of agreement) for each. Weighing of the item scores followed a normal, five-point Likert scale where the highest level of agreement with suitability of the given item for achievement of the teaching goals was assigned the highest weight, and vice versa. Therefore, the lowest probable weight for any respondent, corresponding to that the multiple choice questions are not appropriate for achieving the goals of theoretical and practical subjects of accounting, is 51 (51 Items \times 1). Meantime, the highest likely weight, indicating marked suitability of the multiple choice questions for achievement of the goals of theoretical and practical of teaching of the accounting courses, is 255 (51 Items \times 5). Bearing in mind that the level of agreement indicated by 3 is the medium and median level of agreement on the scale for every item, then, the overall median is 153 (51 Items \times 3). This value strikes the divide line between disagreement and agreement. Subsequently, in order to test the aforementioned hypothesis taking this median of the total score (153) as the hypothesized value for the median. If the median score of the sample faculty members is equal to, or significantly less than, 153.0, then the multiple choice questions are not relevant for achievement of the educational objectives of theoretical and practical teaching of the accounting courses, and vice versa. As Table 2 shows, the total score of the theoretical plus the practical items has a median of 154.0.

In this case, in order to tests whether the sample median of 154 is statistically different enough from 153 at $\alpha = 0.05$. The outputs of the Wilcoxon Signed-Rank (One-Sample) test, which are presented in Table 5, disclose that the estimated median score of the sample faculty members is 159.5. In addition, the probability value (p) is greater than the level of significance ((Wilcoxon test statistic = 1050.0, $N^* = 1$, $p = .901 > .05 = \alpha$, $N = 62$). Since $p > \alpha$, we fail to reject the null hypothesis (H_{10}) and thus reach to the conclusion that the sample median is not significantly different from 153.

Table 5. Outcomes of the Wilcoxon Signed-Rank Test of the first hypothesis

Test of median = 153.0 versus median < 153.0						
Variable	N	N^*	N for Test	Wilcoxon Statistic	p^1	Estimated Median
Thr-Pr--Tot	62	1	62	1159.5	0.901	159.5

1: The level of significance (α) was set at .05.

Since the Wilcoxon signed-rank test uncovered that the sample median (154) is not statistically significantly different from the hypothesized value (153), and then it is not greater than it. This implies that H_{10} is accepted because it can be accepted only when the sample median is significantly higher than the hypothesized value. In other words, the study data provide adequate evidence on that the sample university faculty members agree with that the MCQs cannot significantly ensure achieving the educational objectives of theoretical and practical aspects of accounting subjects.

Testing the Second Hypothesis

H02: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects, theoretical aspect.

In the case of the goals of theoretical teaching of the accounting subjects, the research instrument included 19 items. Hence, the lowest potential weight for any respondent, implying that the MCQs are not relevant for achievement of the goals of theoretical subjects of accounting, is 19 (19 Items x 1) while the highest probable weight, corresponding to appropriateness of the MCQs for achievement of the goals of theoretical teaching of the accounting subjects, is 95 (19 Items x 5). Considering that the level of agreement indicated by 3 is the divide line between agreement and disagreement with every item, then the overall median is 57 (19 Items x 3). This value separates the agreement from the disagreement scores of the sample faculty member with suitability of the MCQs for realization of the goals of theoretical subjects of accounting. In consequence, the researcher tested the abovementioned hypothesis taking this median total score (57) as the hypothesized value. If the median score of the sample faculty members are equal to, or significantly less than, 57.0, then the multiple choice questions are not proper for the purpose of achieving the goals of theoretical teaching of the accounting subjects, and vice versa. The respondents' total score on the theoretical items has a median of 76.0 (Table 2).

To determine if the median value of the target variable is different from the hypothesized value (57), the researchers examined soundness of the foregoing null hypothesis (H_{20}) using the Wilcoxon Signed-Rank test and the Minitab Software, v. 16.2 (Minitab Inc.)

The outcomes of the Wilcoxon signed-rank test (Table 6) reveal that the estimated median score of the sample faculty members is 75.00. In addition, the probability value (p) is higher than the level of significance ((Wilcoxon test statistic = 1896.5, $N^* = 1$, $p = 1.000 > .05 = \alpha$, $N = 62$). As $p > \alpha$, the researchers fail to reject the null hypothesis and thus reaches to the conclusion that the sample median is not significantly different from 57.

Table 6. Outcomes of the Wilcoxon Signed-Rank Test of second hypothesis

Test of median = 57.00 versus median < 57.00						
Variable	N	N^*	N for Test	Wilcoxon Statistic	p^1	Estimated Median
Thr-Pr--Tot	62	1	62	1896.5	1.000	75.00

1: The level of significance (α) was set at .05.

As to that the Wilcoxon signed-rank test disclosed that the sample median (76) is not statistically significantly different from the hypothesized value (153), and then it is not greater than it. What this means is that H_{20} is accepted because it can be accepted only when the sample median is significantly greater than the hypothesized value. That is, the sample data provide enough evidence on that, from the point view of the sample university faculty members, the MCQs cannot significantly ensure achieving the educational objectives of theoretical aspects of accounting subjects.

Testing the Third Hypothesis

H03: Multiple-choice questions do not significantly ensure to achieve the educational objectives of accounting subjects, practical aspect.

As regards the goals of practical teaching of the accounting subjects, the research instrument included 32 items. Consequently, the lowest likely score for any respondent, revealing that the MCQs are not suitable for achieving the goals of practical subjects of accounting, is 32 (32 Items x 1) whereas the highest potential score, corresponding to appropriateness of the MCQs for achievement of the goals of practical teaching of the accounting subjects, is 160 (32 Items x 5). Taking the level of agreement indicated by 3 as the cut point between disagreement and agreement with every item, then the overall median is 96 (32 Items x 3). This value is the cut point between agreement and disagreement of the sample university faculty member with relevance of the MCQs for achievement of the goals of practical subjects of accounting. Therefore, the researcher tested the abovementioned hypothesis taking this median total score (96) as the hypothesized value. If the median score of the sample faculty members is equal to, or significantly less than, 96.0, then the MCQs are not suitable for achievement of the goals of practical teaching of the accounting subjects, and vice versa. The respondents' total score on the theoretical items has a median of 83.0 (Table 2).

So as to specify if the median value of the target variable (83) is different from the hypothesized value (96), the researcher examined soundness of the foregoing null hypothesis ($H3_0$) following the Wilcoxon Signed-Rank test and using the Minitab Software, v. 16.2 (Minitab Inc)

The Wilcoxon signed-rank test shows that the estimated median score of the sample faculty members is 83.00 (Table 7). Furthermore, this test uncovers that the probability value (p) is less than the level of significance (Wilcoxon test statistic = 506.5, $N^* = 1$, $p = .001 > .05 = \alpha$, $N = 62$). As $p < \alpha$, the researcher rejects the null hypothesis in favor of the alternative hypothesis and concludes that the sample median is significantly less than 96.

Table 7. Outcomes of the Wilcoxon Signed-Rank Test of third hypothesis

Test of median = 96.00 versus median < 96.00						
Variable	N	N*	N for Test	Wilcoxon Statistic	p^1	Estimated Median
Thr-Pr--Tot	62	1	61	506.5	.001	83.00

1: The level of significance (α) was set at .05.

The Wilcoxon signed-rank test brings to notice that the sample median (83) is statistically significantly less than the hypothesized value (96). This implies that $H3_0$ is accepted due to that it can only be accepted if the sample median is significantly higher than the hypothesized value. Thereupon, the sample data provide sufficient evidence to conclude that, from the standpoint of the sample university faculty members, the multiple-choice questions can not significantly ensure achieving the educational objectives of practical aspects of the accounting subjects.

Testing the Fourth Hypothesis

H04: There are no statistically-significant differences between the faculty members of private and public universities in their assessment of suitability of multiple-choice questions to achieve the educational objectives of accounting subjects, theoretical and practical aspects.

The potential statistically-significant ($\alpha = 0.05$) difference between the sample faculty members of the private and the public universities in their assessment of the relevance of the MCQs for achievement of the goals of the theoretical plus the practical subjects of accounting. Since the number of groups under consideration is two, then the researcher conducted the Mann-Whitney U test, which is the non-parametric equivalent of the two-independent sample t -test.

The test results (Table 8) demonstrate that no statistically-significant difference exists between the sample private and public university faculty members (Mann-Whitney $U = 380.500$, p (Asymp. Sig. (2-tailed)) = .275 $> \alpha = .05$). As the mean ranks output of this test shows, the public university faculty members have only slightly higher mean rank of the total score on the instrument's 51 items than the private university faculty members (34.65 against 29.51). In light of these findings, the researcher accepts the foregoing research hypothesis and concludes that there is no statistically-significant ($\alpha = 0.05$) difference between the faculty members of the private and public universities in their perceptions of suitability of the MCQs for achievement of educational objectives of the theoretical plus practical academic subjects of accounting.

Table 8. Pairwise comparisons between the private and public university faculty members in perception of the ability of the MCQs to achieve the educational objectives of accounting subjects

Test statistics^{a,b}		
Mann-Whitney U	380.500	
Wilcoxon W	1121.500	
Z	-1.091	
Asymp. Sig. (2-tailed)	.275	
Ranks		
Descriptive	Private	Public
N	38	24
Mean Rank	29.51	34.65
Sum of Ranks	1121.50	831.50

a. Grouping Variable: University

b. N = 62

Frequency Distribution Analysis

In order to identify the aspects of accounting teaching, both theoretical and practical, which the sample faculty members support that the MCQs do achieve the accounting teaching goals through them and those which do not. To this end, the researchers subjected the 51 instrument items to frequency distribution analysis (Table 9).

First

The largest proportion of the sample university faculty members strongly agreed on that the multiple choice questions are suitable for evaluation the achievement of the educational objectives of accounting subjects in eight aspects. In descending order, these are (Table 9):

1. Differentiating between the types of auditing. (61.3% (Theoretical Aspect)). Furthermore, no one of the sample university faculty members disagreed strongly with this issue.
2. Defining the internal control system and its elements. (59.7% (Theoretical aspect)).
3. Differentiating between the auditing report types and when each type of reports should be prepared. (58.1% (Theoretical aspect)). In addition, no single faculty member strongly disagreed with this aspect.
4. Remembering auditing standards (GAAS). (56.5% (Theoretical aspect)). Moreover, no one of the sample members disagreed strongly this point.
5. Knowing the fundamental concepts of financial accounting (hypotheses; international accounting standards; professional ethics). (53.1% (Theoretical aspect)). Meantime, no sample member disagreed strongly with this aspect.
6. Knowing and understanding the audit risks. (51.6% (Theoretical aspect)).
7. Determining and understanding the stages of the auditing process (planning, applying, etc). (50.0% (Theoretical aspect))
8. Differentiating between the different costs concepts (48.4% (Theoretical aspect)). Meanwhile, no single sample member disagreed strongly with this issue.

Second

A large number of the sample university faculty members agreed on that the MCQs are suitable for evaluation the achievement of the educational objectives of accounting subjects in five aspects. In descending order, these are (Table 9)

1. Ability to recall and distinguish the basic factors of lease accounting contracts and operational contracts according to the International Accounting Standards. (58.1% (Theoretical aspect)).
2. Determining the tax exemptions for the individuals and the companies (56.5% (Theoretical aspect)).
3. Distinguishing between the adjustments of accounting policies, adjustments of accounting estimates and corrections of the accounting errors. (54.8% (Theoretical aspect)).

4. Being able to specify and classify types of risks which companies may confront in future. (53.2% (Theoretical aspect)).

5. Being able to interpret and justify the management's decision in the differentiation between the different accounting methods (e.g., selection of Accelerated depreciation method over the Straight line method).

(51.6% (Theoretical aspect)).

Interestingly, all foregoing 12 aspects belong to the theoretical facet of the accounting academic teaching.

Third

Almost half of number of the sample university faculty members strongly disagreed with that the MCQs are suitable for evaluation the achievement of the educational objectives of accounting subjects in three aspects, implying that this type of questions is not suitable for achievement of accounting teaching goals. These aspects are (Table 9):

1. Ability to prepare all types of financial statements. (54.8% (Practical Aspect)).

2. Using other necessary technological skills which are useful in current working environment (WinWord, PowerPoint, etc.). (50.0% (Practical Aspect)).

3. Using the computer to prepare a database (Access). (48.4% (Practical Aspect)).

Fourth

About half of the sample university faculty members disagreed with that the MCQs are suitable for evaluation the achievement of the educational objectives of accounting subjects in four aspects, implying that this type of questions is not suitable for achievement of the accounting teaching goals. These aspects are (Table 9):

1. Expressing opinion about the company's actual performance and make comparison between budgets and actual results. (50.0% (Practical Aspect)).

2. Being able to measure the standard deviations and prepare performance reports. (48.4% (Practical Aspect)).

3. Preparing tax declaration for the individuals and companies. (48.4% (Practical Aspect)).

Fifth

For all the 51 examined issues, the proportions of the sample university faculty members who did not know the suitability of MCQs for the achievement of the educational objectives of accounting subjects were very low (Table 9), much less than 10.0%, except in one case (Using computer software for enterprise resource planning (ERP)). (11.3%). This is much expected knowing that the sample members are all specialized and highly-qualified academics, who, additionally, have generally appreciable experience in teaching accounting subjects.

Table 9. Items frequency distribution analysis

Level of Agreement ^{a, b}						
Statement		1	2	3	4	5
1	Knowing the fundamental concepts of financial accounting (hypotheses; international accounting standards; professional ethics).	0.0	9.7	0.0	32.3	53.1
2	Recalling basic steps of accounting cycle (analysis the recording process, journalising and balancing the accounts and posting to the Ledger; preparing trail balance).	32.3	38.7	1.6	19.4	8.1
3	Applying the steps of accounting cycle (analysis the recording process, journalizing and balancing the accounts and posting to the Ledger; preparing trail balance).	38.7	38.7	1.6	14.5	6.5
4	Applying types of depreciations of fixed assets and ability to make comparison between them.	17.7	36.5	3.2	37.1	6.5
5	Knowing how to record the adjusting entries.	30.6	38.7	1.6	21.0	8.1
6	Ability to prepare all types of financial statements.	54.8	25.8	3.2	11.3	4.8
7	Ability to recall and distinguish the basic factors of lease accounting contracts and operational contracts according to the International Accounting Standards.	1.6	17.7	6.5	58.1	16.1

8	Identify the recording processing of the lease accounting contracts and financial operation contracts according to the International Accounting Standards.	16.1	32.3	8.1	29.0	14.5
9	Knowing how to use the retail/installment sale method and revenue recognition.	9.7	36.5	4.8	33.9	16.1
10	Distinguishing between the adjustments of accounting policies, adjustments of accounting estimates and corrections of the accounting errors.	8.1	17.7	3.2	54.8	16.1
11	Knowing way of adjustments accounting policies and adjustments of accounting estimates and corrections of the accounting errors.	14.5	29.0	4.8	40.3	11.3
12	Knowing how to present and disclose the adjustments in accounting methods, adjustments in accounting principles, and corrections of accounting errors.	9.7	27.4	4.8	45.2	12.9
13	Calculating and disclosing the earnings per share.	14.5	32.3	3.2	35.5	14.5
14	Using ready accounting software for applying the whole accounting cycle	40.3	35.6	6.5	12.9	4.8
15	Using the computer (Excel program) in calculating the depreciations.	43.5	29.0	4.8	14.5	8.1
16	Being able to interpret and justify the management's decision in the differentiation between the different accounting methods (e.g., selection of Accelerated depreciation method over the Straight line method).	4.8	22.6	1.6	51.6	19.4
17	Being able to study and analyze the financial situation of the company and to compare it other companies in the same segment.	9.7	30.6	6.5	43.5	9.7
18	Being able to give opinion on a certain case study through selection and application of a suitable solution for financial problems that the company faces (e.g., internal or external financing).	6.5	24.2	6.5	45.2	17.7
19	Being able to specify and classify types of risks which companies may confront in future.	1.6	11.3	6.5	53.2	27.4
20	Being able to analyze and understand the project risks concept through the use of the financial analysis tools.	9.7	40.3	0.0	40.3	9.7
21	Ability to understand and explain the disadvantages and advantages of each accounting process.	6.5	25.8	3.2	45.2	19.4
22	Ability to use the Excel program in financial analysis.	33.9	41.9	4.8	11.3	8.1
23	Differentiating between the different cost concepts.	0.0	4.8	1.6	45.2	48.4
24	Applying the manufacturing overheads cost and distribution methods (ABC).	12.9	29.0	3.2	32.3	22.6
25	Understanding the advantages and disadvantages of manufacturing overheads cost distribution methods (ABC).	6.5	21.0	1.6	46.3	24.2
26	Being able to analyze the relationships between the cost, volume of sales, and profit (C-V-P).	1.6	14.5	3.2	38.7	41.9
27	Measuring the product cost using the Job-order costing systems or process costing system.	17.7	33.9	3.2	29.0	16.1
28	Using the standard costs in evaluation the performance of projects.	12.9	30.6	6.5	40.3	9.7
29	Preparing budgetary planning for project.	41.9	43.5	1.6	9.7	3.2
30	Being able to measure the standard deviations and prepare performance reports.	21.0	48.4	6.5	17.7	6.5
31	Being able to analysis the break-even point for the project and prepare the income statement.	27.4	48.4	3.2	11.3	9.7
32	Expressing opinion about the company's actual performance and make comparison between budgets and actual results.	11.3	50.0	1.6	27.4	9.7
33	Using the computer in preparing discretionary budgets and analyzing the standard deviations.	41.9	30.6	1.6	17.7	8.1

34	Knowing and understanding the audit risks.	1.6	11.3	4.8	30.6	51.6
35	Remembering auditing standards (GAAS).	0.0	3.2	3.2	37.1	56.5
36	Defining the internal control system and its elements.	1.6	6.5	3.2	29.0	59.7
37	Determining and understanding the stages of the auditing process (planning, applying, etc).	1.6	9.7	6.5	32.3	50.0
38	Differentiating between the types of auditing .	0.0	1.6	1.6	35.5	61.3
39	Differentiating between the auditing report types and when each type of reports should be prepared.	0.0	3.2	4.8	33.9	58.1
40	Determining the tax exemptions for the individuals and companies.	0.0	12.9	8.1	56.5	22.6
41	Identifying the tax law for the individuals and companies.	0.0	9.7	6.5	43.5	40.3
42	Preparing tax declaration for the individuals and companies.	17.7	48.4	6.5	22.6	4.8
43	Using the computer in preparation of tax declaration.	38.7	37.1	6.5	11.3	6.5
44	Knowing how to use the documentation methods (document flow maps/charts) and evaluating the internal control system.	8.1	30.6	9.7	37.1	14.5
45	Knowing how to prevent and discover mistakes in operation of computerized information system, fraud, and deception.	3.2	29.0	4.8	43.5	19.4
46	Knowing the internal control concepts which prevent the error before it occurs.	0.0	22.6	3.2	38.7	35.5
47	Using the computer in developing electronic tables (Excel).	37.1	40.3	6.5	11.3	4.8
48	Using the computer to prepare a database (Access).	48.4	30.6	6.5	6.5	8.1
49	Using computer software for enterprise resource planning (ERP).	30.6	35.5	11.3	9.7	12.9
50	Using other necessary technological skills which are useful in current working environment (WinWord, PowerPoint, etc.).	50.0	25.8	3.2	12.9	8.1
51	Studying practical cases to show how the companies can benefit from tax exemptions and the governmental concessions(site, specialization, etc.).	9.7	17.7	9.7	43.5	19.4

4. Results and Recommendations

4.1 Results

In light of data analysis and hypotheses testing, it's obvious that faculty members in universities use MCQs as a tool to assess the deep understanding and level of knowledge among students of accounting specialization exams. Analysis reveals that, sample university faculty members agree that the MCQs cannot significantly ensure the ability in achieving the educational objectives related to the theoretical and practical aspects in accounting subjects, furthermore there is no significant difference between the faculty members of private and public universities in their perceptions of non- suitability of MCQs in order to reach the goals of educational objectives.

Nonetheless, faculty members still use MCQs in exams of accounting subjects. In addition the Ministry of Higher Education focused on setting special instructions for knowledge field of accounting specialization in general but did not give enough concern about the educational objectives for each field, which usually covers the personal, functional and administrative aspects for the students in accounting specialization as in the case of the general framework of the basic skills (competencies-qualifications).

4.2 Recommendations

Its recommended that there is need to re-consider the necessity to use essay questions in university exams in order to test students' practical abilities regarding accounting specialization, which is considered as the best of all to assess the cognitive level of student understanding and In-depth learning, furthermore, to insure measurement of comprehension, analysis, structure and assembly, especially the purpose of evaluation process in respect to test the student ability to reach to the correct information.

MCQs may be used in university exams to test the student's theoretical and practical abilities and to evaluate the general matters related to educational subject, taking into consideration the following points when using this type of questions to get the best results:

1. Questions should be prepared in a precisely, carefully and pretested manner,

2. Questions should be built serially and identically according to the sequence of educational subject that has been taught to cover a wider range of educational subject in order to help students to call memory and restore the information.
3. Questions should be started typically with the easiest questions then to be stepped gradually to the most difficult in order to build the self-confidence for the student.
4. Preparation of different models to reduce deceiving attempts, whether by using different questions or by using a different order of questions in each model.
5. Building a question bank of multiple-choice questions for each educational subject.
6. The Ministry of Higher Education in Jordan has to be guided by the general framework of basic skills and develop a special instructions with regards to accounting specialization to include a special educational objectives, which covers the personal, functional and administrative side for the accounting students as well as the field of cognitive side which is allocated generally to accounting specialization.
7. The need to generalize this study to include:
 - i. Learning and vocational training.
 - ii. Teaching in various stages, under graduation education and post graduation academic stages such as Master and PhD.
 - iii. Non-accounting courses that are taught within the syllabus of accounting specialization.

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The Influence of Strategic Leadership on Building Employees' Entrepreneurial Orientation: A Field Study at the Jordanian Public Sector

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Abstract

The public sector in Jordan is confronting many problems; reports show that citizens are not contented with the number and quality of current services. Consequently; persistent initiatives to uphold the sector performance took place at all levels, relying on the inventive employees and leadership to achieve the intended improvement. So this study seeks to test the impact of strategic leadership (charismatic, visionary, change agent and servant) on building entrepreneurial orientation (proactiveness, innovativeness and risk taking) in Jordanian public sector employees.

A random sample was selected of 500 employees working at health, education, agriculture and other service governmental organizations. To obtain the required results multiple regression was calculated using (21) SPSS version.

It was found that the charismatic, change agent, servant styles positively influence employees proactiveness, with no influence on the other two entrepreneurship dimensions. While visionary style has no significant influence on all entrepreneurship dimensions. However the public sector reform is achievable, through comprehensive strategies, successful implementation, and effective continuous control. Innovative departments need to be established and financed away from bureaucratic environments.

Keywords: entrepreneurial orientation, Jordanian public sector, strategic leadership

1. Introduction

It is known that one of the public sector responsibilities and at the same time challenges in any country is to provide citizens with basic services on time and at satisfactory level of quality (Jarrar & Schiuma, 2007; Northcott & Ma'amora, 2012). Citizens are now different than before, they are knowledgeable, empowered, their demands and expectations are escalating, they are alert enough to judge the goodness of the state's services and express their un-satisfaction frankly (Im, 2014). Other stakeholders rather than citizens come in to the scene; they also have expectations, their satisfaction is crucial as well (Tizard, 2012).

Some researchers (Bhuiyan & Amagoh, 2011 ; Nusair, Ababneh, & Kyung, 2012 ; Agolla & Van, 2016 ; Shannak, 2013) argued that service quality is not the only dilemma that confronts the public sector, the sector is answerable for environment safety, efficiency, cost reduction, productivity, fast responsive to citizens requirements and coping with technological advancement .. etc. Furthermore it was assumed that bureaucracy represents the pivotal barrier confronting the public sector and restricting its attempts in serving citizens (Page & Page, 2016). In spite of these challenges the public sector is trying hard to go beyond the traditional patterns of management; there is a tendency towards public sector reform all over the world.

Joining efforts of local governments with external assistance are taking place to refresh services quality (Lemay, 2009; Cummings, 2015).

Lindorff (2009); Aziz, Silong, Karim, & Hassan, (2012) suggested that the solution embedded in unconventional leadership style that is able to energize the sector employees, and stimulate their innovation to be ready for change and to be part of the reform.

Quinn and Courtney (2016) confirmed that it is not the responsibility of leadership alone; they put insight on

building entrepreneurial orientation in public sector employees.

Cumming (2015) supposed that reforms counted on employees entrepreneurial orientation; the empowered, risk-takers, innovative, learned employees, can only create the radical shift in public sectors' amelioration.

The questions that rises what is the convenient leadership style that could manage this change and enhance employees' innovative orientation?

Nutt and Backoff (1993) introduced the strategic leadership which is associated with change, creativity and innovation as the saver of public sector organizations. Simsek, Jansen, Minichilli, & Escriba - Esteve, (2015) added that strategic leadership is able to create entrepreneurial situations in any organization.

Accordingly this study tried to examine the degree to which Jordanian public sector employees classify their leaders as strategic, and the influence of strategic leaders in building employees' entrepreneurial orientation.

2. Theoretical Background and Literature Review

2.1 Public Sector's Challenges

In spite of the different considerations of public sector challenges' essence, there is no doubt that many stumbling blocks restrain the sector innovation everywhere.

McNary (2008) conceived that monopoly in providing specific services associated with lack of competitors defeat any initiatives for change, no expected profits will surely thwart creativity and innovation in the public sector.

Caemmerer and Wilson (2011) believed that the contradiction between efficiency and effectiveness is the core of the public sector's problems.

Moreover, Lapsley and Oldfield (2001); Elsheikh, Cullen, & Hobbs, (2008) considered that lack of qualified talented human resources restricts the best utilization of resources, diminishes rational decisions and accordingly service quality.

Aladwan and Forrester (2016) concluded that lack of effective strategic planning, joined with scarce financial resources and shortage of empowered employees hindered Jordanian public organizations attempts towards excellence.

Aziz et al., (2012) assessed the challenges of the public sector in 15 countries distributed in 6 continents; they concluded that bureaucracy is the common fundamental ever ending problem. Also Zamhury, Hashim, & Ahmad (2009) proved that bureaucracy is the source of most complaints concerning the Malaysian public sector services.

Majdalawi, Almarabeh, Mohammad & Quteshate, (2015); Shannak (2013) perceived bureaucracy as one of the major obstacles that face e- government implementation in Jordan.

2.2 Public Sector's Reform

The former challenges pushed governments for public sector reform through internal efforts, and sometimes supported by external initiatives from international agencies as the World Bank and or donations (Owusu, 2012).

Public sector's reform had its magnitude in research as well; Lapsley and Oldfield (2001); Radnor and McGuire (2004) illustrated the British initiatives for public sector reform, while Luke and Verreyne (2006) were concerned with the government organizations reform at New Zealand, Steijn and Leisink (2007) summarized the changing reform actions in Dutch public sector.

Zamhury et al., (2009) were interested with the reform at the Malaysian public-sector, Zampetakis and Moustakis (2007) involved in the ameliorating activities in Greece public sector. Owusu (2012) lighted Ghana's public sector improvement experience. Wallis and McLoughlin (2007) explained the Irish governmental strategic reform. Im (2010) explored the Korean government attempts for public sector reform.

Jordan has its initiatives too; the Jordanian government set strategies for comprehensive reform including structure, processes, management, and leadership (Aladwan & Forrester, 2016).

Despite the differences between countries in terms of the content and the specific objectives of reform programs, a consent existed to reduce bureaucracy, manage human resources in a modern developmental manner, minimize cost, and to exploit in the scarce resources efficiently (Im, 2014).

Because public sector reform is a complicated change process, it requires strategic activities in terms of strategic plans, felicitous implementation and strategic thinkers' supervision; in short it needs strategic leadership (Laitinen, Nyholm, Stenvall & Kaivo-oja, 2015).

2.3 Strategic Leadership

Strategic leadership is the combination between the concept of leadership and strategy; it is usually used to describe the decisions and actions of top management positions in any organization (Bratton, Grint & Nelson, 2005).

According to Buchanan and Huczynski (2010) the basis of leadership is influence the leader practice on followers to affect their attitudes and behavior, with the aim to direct all the efforts towards attaining the organizations objectives.

For the best accomplishment leaders counted on several sources of influence beyond the formal legitimate, leaders invested in their reward, expert, and referent powers in order to guarantee followers optional cooperative (Al-Khasawneh & Moh'd, 2013).

Page and Page (2016) viewed leadership in the public sector as collective efforts and mutual effect between leaders and followers expressed in joint actions for citizens' continuous well-being.

When it comes to strategic, the connotation gives leadership its specialty than other styles; it is the combination of several leadership styles working together in a synergistic system for a better future (Ireland & Hitt, 2005).

Vera and Crossan (2004) conceived that the strategic leader goes beyond the ordinary leader. The strategic leader is accountable for the future of the organization. Spiritually and ethically he/ she is responsible for internal and external stakeholders satisfaction.

2.3.1 Characteristics of Strategic Leaders

Nutt and Backoff (1993) introduced the notion strategic leaders as a comprehensive style encompasses several styles employed to elevate human and organizational performance in the public sector.

Joyce (2004) indicated that the public sector is in urgent need for multi skills strategic leaders to guide employees and the intended change.

Yukl (2006) articulated that a single leadership style is not sufficient for strategic transformational change; the strategic leader is a change agent, visionary, servant and ethical possess charismatic traits to persuade, encourage, and motivate followers to perform rather than imposed them to do so.

2.3.1.1 The Charismatic Leader

This leadership style was introduced by Max Weber's to describe the innate power the leader has (Buchanan & Huczynski, 2010), this style's influence is different than other styles, it is intangible derived from the unique personal traits and the power of attracting people to affect their attitudes and behavior optionally (Robbins & Judge, 2013).

Accordance to Daft (2012) charismatic style is linked with leadership referent power, the charismatic leader gains followers' respect, and compliance away from the formal position, he / she has charming effect, and verbal communications skills to induce followers emotions and willingness to act positively for the work's benefit without resistance.

Garg and Jain (2013) results indicated that charismatic public sector's leaders are people oriented had friendly relationship with their followers, trigger them to participate in setting organizational vision, and teach them proper methods to achieve it.

Kesting, Ulhoi, Song, & Niu, (2016) denoted that it is difficult for charismatic leadership style to achieve strategic performance unless it is associated with other styles.

2.3.1.2 Visionary Leader

Khatri, Templer, & Budhwar, (2012) believed that strategic actions needs an integrated charismatic and visionary styles, one off the two will not be enough.

The visionary leader has the ability to look at the external environment, visualize the expected changes and draw scenarios how to avert threats and exploit in the opportunities through collective efforts (Kunnanatt, 2016).

According to Milner & Joyce, (2012) the visionary is an outcome oriented leadership style. The leader determined organization's future actions, and then work out with followers towards effective implementation.

In the public sector the visionary leader set forth multi-level visions, extended to encompass citizens' welfare and the whole society satisfaction (Lemay 2009).

2.3.1.3 Change Agent Leader

The strategic leader as a change agent carries out the process of change, induces staff to be partners not just implementers (Stewart & O'Donnell, 2007), has persuading competencies to push them to devote time, voluntary efforts towards achieving change objectives (Robbins & Judge 2013).

Ates (2004) believed that in the public sector change agent role is linked with leaders Expert power, they manage through harmonious teams, and leaders are interested to choose their team members carefully from those who are ready to work together and with their leader towards elevating organizational performance.

2.3.1.4 Servant Leader

Lemay (2009) perceived strategic leaders in the public sector as (public servants), outspread their vision to the community's benefit, working hard to fulfill citizens expectations.

Furthermore Han, Kakabadse, & Kakabadse, (2010) mentioned that servant leader assists followers to manage the balance in their work life, inculcates in them serving others, and promotes their internal locus of control.

Liden, Wayne, Zhao, & Henderson, (2008) pointed that servant leaders in the public sector are selfless, they prioritized others' interest, and implied to create value to the community, behave ethically with fairness, they are open minded willing to learn and teach followers to be future leaders.

2.4 Entrepreneurial Orientation

Entrepreneurship is an old concept used to describe the work of people who have un-conventional methods in searching for opportunities, those who are willing to create value by exploiting resources in an innovative manner (Diefenbach, 2011).

Wickham (2006) ; Ries (2011) defined entrepreneurship as individual's ability and desire to establish a new business based on uncommon techniques in utilizing resources, while estimating risks with the aim of profits yield.

Hisrich, Peters, & Shepherd, (2013) pointed that although entrepreneurship was connected with small, privately owned new organizations.

Large organizations can be entrepreneurial oriented, and engage in organizational entrepreneurship (Intrapreneurship). According to Cadar and Badulescu (2015) (Intrapreneurship) is associated with entrepreneurship spirit, building on the enthusiasm of employees who are willing to create value, and on innovate and proactively planning for continuous revival of the processes and products. Kacperczyk (2012) argued that employees are able to act as entrepreneurs in matured organizations; but they need autonomy, tolerance, and management support to search for non-manifested opportunities and take advantage before competitors did so.

Diefenbach (2011); Greiling (2013) supposed that public sector is not a way from operating in an entrepreneurship spirit and actions, entrepreneurship in the public sector is leaned on individuals who are recognized by their proactiveness, creativity, innovativeness and preparedness to take risk, and they are witty to operate freely from bureaucratic constraints.

2.4.1 Elements of Entrepreneurial Orientation

Miller (1983) proposed 3 dimensions of individual and organizational entrepreneurship (proactiveness, innovation and risk taking). Kearney, Hisrich, & Roche, (2010) stressed on the 3 elements to establish entrepreneurship in the public sector, their results inferred that all the three can be applicable in the public sector and have noticeable impact on performance.

Barringer and Ireland (2012) remarked that entrepreneurial focused organizations have proactive, innovative employees and at the same time risk takers; looking forward to think and act outside the box of bureaucracy.

2.4.1.1 Proactiveness

Proactiveness is people initiatives to drive forward the future rather than responding, proactive human resources are masterful in capturing un-noticed opportunities, and in creating unique successful stories (Bagheri & Pihie , 2011).

According to Kreiser and Davis (2010) proactiveness can be expressed through being the first in the market, strategically positioned through novelty, depending on demand forecasting, and optimistic expectations and act accordingly. Whilst in the public sector proactiveness is perceived as the process of contemplating what future needs, set forth innovative strategies that exceed the expectations of citizens to luckily acquire new services, re-new the present, or introduce services in exceptional methods (Diefenbach 2011).

In the public sector proactive leader's efforts worked in synergy with the initiatives of innovative employees, who are self-directed, express their future visions in creative plans and problems solutions (Morris & Jones, 1999).

2.4.1.2 Innovativeness

Innovation is the essence of entrepreneurship, it goes beyond modification or improve the existing to novelty with usefulness, diversify value creation in unusual ideas and actions (Drucker 1985).

Karyotakis and Moustakis (2016) imagined that innovation can only prosper in a non-classical environments, flexibility, team work, open communication, enough resources, and trained empowered people are indispensable to induce innovation in the public sector.

Sangiorgi (2015) argued that innovation in the public sector is the output of innovative culture and cooperative endeavors of different stakeholders calling for change. Moreover according to Diefenbach (2011) innovation in the public sector presented in new solutions to the sector problems, new structures reengineering and process amelioration, and for sure new services and developed forms of the current services.

2.4.1.3 Risk Taking

Kacperczyk, (2012) stated that risk is a distinguishable elements of entrepreneurs, it is linked with uncertainty of success, and with the degree of sacrifice in case of failure, in addition to the loss of resources and time that were devoted for the new intuitive.

Mason (2006) articulated that the risk in public sector entrepreneurship is low, for no financial loss is expected if individuals failed in providing services, nor any punishment procedures, and there is no connection between the salaries continuity and achievements, the public sector's employees are somehow secured.

However Diefenbach, (2011) mentioned that the public sector risk presented in conjunction with novelty; where time, resources are dedicated to exploit in new opportunities, while the consequences are ambiguous.

Wickham (2006) indicated that in the public sector risk encompasses political loss too; failure to fulfill the promising outcomes will result in weaken the legitimate authority entrepreneurs have.

3. Significant of the Study

The public sector in Jordan is facing number of barriers which inhibit the availability of basic services at a convenient level. Lack of the obtainable resources, coincide with the lack of motivated skillful employees as some researchers pointed out (Shannak, 2013; Elsheikh et al., 2008; Majdalawi et al., 2015) created sophisticated troubles to the sector.

Despite the successive attempts of reform adopted by governments, incorporating by international agencies aid, citizens' complains never stopped, conjunction with the media role in focusing on the negative side of the public sector shortages.

The presented solutions all underlined the critical contribution of the sector employees to elevate services quality. There is no doubt that low financial earning creates for those a state of frustration, accordingly it is difficult to stimulate their efforts for more, but it is not impossible.

Other countries' successful reform proved that leaders' dedication, their attempts to teach, inspire, and spur employees tendency to serve, represent a major support to achieve reform goals.

4. Study's Measurements and Hypotheses

The study aimed to test the influence of strategic leadership on building employees entrepreneurial orientation.

There is no particular measure of strategic leadership, literature pointed that one leadership style will not be convenient to run the organization's future, a compound style of traits, skills, capabilities, values can be appropriate to lead public sector's organizations. The researcher used charismatic, visionary, change agent and servant styles together to describe strategic leader's features.

When it comes to the dependent variables, Miller's (1983) model of (proactiveness, innovativeness and risk taking) utilized to characterize employees' entrepreneurial orientation.

4.1 Study's Hypotheses

The main Hypothesis H: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' entrepreneurial orientation (proactiveness, innovativeness and risk taking).

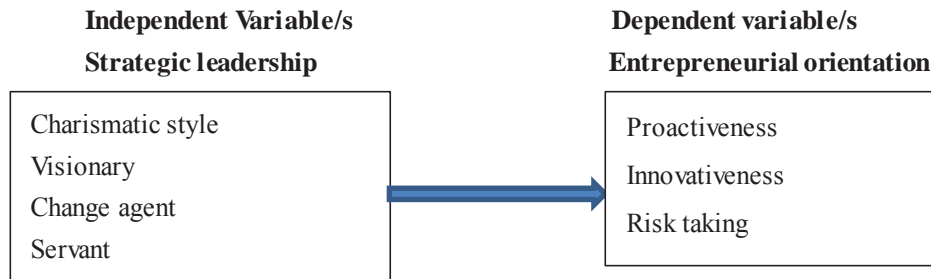
The main hypothesis is divided into 3 sub hypotheses as follows:

H₁: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' proactiveness.

H₂: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' innovativeness.

H₃: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' risk taking.

4.2 Study's Model



5. Methodology

5.1 Data Collection

To collect the needed data, an enquiry was conducted using a 3-part questionnaire, the first part expressed the sample structure and characteristics.

Using likert 5 points scale (35) statements were developed to measure the independent and dependent variables as follows:

The second part contained (20) statements to estimate strategic leadership elements, 5 statements for each style (charismatic, visionary, change agent and servant).

The third part enclosed (15) statements to assess the level of entrepreneurial orientation's 3 dimensions (proactiveness, innovation and risk taking).

5.2 Study's Population and Sample

The study's population comprised public sector organizations which are responsible for providing the essential services, 500 employees were randomly selected from health, education, agriculture and cooperation corporation. 500 questionnaires were distributed, 390 were returned back, and 373 were statistically analyzed.

The respondents were asked to express if they perceived their leaders as strategic, and if their leaders are working for catalyzing proactiveness, risk taking and innovative performance, and enhance their entrepreneurial spirit.

6. Statistical Analysis Results

6.1 Tool's Reliability

Cronbach's alpha used in order to examine the internal consistency and reliability of the tool questions, the results illustrated in table (1) show that all the values are > 60% which means according to (Sekaran,2003) that the study's tool is reliable

Table 1. Cronbach's alpha results

Independent Variable/ s	Cronbach's alpha	Dependent Variable /s	Cronbach's alpha
Strategic Leadership (Total)	0.94 (20 items)	Entrepreneurial orientation (Total)	0.79 (15 items)
Charismatic	0.83	Pro-activeness	0.79
Visionary	0.85	Innovation	0.70
Change agent	0.80	Risk taking	0.83
Servant	0.79		

6.2 Sample Characteristics

The results of frequencies and percentage show that 79.9% of the respondents were males, while just 20.1 were females, 68.9% of the sample were less than 40 years old , 67.8% have university degrees and 93% of their practical experience was more than 5 years, all of them are Jordanians.

6.3 Descriptive Analysis Results

To rate the sample acceptance for the study's questions; the arithmetic mean, and standard deviations of the responses calculated, the results in Table (2) show the total means of the strategic leadership, and entrepreneurial orientation dimensions.

It is appeared that the total means of strategic leadership's 4 dimensions are higher than 3, which inferred that the respondents perceive their leaders as strategic, able to set a manageable vision, communicate the future road map clearly, have personal convincing power, working with mutual respect, and open communication, able to interact positively with everybody, and leading the change rationally.

It is apparent that respondents perceived their leaders as (servants) than any other leadership style, leaders prompt employees to lead with servant mindset to provide services to country citizens with altruism, put the public benefits first and foremost, enhance employees' commitment to home through providing better health and education and other related services to the inhabitants.

When it comes to the dependent variable/s (entrepreneurial orientation) it is obvious from the means in table (2) that the sample members admit that their leaders instill entrepreneurial spirit in them, receive carefully employees creative ideas and induce them to take acceptable risk to engage in innovative experiments for the sake of generating new services, or new mechanism in providing current services, or methods to maximize the yield of the scarce resources.

Table 2. Descriptive statistics results

Independent Variable/ s	Mean	S. D	Dependent Variable /s	Mean	S.D
Charismatic	3.66	0.75	Pro-activeness	3.69	0.73
Visionary	3.81	0.79	Innovation	3.62	0.61
Change agent	3.69	0.81	Risk taking	3.86	0.78
Servant	4.47	0.92			

6.4 Hypotheses Testing

6.4.1 The main Hypothesis (H) results

Strategic leadership has a positive influence on building employees' entrepreneurial orientation. Simple regression with 0.05 p value used to test the influence of strategic leadership as a total variable on building employees' entrepreneurial orientation with all its 3 dimensions, based on the rule to accept the hypothesis if the sig value of T is less than 0.05.

Table 3. The main hypothesis testing results

Model Summery & ANOVA results				
R	R ²	Adjusted R ²	F calculated	F sig
0.442	0.195	0.193	84.739	0.000
		Coefficient		
Constant	B	Beta	T - calculated	T sig
	2.543	0.442	19.408	0.000

The summarized results in table (3) exhibit the values of the followings:

The value of F (84.739) at 0.000 sig level; which is < 0.05 evidence the linear relationship between the two variables.

(R) Pearson correlation (0.442) which explained a significant relation between strategic leadership and building entrepreneurial orientation.

R² value (0.195) which indicated that 19.5% of the variation of entrepreneurial orientation is due to strategic leadership, while 80.5% of entrepreneurial orientation caused by other factors than strategic leadership.

T value (19.408) and t (sig) 0.000 which is < 0.05 (based on the above mentioned rule) it is indicated that strategic leadership significantly influences building employees' entrepreneurial orientation.

6.4.2 Sub Hypothesis Testing Results

Multiple regression with p value 0.05 used to test the impact of strategic leadership dimensions on each dimension of entrepreneurial orientation, and based on the previous rule the hypothesis will be accepted if t sig level is < 0.05.

6.4.2.1 The First Sub Hypothesis Results

H₁: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' proactiveness .

Table 4. Results of testing H₁

Model Summary & ANOVA results				
R	R ²	Adjusted R ²	F calculated	F sig
0.864	0.747	0.744	255.076	0.000
Coefficient				
Sub-independent Variables	B	Beta	T - calculated	T sig
Constant	0.341		3.156	.002
Charismatic		0.208	4.744	0.000
Visionary		0.082	1.640	.102
Change agent		0.345	7.790	0.000
Servant		0.326	6.511	0.000

Table 4 presents the results of testing the first sub hypothesis H₁ as follows:

R value (0.864) indicated that there is a strong correlation between strategic leadership dimensions and proactiveness, the value of R² denotes that 74.7 % of the variation of proactiveness caused by strategic leadership dimensions.

F value (255.076) at 0.000 sig is an indication of the linear relationship between strategic leadership dimensions and proactiveness.

When it comes to t values, and t sig it is obvious that the charismatic, change agent and servant dimensions have an impact on building proactiveness in Jordanian public sector employees; depending on t sig levels which are for the three dimensions < 0.05.

While visionary dimension has no effect on building entrepreneurial orientation due to t sig = (.102) which is > 0.05

The Values of Beta in the table clarify that the change agent dimension has the higher effect on building employees proactiveness; Beta= (0.345), followed by servant (0.326), and charismatic style has the least effect on proactiveness as Beta = (0.208).

6.4.2.2 The Second Sub Hypothesis Results

H₂: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' innovativeness.

Table 5. Results of testing H₂

Model Summary & ANOVA results				
R	R ²	Adjusted R ²	F calculated	F sig
0.182	0.033	0.022	2.96	0.020
Coefficient				
Sub-independent Variables	B	Beta	T - calculated	T sig
Constant	3.155			
Charismatic		0.062	0.726	0.468
Visionary		0.158	1.616	0.107
Change agent		0.059	0.682	0.496
Servant		0.121	1.233	0.219

The results in table 5 indicated that there is a weak relationship between strategic leadership's 4 dimensions and innovativeness, R value = (0.182).

F value (2.96) at 0.020 sig underlined the linear relationship between the tested variables.

However the values of t sig which are for all strategic leadership dimensions >0.05 Inferred that strategic leadership dimensions have no influence on building innovativeness in public sector employees.

6.4.2.3 The Third Sub Hypothesis Results

H₃: Strategic leadership (charismatic, visionary, change agent and servant) positively influence building employees' risk taking.

Table 6. Results of testing H₃

Model Summary & ANOVA results				
R	R ²	Adjusted R ²	F calculated	F sig
0.161	0.026	0.015	2.314	0.057
Sub-independent Variables	B	Coefficient Beta	T - calculated	T sig
Constant	4.206			
Charismatic		0.032	0.372	0.710
Visionary		0.187	1.901	0.058
Change agent		0.170	1.956	0.051
Servant		0.082	0.832	0.406

The results in table 6 indicated first: that the relationship between strategic leadership dimensions and risk taking is weak, R= (0.161).

Second: there is no influence of strategic leadership dimensions on building risk taking in public sector employees; relying on t significant values which are for all strategic leadership dimensions > 0.05.

7. Results Discussion

The public sector in Jordan is confronting many problems, reports show that citizens are not contented with the number and quality of current services. Consequently; persistent initiatives to uphold the sector performance took place at all levels, “King Abdullah the second award for excellence “ considered one of these efforts, it relies mainly on the inventive human resources to raise the quality of the running services and broadened to new ones.

Likewise Jordanian public sector has its magnitude in research; the results of Nimri, Bdair & Al Bitar, (2015) pointed that public sector employees in Jordan are intrinsically motivated than extrinsic financial, employees are pushed by their desire to serve the country, however leaders can optimistically invest in non-costly solicitation to energize employees and upgrade their outputs.

Yaghi, Goodman, Holton, & Bates, (2008) findings emphasized the role of Jordanian public sector’s managers in promoting employees learning, and in encouraging them to use the learned skills to boost the sector’s performance.

Ababaneh (2010) research which was conducted at 4 Jordanian public hospitals assured the role of leadership in quality improvement, he pointed that leaders are the backbone in setting a strong innovative culture, sustaining employees’ creativity to consolidate preferable health services.

Theoretically researchers believed that leaders in the public sector are change drivers, they take charge to construct innovative environment, activate all the possible resources, and equip all organization’s members for services regeneration.

Therefore; this study attempts to inspect the influence of Jordanian public sector strategic leaders on building employees entrepreneurial orientation. 4 dimensions used to express the strategic leadership (charismatic, visionary, change agent and servant), and 3 dimensions (proactiveness, innovation, and risk-taking) utilized to assess the degree of entrepreneurial orientation in public sector employees.

The arithmetic mean results disclosed that public sector leaders possess high level of charismatic, visionary change agent and servant leadership styles features.

It is obvious that servant style prevailed; the respondents believe that their leaders are to lead by example; leaders have an altruism approach in serving internal employees and external stakeholders.

Whereas simple regression results of the main hypothesis indicated that strategic leadership positively have a significant influence on building employees entrepreneurial orientation.

With regard to the examination of sub hypothesis results it was found first that the charismatic, Change agent, servant styles positively influence employees’ proactiveness, with no influence on other two entrepreneurship dimensions (innovativeness and risk taking).

Second: visionary style has no significant influence on all 3 entrepreneurship dimensions.

The findings can be attributed to the limitation of financial resources; expenses are restricted specifically with the items listed in the organization’s budget. The resources are allocated in advance, under the government control, leaders don’t have the authority to set their department future plans outside the general strategy of the organization, and at the same time don’t have the ability or the authority to finance any innovative action, or even to ask for finance as long as the outcomes are unknown and not guaranteed.

This study's hypotheses go in line with Luke and Verreyne (2006) in terms of the prospect application of strategic entrepreneurship in public sector organizations, and with the notion that the nexus between strategic thinking with leadership interventions is the pivotal basis for public sector reform.

The study's results agreed with Zampetakis and Moustakis (2007) findings that secured public sector employees have proactive initiatives, and can be energized easily by non-financial stimulus.

Also the results of this study match Diefenbach (2011) results in terms of the crucial contribution of public sector managers in assisting employees' creativity, and in consolidating entrepreneurial spirit within the sector organizations.

Moreover the results didn't go with Muchiri (2013) conclusions; his findings confirmed that leaders are more effective in inculcating entrepreneurship dimensions both at the individual and organizational levels and produce better performance.

This research's results didn't match either the findings of Nusair et al., (2012) which proved that transformational leadership had a significant influence on innovative behavior of the Jordanian public sector employees.

Whereas the findings of this study didn't support leadership influence on innovation and risk-taking dimensions.

8. Recommendations

However the public sector reform is achievable, stimulating innovation necessitates more than setting plans; it needs a comprehensive organizational strategies, successful implementation, and effective continuous control.

Innovative departments need to be established and financed away from bureaucratic environments.

The innovative process can only build on well trained, proactive, creative and risk takers people, operating without the constraints of formality and centralization, flexible structures, joined with a learning culture, special reward system with tolerance, and the most critical change facilitator which is entrepreneur strategic leaders working in synergy with external stakeholders to assess citizens' needs and respond accordingly.

For future research it is recommended to use some other leadership styles, and other factors than leadership that have an impact on the public sector reform.

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The Effect of Perceived Corruption on Entrepreneurial Intention: Evidence from Italy

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Abstract

This paper aims to examine the entrepreneurial intention of undergraduate students, using a modified version of Ajzen's theory of planned behavior (TPB), considering the perception of corruption. We conducted a questionnaire survey with Italian students. There were a total of 350 student participants. In order to analyze the data collected with the questionnaire, structural equation modeling is provided. Our results indicate that the majority of students have strong entrepreneurial intention but due to the effect of corruption students are dissuaded from engaging in entrepreneurship. Corruption has a negative effect on students' entrepreneurial behavior. This paper provides a new model that helps to understand the students' entrepreneurial intentions considering the corruption perception.

Keywords: corruption, theory of planned behavior, entrepreneurial intention

1. Introduction

Entrepreneurship is a complicated, risky and uncertain process; for this reason not everyone is able to start a new business (Fatoki, 2010). The entrepreneurial process is experimental by nature (Fatoki, 2010) but it is plausible that entrepreneurial intentions are influenced by past experiences (Robinson et al., 1991; Sullivan, 2000; Minniti & Bygrave, 2003; Politis, 2005), personal formation (Harris & Gibson, 2008; Hussain et al., 2008) and personal attitudes (Robinson et al., 1991; Hatten & Ruhland, 1995; Krueger et al., 2000). For example, according to Robinson et al. (1991) and Hatten & Ruhland (1995), attitudes and intentions about entrepreneurship can be learned, measured and improved. Several authors stated that entrepreneurial skills can be learned (Kuratko, 2005; Stuetzer et al., 2013) as is demonstrated by the growing number of entrepreneurship programs at universities (Kuratko, 2005; Matlay, 2006). Further literature focused on entrepreneurial intention to examine the key determinants (Krueger et al., 2000) in the decision making process of young entrepreneurs (Baum et al., 2014; Omoredede et al. 2015). This literature explains the main motivations of entrepreneurial intention but does not consider the existing limitations to would-be entrepreneurs actually starting up businesses (Shin, 2015; Lund, 2016). While there are several studies that explain how people take the decision to become entrepreneurs, there is a lack of literature about the factors that prevent people from engaging in entrepreneurial activity.

The existing body of literature does not consider the external factors that could reduce the intention to start a new venture. Far less attention has been focused on these factors, known as "entrepreneurial inhibitors", considered as all the factors that could represent a limitation to entrepreneurial intentions. According to Estrin et al. (2006; 2013) one of the main entrepreneurial inhibitors is the perception of corruption. Shin (2015) discusses this statement, highlighting that high levels of corruption can reduce the degree of competitiveness due to the "unfair-play". More specifically, high levels of perceived corruption can deter people from becoming entrepreneurs in order to avoid the risk of wasted effort. This phenomenon presents an important problem; corruption can significantly reduce entrepreneurial intention thereby economically weakening a state or region and reducing the possibility of work for students. A complete understanding of the constraints produced by entrepreneurial inhibitors is crucial to researchers and practitioners if they are to counteract the negative impact on the behavior and choices of potential entrepreneurs.

The purpose of the present study is to examine the effect of perceived corruption, considered as the main entrepreneurial inhibitor (Shin, 2015), on students' entrepreneurial intentions and behavior. To this aim we used a modified version of Ajzen's Theory of planned behavior (TPB) (Ajzen, 1985) integrated with perceived

corruption. We choose the theory of planned behavior because its predictive force is widely recognized in previous research (Fayolle & Liñán, 2014; Kautonen et al., 2011, 2015).

The paper is organized as follows: Section 2 provides a review of the literature about entrepreneurial intention, corruption and theory of planned behavior. Section 3 describes the methodology used for our research. Section 4 presents the research results and the discussion. Finally, Section 5 provides the conclusions.

2. Literature Review

2.1 Entrepreneurial Intention

There are numerous definitions ascribed to the term “entrepreneurship” (Covin & Slevin, 1991; Bruyat & Julien, 2001), ranging from the specific, starting one’s own business, to the abstract, a work attitude that emphasizes self-reliance, initiative, innovativeness, and risk-taking (Gartner, 1990; Montano & Kasprzyk, 2015). Nowadays, shifts in the socio-economic landscape have left fewer opportunities for continuous employment. This has caused a radical change in individual work preferences, with many now favoring self-reliant employment options (Baruch, 2004; Gibb, 2002; Hall, 2002). Further literature about entrepreneurial intention has focused on issues such as social contexts (Martin & Osberg, 2007; Abu-Saifan, 2012), personality traits (Zhao & Seibert, 2006; Aranha et al., 2017) and personal experiences (Zhao et al., 2005) to explain the reasoning behind and individual’s intention to become an entrepreneur (Dyer, 1994; Henderson & Robertson, 1999; Henry et al., 2005; Gozukara & Colakoglu, 2015). Moreover, much of the research that seeks to explain entrepreneurial intentions (EI) is flawed (Mitchell et al., 2007). Many researchers have focused on the prediction of entrepreneurial intentions (EI) rather than on the realization. For example, Zhao et al. (2005) found that entrepreneurial intentions are strongly related to personal attitude and to self-perception.

2.2 Corruption Perception

According to Everett et al. (2007), the main entrepreneurial inhibitor is the perception of corruption. We currently live amidst a “corruption eruption” (Glynn et al., 1997; Everett et al., 2007); several authors claim that this is a moment of crisis that could have many pernicious consequences (Fjeldstad & Tungodden, 2003) such as loss of government revenue (Stapenhurst & Sedigh, 1999; Fjeldstad & Tungodden, 2003; Everett et al., 2007), costs for businesses that engage in corruption and missed opportunities for those that do not (Caiden et al., 2001). Corruption represents a distortion in standards of merit that reduce the respect for law, resulting in higher investment for public sector and firms, and a lower quality of services (Hamir, 1999; Everett et al. 2007). This definition was used also by Estrin et al. (2013), which stated that corruption is an informal institution negatively associated with economic variables such as gross domestic product per capita (GDP) (Kaufman and Kraay, 2006; Estrin et al., 2013; Quazi et al., 2014), income equality (Carmignani, 2005) and total factor productivity (Lambdsdorff, 2003). What should be noted is that, despite these different definitions, there is an overwhelming consensus in the literature of the disruptive power that corruption has over economic systems. According to Melgar et al. (2010), corruption perception is cultural phenomena that depends on a deviation from the social understanding of the rules. Indeed, it depends on personal and moral values and reflects the propensity of people to pay in order to receive something illegal. Corruption does not directly reflect the degree of perceived corruption. High levels of corruption perception could have more devastating effects than corruption itself, generating a social phenomenon known as “culture of distrust” (Melgar et al., 2010). In this situation corruption perception can create “demotivation” in doing something between people. This demotivation can be translated to market inequality (Gupta et al., 2002) and thus lower entrepreneurial intentions. This idea was shared by Azmat and Samarantunge (2004) according whom corruption represents the most corrosive bottleneck afflicting economic and social growth worldwide. Griffiths et al. (2009) demonstrate that corruption considerably reduces the interest and desirability to start a new business activity. Many other authors have highlighted the problems created by corruption in different countries; acts of fraud (Cohen et al., 2010; Chwastiak, 2013), health and safety violations (Radin & Calkins, 2006), and tax evasion (Everett et al., 2007; Otusanya, 2011) are just few examples of activities that privilege self-interests over social ones. Corruption is an environmental factor that should have negative effect on people’s actions. In this research we will focus on the effects of corruption perception on the students motivation to be entrepreneurs.

2.3 Theory of Planned Behavior and Hypothesis Development

Literature about entrepreneurial intent has been studied mainly using two models: the model of the entrepreneurial event (SEE) (Shapiro & Sokol, 1982) and the theory of planned behavior (TPB) (Ajzen, 1985). The SEE focuses on the individual by including a measure of proactiveness whereas the TPB focuses on the environment by detailing the social setting to contextualize the behavior. For this reason TPB is widely used in literature about entrepreneurial intentions. Several studies used this model because it considers the effects of

social and other external variables on individual behavior. The theory of planned behavior argues that there are three precursors (constructs) to intentions, intentions being the antecedent to behavior (Ajzen, 1985). The precursors are: personal attitude toward the behavior, perceived social norms, and perceived behavioral control. The first and the second reflect the perceived desirability of performing the behavior, while the third reflects perceptions that the behavior is personally controllable. Perceived behavioral control reflects the perceived feasibility of performing the behavior and is thus related to perceptions of situational competence (self-efficacy). TPB details the precursors of each of these attitudes. Indeed, attitude has a behavioral component (i.e. affective and cognitive components) that consists of predispositions to behave in a particular manner (Shaver, 1987). In order to provide a complete view of the theory of planned behavior we provide figure 1.

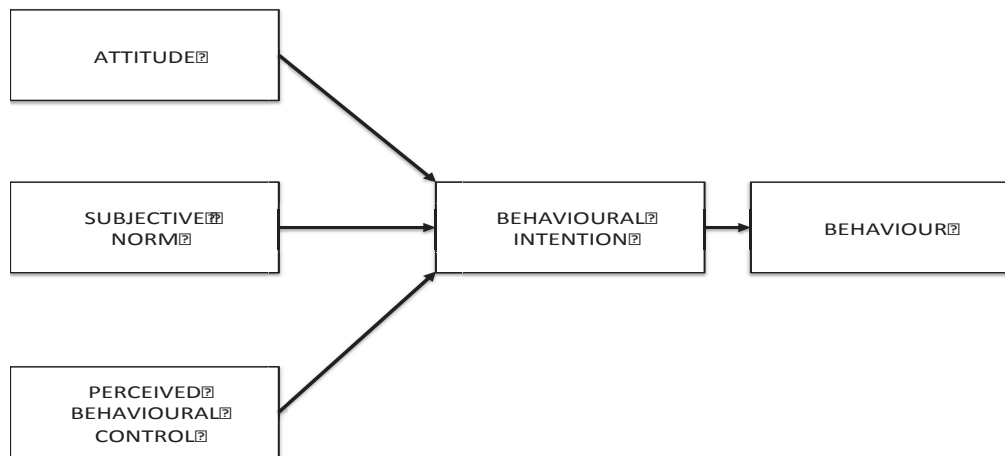


Figure 1. Ajzen's Theory of planned behavior (1985)

With reference to the attitude, this construct shows the perceptions of the personal desirability of performing the behavior (Zhao et al., 2005). Attitude depends on individual expectations and beliefs about the outcomes of the behavior. This construct allows us to measure the expectations of people in the sample about their ability in doing something (Shapero & Sokol, 1982). More specifically, it is referred to the degree to which a person has a favorable evaluation of the behavior in question (Ajzen, 1985). Individuals form attitudes about a particular behavior by associating the behavior with the likely outcome that will result. If the outcomes are largely desirable, there will be a stronger intention to perform the behavior. In the case of entrepreneurial intention, attitude toward the behavior can be considered as the desirability of creating a new firm. In the entrepreneurial context, a positive perception of expected outcomes is typically associated with the act of starting one's own business (Shapero & Sokol, 1982; Zhao et al. 2005; Shook & Bratianu, 2010; Montano & Kasprzyk, 2015; Di Paola et al., 2016). Based on cited authors, the following hypothesis can be advanced:

H₁: The attitude toward the behavior is positively related to entrepreneurial intention.

With reference to the perceived social norms (or normative beliefs), this construct allows to understand the importance of the perceptions of performing a particular behavior (Ajzen, 1985). For example, consider the family expectations about the desirability of becoming a doctor, an accountant or an entrepreneur. However, these normative beliefs also depend on the strength of the motivation to comply with them (Ajzen, 1985). Subjective norms can have different effect on behavioral intention. The research findings about the effect of subjective norms on entrepreneurial intent have been mixed. Krueger et al. (2000) found that the effect of social support is not related to entrepreneurial intent in for North-American students. Autio & Arcs (2001) and Liñán & Chen (2009) carried out a comparative study and also found that social support is weakly correlated with entrepreneurial intent in American students however the opposite is true for Scandinavian students. It should be noted that in contexts with more uncertainty, social support should be an important factor with a significant effect on entrepreneurial intent. It can be stated that students with higher support have more possibility to become entrepreneur. On the basis of further literature, we can state the following hypothesis:

H₂: Subjective norm is positively related to entrepreneurial intention.

Perceived behavioral control (PBC) indicates the perceived self-efficacy of the individual or the individual's

perceived ability to execute a goal behavior (i.e. to become entrepreneur) (Ajzen, 1985). Self-efficacy is linked to initiating and persisting with the behavior under uncertainty, to setting higher goals, and to reducing threat-rigidity and learned helplessness (Bandura 1986). This construct is important because situational controllability is strongly related to self-perception (Dutton & Ashford, 1993; Krueger & Braezeal, 1994; Harackiewicz et al., 2002; Kolvereid & Isaksen, 2006) and to self-efficacy (Krueger & Dickson, 1994). Entrepreneurship researchers largely ignore the concept of self-efficacy despite its importance in predicting specific behaviors (Strecher et al., 1986; Harackiewicz et al., 2002). Self-efficacy has been associated with opportunity recognition and risk-taking (Krueger & Dickson, 1994; Krueger et al., 2000; Di Paola et al., 2016) as well as career choice (Bandura, 1986; Harackiewicz et al., 2002; Turker & Selcuk, 2009). On the basis of further literature, we can state the following hypothesis:

H₃: Perceived behavioural control is positively related to entrepreneurial intention.

We integrated TPB with perceived corruption. As stated by other authors (Griffiths et al, 2009) perceived corruption is an external factor that can restrict entrepreneurial activity. Corruption is not only a social pathology but also an economic and political problem (Sevuktekin et al., 2010; Spanò et al., 2016). It includes all activities that abuse public positions for personal use and all situations in which the personal interest prevails over the public one. It can occur in different sectors such as economic (trade policy and privatization), legal (rule of law, independence of judiciary), bureaucratic, administrative and transnational factors, civil liberties, and press freedoms (Li & Bray, 2007; Sevuktekin et al. 2010; Spanò et al., 2017). A strong perception of corruption can create demotivation and cause people to be reluctant about becoming entrepreneurs. People with strong personal values could decide to avoid the problems arising from corrupted systems by choosing to not be self-employed or entrepreneurs.

In Italy, corruption is perceived as a prevalent phenomenon (D’Onza et al. 2016; Spanò et al., 2016; Spanò et al., 2017). Corruption is considered as a major problem in the public sector with certain business activities slowing down the economic growth. The high degree of corruption in Italy is strongly perceived across Europe; the 2014 Transparency International Survey ranked Italy as 69 out of 177 for the degree of perceived corruption. This data has great importance because a high perception of corruption can inhibited entrepreneurial activity (Shin, 2015). According to the author, high levels of corruption means that the playing field is not even therefore it is difficult for firms to reach success and more difficult for new entrepreneurs to establish their ventures so they can decide to not start a new venture at all. According to this statement we can state the following hypotheses:

H₄ Corruption perception has a strong negative effect on students’ intention to be entrepreneurs

H₅ Corruption perception has a strong negative effect on students’ entrepreneurial behavior

The following image shows our model that integrates the theory of planned behavior integrated with perceived corruption.

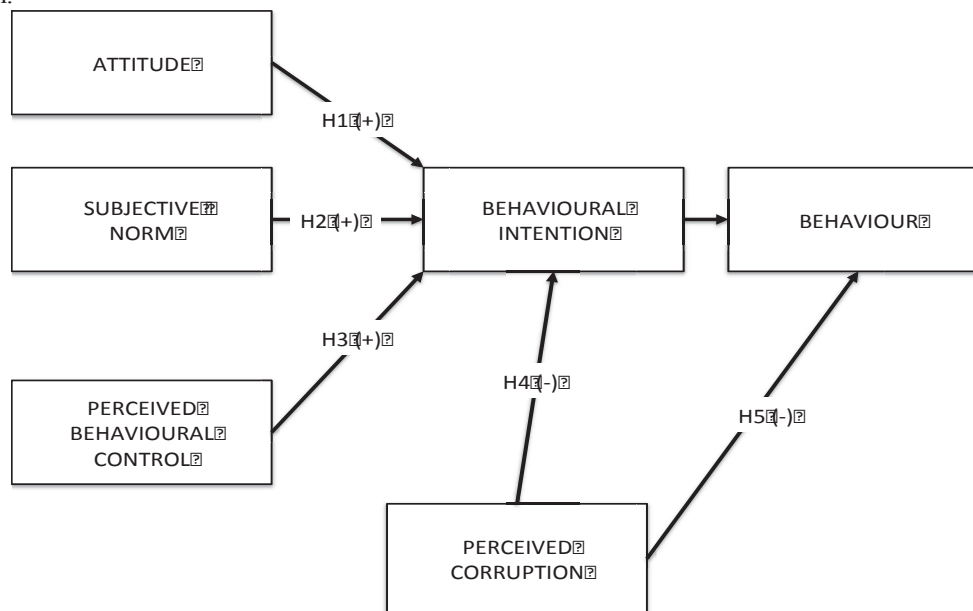


Figure 2. Theory of Planned behavior integrated with corruption perception

3. Methodology

3.1 The Questionnaire

Using the Ajzen's TPB (1985) as a base, we carried out a questionnaire survey in order to understand the students' intentions to be entrepreneurs considering their perceptions of corruption. The questionnaire was divided into three parts. The first part contained the personal data of the students interviewed. The second part covered the TPB dimensions using 42 different questions: 10 questions for attitude, 10 for subjective norm, 10 for perceived behavioral control, nine for behavioral intentions, and three for behavior. The third part covered the corruption perception between students with three questions. All the questions were quantified using a four-point Likert Scale set from four (strongly agree) to one (strongly disagree). The questionnaire was designed taking into account Ajzen's (1985) approach. We employed an even scale in order to avoid the risk of central bias (Caldarelli et al., 2016). After this design phase, we disseminated the questionnaire to an initial sample of 45 subjects in order to test the scale.

3.2 Scale Validation

To ensure consistency and unidimensionality of the scales, we used the same approach as Gangwar et al. (2014). First of all, we carried out an initial reliability study and an exploratory factor analysis of principal components (PCA) (Hu & Bentler, 1995, 1998, 1999; Byrne, 2013; Brown, 2015). This procedure was used to suppress indicators with a correlation lower than 0.3, or whose exclusion increased the Cronbach's Alpha value, which should not be lower than 0.7 (Bland and Altman, 1997). On this basis, we eliminated two factors of SN and one factor of PBC. No other factors were eliminated. Our tests show alpha values of 0.924 for ATT, 0.87 for SN, 0.898 for PBC and 0.861 for CORR. BI and BEHA got acceptable alpha values (0.88 and 0.832). Furthermore, we carried out an exploratory factor analysis using varimax rotation with Kaiser normalization (Kaiser, 1970; McDonald, 1981; Byrd, 2000) in order to verify if all the concepts were formed by just one factor. These factors explain more than 55% of the variance for all factors and it is valuable acceptable.

3.3 Questionnaire Dissemination and Final Sample

After the validation step, the survey was manually disseminated to a sample of 400 business students covering three different Italian universities. We chose business students because of their attitude to be entrepreneurs (Harris & Gibson, 2008). Sample groups were randomly selected during lessons. We disseminated the survey manually in order to avoid the difficulties of obtaining replies associated with other means of communication (i.e.: email, social media, etc.) (Min & Galle, 2003). The dissemination phase lasted for two months. After removing the incomplete forms, we reached a final sample of 350 students with a response rate of 87.5%.

4. Results and Discussion

The current study used Warp PLS and Stata to analyze the data. Following Anderson & Gerbing (1988), we carried out a Confirmatory Factor Analysis (CFA) for the assessment of the model adequacy and used Structural Equation Modeling (SEM) to test causal relationships (Hair et al., 1998).

We assessed model goodness-of-fit and quality indices. We carried out the chi-square. This test is widely used to assess the adequacy of a model; the test results indicate the ability of the model to reflect variance and covariance of the data (Byrne, 2013; Hosmer et al. 2013). To avoid the bias of "sample size" we carried out other fit indices such as goodness of fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), normed fit index (NFI), relative fit index (RFI), average block VIF (AVIF), average full collinearity VIF (AFVIF), average path coefficient (APC) and average adjusted R-square. The results of structural equation modeling obtained for the proposed conceptual model revealed a ratio of chi-square of 557 with $p < 0.001$.

We obtained the following results: a goodness-of-fit index (GFI) of 0.91 (ideal > 0.90), adjusted goodness-of-fit index (AGFI) of 0.83 (considered good if > 0.8), comparative fit index (CFI) of 0.93 (ideal if > 0.9), normed fit index (NFI) of 0.91 (ideal if > 0.9), relative fit index (RFI) of 0.90 (ideal if > 0.9) and, finally, root mean square error of approximation (RMSEA) of 0.05 (ideal < 0.08). We also carried out the average block VIF (AVIF) obtaining a result of 1.567 (considered acceptable if ≤ 5 , ideally ≤ 3.3), the average full collinearity VIF (AFVIF) was 2.012 (acceptable with values less or equal to 5, ideally ≤ 3.3). Finally we have a R-squared contribution ratio (RSCR) of 1.000 (acceptable if ≥ 0.9 , ideally = 1). The index of fit indicates a good model fit (Bagozzi et al., 1991; Hair and et al., 1998, 1999; Henseler et al., 2015) suggesting that the overall model fit is acceptable.

In order to understand the model prediction capacity, we carried a measure of average adjusted R-squared (AARS). It was of 0.454 (with $p < 0.001$) meaning that the variables used explain 45.4% of the total variance or entrepreneurial intention. After the test of the goodness of fit, we carried out a structural equation modeling

(SEM) (Bagozzi et al., 1991). The following figure (Figure 3) and table (Table 2) show the results of the structural equation model and the findings in light of the formulated hypothesis.

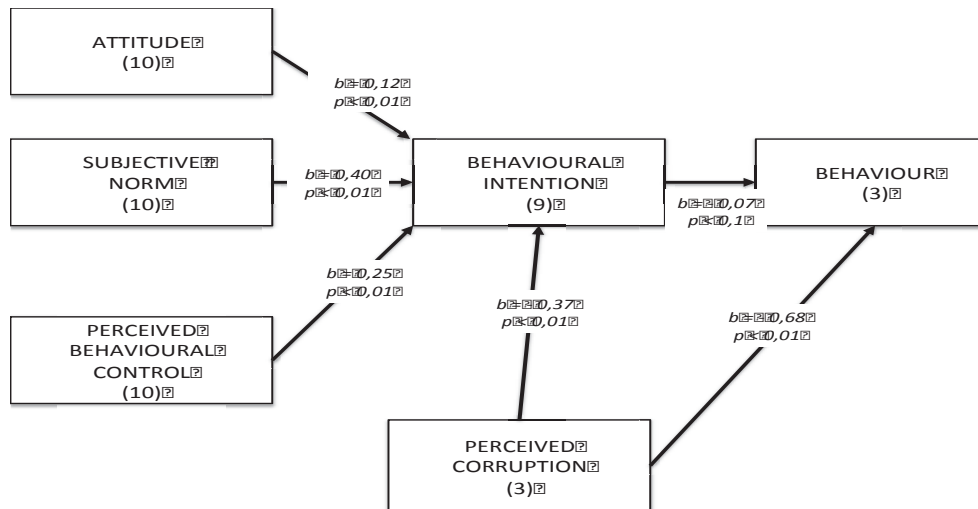


Figure 3. Results of structural equation model

Table 2. Research results

No.	Hypothesis	Path Coefficient	Findings
H1	The attitude toward the behavior is positively related to entrepreneurial intention.	0.12	Supported <i>p</i> < 0.01
H2	Subjective norm is positively related to entrepreneurial intention.	0.40	Supported <i>p</i> < 0.01
H3	Perceived behavioral control is positively related to entrepreneurial intention.	0.25	Supported <i>p</i> < 0.01
H4	Corruption perception has a strong negative effect on students intention to be entrepreneurs	- 0.37	Supported <i>p</i> < 0.01
H5	Corruption perception has a strong negative effect on students entrepreneurial behavior	- 0.68	Supported <i>p</i> < 0.01

Attitude (ATT) has a low positive effect on entrepreneurial intentions (EI) ($b = 0.12$ with $p < 0.01$). This means that the personal perception to perform the behavior does not have a strong effect on students' intentions to become entrepreneurs. Our results concur with Davidsson (1995), but disagree with Douglas & Shepherd (2002). Phan et al. (2002) found that ATT should be the stronger predictor of interest in self-employment and entrepreneurship. Despite a weak correlation between ATT and (EI), there is a strong entrepreneurial intention in Italian students. Other studies show a low path coefficient for ATT that it is considered as a poor predictor. The main reason for this is that attitude includes the students' preference for self-employment so, in a difficult context, they may prefer to make their own luck and become self-employed (Van Gelderen et al., 2008). Thus, hypothesis 1 is fully supported.

With reference to subjective norm (SN), our results show a strong and statistically significant relationship with entrepreneurial intentions ($b = 0.40$ with $p < 0.01$). SN is the main factor that indicates the students' intentions to be entrepreneurs. These results are not in agreement with the conclusions drawn by Turker & Selcuk (2009), according which social support does not have a great impact on entrepreneurial intentions and behavior. A possible explanation of these divergent results is that in Italy there is a lot of social pressure exercised by the people that students consider to be important in their lives, perhaps more so than many other countries. Our findings reveal that Italian students place great importance on the perceptions of what the people close to them (i.e. their families) think about engaging in entrepreneurial activity. Italian students could decide to be entrepreneurs if they perceived strong social support. This happens because students can have the "fear of failure" which can be partially mitigated by the support of the social group. Therefore, hypothesis 2 is supported.

We found that perceived behavioral control (PBC) has a positive relationship with entrepreneurial intentions ($b = 0.25$ with $p > 0.01$). According to these results the students have a good degree of the perceived ability to reach a pre-set goal. More specifically, Italian students have a good perception of their self-efficacy and, in their own opinions; they have the capacity to be entrepreneurs. Other empirical evidence (Bagozzi & Kimmel, 1995; Armitage & Conner, 2001) demonstrates that the PBC is closely associated with commitment measures, such as behavioral expectations. Hypothesis 3 is supported.

Finally, with reference to perceived corruption (CORR) our results show the existence of a strong and statistically relevant relation with behavioral intention (BI) ($b = -0.37$ with $p < 0.01$) and with behavior (BEHA) ($b = -0.68$ with $p < 0.01$). These results reinforce the position of Melgar et al. (2010) and Enstrin et al. (2013) that corruption can be an inhibitor to entrepreneurial intention. Also, our results agree with the general idea according whom Italian students are limited in their work choices by “external variables”. Indeed, our results show that the perceived level of corruption significantly reduces the behavioral intention so it is possible to state that corruption damages significantly the entrepreneurial activity of a region (Spanò et al., 2017). Also, it is possible to state that with a higher level of corruption perception there is a lower intention to become an entrepreneur. This statement is compliant with the findings of Azmat and Samaratunge (2004) and Cohen et al. (2010). As result, hypotheses 4 and 5 are fully supported.

5. Conclusions

This study investigates the effect of the perception of corruption on students' intentions to become entrepreneurs. While there are several studies that examined the determinants of entrepreneurial intentions there is a lack of research focusing on the relationship between entrepreneurial intentions and the entrepreneurial inhibitors. In this study we aim to fill this gap, using the theory of planned behavior integrated with corruption perception. We test the model on a sample of 350 Italian students.

Our results demonstrate that the perceived level of corruption has a negative effect on entrepreneurial intentions, significantly reducing entrepreneurial behavior. This means that, in the Italian context, the perception of corruption significantly reduces students' intention to be entrepreneurs (or self-employed). Furthermore, our results show that subjective norm is the main factor contributing to Italian students' entrepreneurial intentions. Also, our results show that subjective norms (SN) and perceived behavioral control (PBC) are significant predictors of individual motivations to engage in entrepreneurial activity. These results concur with previous scholarly research and also contribute further knowledge about entrepreneurial inhibitors. We found a significant drop in entrepreneurial intention upon introducing the perceived corruption. These results indicate that students are not interested in entrepreneurial careers while the degree of perceived corruption is high. A possible explanation of this phenomenon is that, despite the existence of strong social support, Italian students are not interested in starting a new venture if they know that there is an unfair play due to the existence of a strong corruption.

This study has several implications for regulators and researchers.

For regulators, the results of this study can shed light on some important issues related to entrepreneurial intentions in Italy. On one hand, we show that SN and PBC have a significant influence on behavioral intentions (BI), revealing a good personal propensity of students to be entrepreneurs. However, on the other hand our findings show that perception of corruption causes a drop in students' entrepreneurial behavior. This finding is particularly important for regulators because it highlights the need to take action towards reducing the level of corruption to support economic development through the start-up of new businesses.

For researchers, this study attempts to introduce a new variable in the theory of planned behavior (Ajzen, 1985). Hence, the proposed model makes an important contribution to the literature on entrepreneurial intention by adding entrepreneurial inhibitors as a new variable to the existing model. Furthermore, this study provides initial evidence to develop a deeper understanding of the causal relationship between entrepreneurial intentions and inhibitors.

This study has two main limitations. Firstly, although behavioral intention is the most important predictor of intention (Armitage & Conner, 2001; Ajzen, 1991; Ajzen & Fishbein, 1980), this intention does not always translate to actual behavior (De Groot & Steg, 2007). This is a typical limitation of the theory of planned behavior. Secondly, our conclusions are based on cross-sectional data and thus our model represents only a snapshot of the actual situation. In future research, we should expand our present model by using a longitudinal study to investigate students' entrepreneurial intentions during different time periods, thus allowing us to make comparisons and provide greater insight into the phenomenon. Lastly, there could be cultural and national limitations to these findings due to cultural differences such as personal values, personal skills. This issue requires

further investigation; it will be helpful to replicate this study on a wider scale with different national cultures in order to diversify the findings.

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E-WOM Adoption and Sharing Behavior in Social Network Sites: The Impact of Engagement in SNSs

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Abstract

Social network sites (SNSs) is becoming a credible source of online information. Despite the increasing use of social networks in message persuasion literature, there is still a need for investigating the role it can play in users' adoption of online information and its impact on users' sharing behavioral intention of this online information. This research utilizes the peripheral route in elaboration likelihood model to investigate the impact of source credibility on engagement in SNSs and on e-WOM adoption, the impact of engagement in SNSs and recommendation rating on e-WOM adoption, and the impact of e-WOM adoption on sharing behavioral intention.

The findings suggest that factors, that are not directly related to the online message content, like source credibility, recommendation rating, and online users' engagement in SNSs groups, positively impact online information adoption by SNSs users, and their sharing behavioral intention of this online information. The study is finally concluded by suggesting the theoretical implications, and by providing strategies for firms to adjust their online activities in order to succeed in improving their customers' engagement, and their customers' adopting of these firms' products and services' information.

Keywords: E-WOM adoption, sharing behavioral intention, SNSs, engagement, source credibility, recommendation rating

1. Introduction

Previous studies show that word of mouth (WOM) communication, where customers exchange information about products and services, significantly affects decisions to adopt these shared information and experiences (Harrison-Walker, 2001). However, SNSs have transformed traditional WOM into electronic WOM (e-WOM). E-WOM defined as information (experiences and opinions) sharing via online platforms such as web sites, social networks, instant messages, news feeds, and other platforms (Lee & Youn, 2009). Comparing to traditional WOM, e-WOM has the potential to be spread into a wider audience. E-WOM is considered more influential, because it attracts more interested customers.

E-WOM has changed the way online users behave before they make their decisions about online information adoption. Prior research has found that e-WOM can significantly affect customers' attitude toward online products and services (Li and Hitt, 2008; Chevalier and Mayzlin, 2006; Cheung, Luo, Sia, and Chen, 2009; Park and Lee, 2008). Most travelers read online information about their travel experiences (Nielsen, 2008), especially that information published by other travelers who had similar travel experiences before.

SNSs have recently evolved to be one of the most important online sources for e-WOM. E-WOM has been published in many online resources like online reviews forums (Gretzel and Yoo, 2008), retailer websites (Fang, 2014), and SNSs, like Facebook and twitter. Customers perceive retailers as the least credible source of e-WOM, because of the conflict of interest. SNSs groups are expected to be more credible source when comparing to online reviews forums, because e-WOMs published in these forums does not usually go through any serious editorial process (Johnson and Kaye, 2002). Users need to be motivated to check these online reviews forums. While e-WOM published in SNSs are expected to be more accessible by everyone, even those who do not ask to see it. E-WOMs published by strangers in online reviews forums is not going to be perceived as credible as e-WOM information from their family or friends on SNSs groups (Luo et al., 2013).

The number of likes and comments received in SNSs is an indication for social recommendations (Lerman,

2007). Researchers argued, when people believe in an idea, others would be motivated to support the same idea in a variety of contexts (Sundar and Nass, 2001). When a significant number of customers positively rate a product or a service, other customers' decision making process were found to be affected (Sundar, Oeldorf-Hirsch, and Xu, 2008). In general, online information adoption by others considered a good reason for online users to adopt this information.

The main factor when studying SNSs use is engagement (Hassenzahl and Tractinsky, 2006). Prior research has found that in order to understand SNSs adoption, we should first understand users' engagement in these networks (Imlawi, Gregg, and Karimi, 2015). Meaning that, understanding SNSs' adoption needs an understanding of SNSs' user's engagement in it (O'Brien and Toms, 2003). Engaging online customers has a significant impact on online sales, because online customers go to other online retailers when they are not engaged (O'Brien, 2008). However, more research is needed to study the role that engagement can play in SNSs. Specifically; antecedents of users' engagement in SNSs need to be investigated, because engagement is supposed to positively affect SNSs users' outcomes.

SNSs allow users to spread the word by sharing e-WOMs with a wide social capital. This allows online users to access online information about products and services they are interested in. This research adds to theory and practice by empirically examining antecedents of online information sharing behavior intention by SNSs users. Practitioners must be interested in results of this research, because sharing e-WOMs about their products with more online users is the ultimate measure that reflects users' believe in online information they get, and reflects users' adoption of online information.

This research investigates the impact of source credibility on engagement in SNSs and on e-WOM adoption, the impact of engagement in SNSs and recommendation rating on e-WOM adoption, and the impact of e-WOM adoption on sharing behavior intention.

2. Theoretical Background and Hypothesis Building

Prior research in online message persuasiveness and adoption has utilized Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1986). In brief, ELM assumes that the attitude toward any received information can be affected through two routes, the central route, and the peripheral route. The central route includes a high level of reader's elaboration, where a reader focuses more on the message information-relevant factors. The peripheral route, in the other side, involves a low level of reader's elaboration, where the reader is not highly motivated to consume high recognition efforts, and rather focuses more on information-irrelevant factors, like the information source credibility. The focus of this research is on the peripheral route, because it pertains factors related to the SNSs settings investigated in this research. These factors are: source credibility, recommendations rating, and SNSs users' engagement. Figure 1 shows the research model.

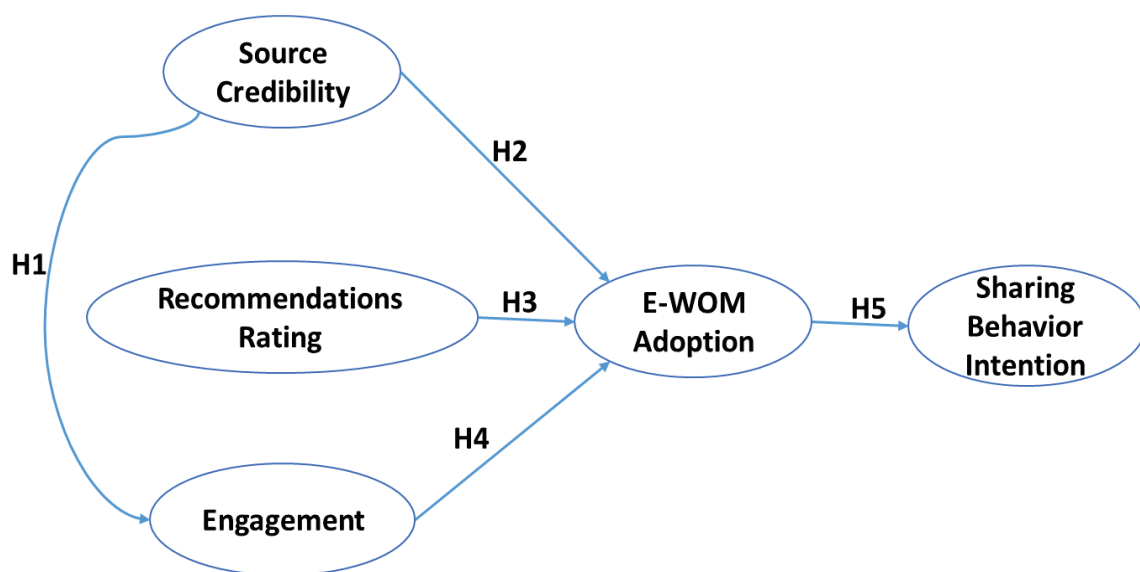


Figure 1. The research model

2.1 Source Credibility

Source credibility was defined as a recipient's perception of the credibility of an information source, and is also a primary concern of SNSs users, when engaging in these networks (Pavlou and Dimoka, 2006).

SNSs groups that share e-WOMs are mainly affected by the source who shares these online messages. This source could be a close Facebook friend or a follower on Twitter. Consequently, the credibility of this information source may play a different role than it does in online review forums for example, where reviewers are mostly strangers.

Source credibility has been investigated by many IS studies in order to understand its effect on online information adoption and persuasiveness (Morimoto and La Ferle, 2008). Whether the message is online health information (Hu and Sundar, 2010), news stories (Xu, 2013), online travel recommendations (Ayeh, Au, Law, 2013), or brand attitudes in e-commerce (Chih, Wang, Hsu & Huang, 2013); source credibility appears to have a significant impact on information influence and on persuasion (Sussman and Siegal, 2003). Source credibility is a necessary factor when selecting information (Xu, 2013), it determines whether users would believe the story and be engaged in it.

When readers receive any information, they try to evaluate the credibility of the information sources. Toward this target, they may rely on source expertise (Xu, 2013). Source expertise is one of the dimensions of source credibility (Rieh & Danielson, 2007). Accordingly, information received from a source who's experienced in the field of this information, is expected to be more credible, engaging, adopted, and shared by the reader. The reader's trust in the message source is expected to be directly transferred to the message itself (Xu, 2013), which make it more engaging and more adopted by the reader. Source credibility would be a strong motivation for readers to select any information.

Uncertainty reduction theory suggests that individuals need to reduce uncertainty through understanding and learning (Berger and Calabrese, 1975). One of the strategies to reduce uncertainty is seeking credible sources of information before adopting it, or communicating with other individuals who share similar values (Tajfel and Turner, 1979). Accordingly, when SNSs members perceive online information source as highly credible, then this source would be more engaging for those members.

H1: E-WOM source credibility has a positive impact on SNSs group members' engagement in these groups.

H2: E-WOM source credibility has a positive impact on SNSs group members' adoption of information shared in these groups.

2.2 Recommendations Rating

Users on SNSs are expected to look at the value of e-WOM before they adopt it. If they find it worthy, they are going to adopt it, and share it with others. One of the most established ways of checking e-WOM value is by looking at its rating by others (Cheung, Luo, Sia, and Chen, 2009). E-WOM's rating on SNSs is an online resource that individuals can use to facilitate their decisions making process (Mudambi, and Schuff, 2010). Positive e-WOM rating by a considerable number of SNSs users, e.g. likes or comments on SNSs, is an indication of selecting and adopting the content of this e-WOM. This can also assist other SNSs users in evaluating and judging the credibility of the message, and adopting it as well.

According to ELM, when individuals do not have a motivation, or the ability to elaborate the content of the message, they depend on the peripheral route. In this case, instead of judging the message content, individuals try to develop evaluation rules to help them evaluate the message content (Petty and Cacioppo, 1986). One of these rules is by looking at the recommendation rating, e.g. number of likes/comments left by SNSs users on the content of e-WOM. Number of SNSs likes and comments represents a social recommendation rating that motivates people to adopt this e-WOM. The reason for this motivation is because the idea that others are convinced by this e-WOM, and adopting it, is one of the rules that can assist in evaluating the e-WOM and adopting it. Meaning, when others believe something is right, I should do.

The impact of online social recommendation rating by a large number of SNSs users is expected to affect the receiver to adopt e-WOM, because it does in a number of similar fields. Online information about online books sales, for example, affected other buyers' purchase decisions. Travelers' online choices affected other travelers' choices. Brand ratings by customers affected other customers' decision making process (Sundar, Xu, and Oeldorf-Hirsch, 2009). In addition, music download information affected other's download intention (Salganik, Dodds, and Watts, 2006).

H3: Recommendations rating by SNSs group members has a positive impact on their adoption of e-WOM shared in these groups.

2.3 Engagement

Engagement was defined as the feeling that a system has caught, captured, and captivated user interest (Jacques, Preece, and Carey, 1995). Engagement entails intrinsic interest. Therefore, research highlighted the importance of creating systems that are engaging, and motivating for users (Laurel, 1991; Malone and Lepper, 1987), and to study engagement factor as an important goal in the system design process (Mayes, 1992). Human-computer interaction research has recognized the need to develop experiences that engage users (Jacques et al., 1995; Hassenzahl & Tractinsky, 2006).

According to the exchange theory, resource exchange can be achieved by personal interaction. E-WOM is an important resource in SNSs, and its adopting can be affected by recipient's engagement in online social networks. E-WOM is expected to be more adopted by recipients who are more engaged in the SNSs groups.

H4: SNSs group members' engagement in SNSs groups has a positive impact on their adoption of e-WOM shared in these groups.

2.4 E-WOM Adoption

One of the most important features that SNSs provide is sharing stories that users consider it useful with other users (Shoemaker, Johnson, Seo, and Wang; 2010). In SNSs, like Facebook, and Twitter, information sharing considered as one of the most valuable features.

Prior research suggests that news with more recommendations from others, and more adopted by others, would be shared more by SNSs users (Xu, 2013). Xu, (2013) found that information perceived by individuals as credible would be shared more extensively. This suggests that when SNSs users adopt any information, they would share it more with others. There would be no real value out of e-WOM content, if online users don't apply the communicated information, by adopting it in their decision making processes, and consequently, sharing it with others.

E-WOM sharing behavior is a response, by SNSs users, that reflects their acceptance and adoption of what the informant advocates (Cheung, and Thadani, 2012; Cheung, Luo, Sia, and Chen, 2009). E-WOM adoption is the most effective outcome of e-WOM communication, and is a meaningful measure of persuasion (Li and Zhang, 2011). Information persuasiveness process involves a receiver's evaluation of information credibility (Wathen and Burkell, 2002). The positive outcome of this evaluation process is expected to improve the receiver's sharing behavior, because SNSs users, who perceive an e-WOM as credible, are expected to be interested in learning from it, and utilizing its content. Thus,

H5: SNSs group members' adoption of e-WOM shared in these groups has a positive impact on their sharing behavior intention

3. Research Methodology

A Web-based survey was used in this study. The first part of the survey described the study and its purposes. The second part of the survey is the main part; it includes the study measurement scales. The last part of the survey includes the "Thank you" page, and the participation confirmation code to get the extra credits.

3.1 Participants

A total of 260 undergraduate students, from a public university in Jordan, participated in this study. They were required to have a Facebook account to be considered for participation. Participants considered for this study have reported some use of SNSs to share e-WOM about any products or services they were interested in.

3.2 Stimulus Materials and Manipulation

The study stimuli were designed using four Facebook posts. Each post involved: e-WOM information content, number of likes received by the post, number of comments followed this post, and the name and a picture of the e-WOM source. The content and outlook were kept similar among the four posts. The only difference between them was in the source credibility and the recommendation rating. Manipulation of the source credibility was done by varying the e-WOM source. A name of a known instructor was chosen as the high credible source, while the low credible source was manipulated by selecting a fictional name. A pretest showed that the two sources were significantly different in perceived credibility $p < .01$. Recommendation rating indicates the number of Facebook users who like the post or comment on it. It is an indicator of the e-WOM popularity, and suggests social recommendation from other SNSs users. Following prior research (Xu, 2013), the manipulation for the social recommendation selected: 6 comments/likes for the low recommendation rating level, and 329 comments/likes for the high recommendation rating level.

Guided by (Yang, 2012), a pretest was conducted to select the right product (n=30). Among the surveyed products (mobile phones, cosmetics, digital cameras, tablets, etc.) tablets were found to have the minimum variance, and so, it was selected as the appropriate product for the research subject.

In result, this research investigated two factors with two level each; 2x2 study design. These factors are: source credibility (high and low), and recommendation rating (high and low).

3.3 Procedures

The experiment setting was a computer lab on campus. Participants were asked to see a screen-shot of an e-WOM review published in a Facebook group. They were then asked to complete an online survey about their perceptions of the e-WOM, e-WOM source credibility and their engagement and sharing behavioral intention toward it.

3.4 Measurement

Five constructs were studied in this study: source credibility; recommendation rating; engagement; e-WOM adoption; and sharing behavioral intention. All of the measurement used in this study were adopted from the literature. Well defined measurements were utilized for each one of the five constructs. The final measurement items and the source for each measurement are shown in appendix A. Responses were solicited using a 7-point Likert scale ranging from one (completely disagree) to seven (completely agree).

The survey items were pretested using a pilot study (n= 30 participants). The pretest focused on the message clarity, believability, and likability. Some survey items were revised based on the pretest results. After conducting the pretest, all respondents indicated that the survey questions are clearly understood, they also found it believable and likable. Responses from the pilot study were excluded from any further participation in the main study.

3.5 Control Variables

The following control variables were considered in this study: product familiarity, and gender. A T-test was used to check if there is a significant difference between participants who are familiar with the selected product and participants who are not. Another T-test was used to check if there is a significant difference between male and female participants. Results show no significant differences between familiar and unfamiliar participants, or between male and female participants.

3.6 Common Method Bias Test

To control for common method biases, Harman's single-factor test was used. The test was performed twice. At the beginning, it was used with all of the variables in the study, and then it was only used with the independent variables. Firstly, the first factor explains only 28.75 % of the variance, when all variables were involved, which is not considered as a majority (Greene and Organ, 1973). Secondly, the first factor explains only 31.64 % of the variance, when only the independent variables were involved; and this is not considered as a majority (Greene and Organ, 1973).

Table 1. Items Loading

	E-WOM Adoption	Engagement	Recommendation Rating	Sharing Behavior	Source Credibility
Adop1	0.861				
Adop2	0.847				
Adop3	0.799				
Adop4	0.788				
Eng1		0.861			
Eng2		0.847			
Eng3		0.776			
Eng4		0.857			
Eng5		0.844			
Rec.R1			0.829		
Rec.R2			0.880		
Rec.R3			0.832		
SBI1				0.820	
SBI2				0.835	
SBI3				0.827	
SC1					0.816
SC2					0.888
SC3					0.847
SC4					0.862

4. Results

55.6% of the subjects were female. The manipulations of both independent variables were successful. The known instructor and the fictional name were perceived significantly different by the participants, $p < .01$. For recommendation rating, the low level (6 comments/likes) and the high level (329 comments/likes) were also perceived significantly different by the participants, $p < .01$.

Partial Least Squares (PLS) Structural Equation Modeling (SEM) method was used in this research to evaluate the hypotheses model. Each item should load high on its corresponding construct, at least 0.7 (Hulland, 1999). The entire items' loading in this study exceeded this level as can be seen in table 1.

To check for internal consistency, composite reliability scores were used, and exceeded 0.9 for all constructs, as shown in table 2, and thus, considered adequate (Hair et al, 1998). The Square Root of Average Variance Extracted (AVE) was used to test for discriminant validity; and found to be higher when comparing with the inter-construct correlations for all constructs as shown in table 2, consequently, discriminant validity was not a concern in this study.

Table 2. Internal consistency and discriminant validity

Composite Reliability	Square Root of AVE and inter-construct correlations					
		EWAd	Eng	RecRat	SBI	SrcCrd
0.90	EWAd	0.82				
0.92	Eng	0.31	0.84			
0.88	RecRat	0.49	0.45	0.85		
0.87	SBI	0.55	0.17	0.27	0.83	
0.92	SrcCrd	0.25	0.22	0.21	0.14	0.85

The study results are presented in figure 2. E-Wom Adoption had an R-Square of .523, engagement had an R-Square of .388, and sharing behavior intention had an R-Square of .298. This means that source credibility, recommendation rating, and engagement explain 52.3% of the variance in e-WOM adoption collectively. Source credibility and recommendation rating explain 38.8% of the variance in engagement collectively. E-WOM adoption explains 29.8% of the variance in sharing behavior intention (Agarwal & Karahanna, 2000). Path coefficients were all significant as shown in Table 3. All six hypotheses are supported.

Table 3. Summary of hypotheses tests

	Path Coefficient	T Statistics	P Values
H6: EWAd \Rightarrow SBI	0.546	8.774	0.000
H5: Eng \Rightarrow EWAd	0.306	3.839	0.000
H4: RecRat \Rightarrow EWAd	0.349	3.760	0.000
H3: RecRat \Rightarrow Eng	0.451	4.568	0.000
H2: SrcCrd \Rightarrow EWAd	0.184	2.065	0.039
H1: SrcCrd \Rightarrow Eng	0.223	2.125	0.034

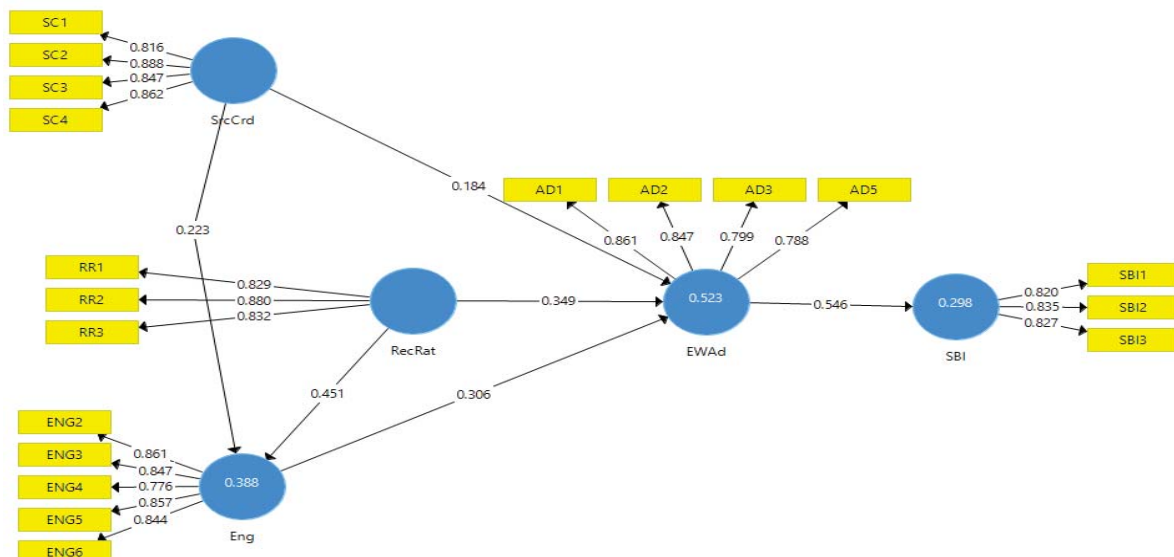


Figure 2. The measurement model

5. Discussion and Implications

The peripheral route of the ELM has been utilized in this research to investigate the impact of factors not related to the message contents on its adoption, and hence, on its sharing by SNSs users. These factors are source credibility, recommendations rating, and SNSs users' engagement.

The results of this study yield deep insights. It indicates that there is a positive impact for source credibility and recommendations rating on SNSs users' engagement. Source credibility, recommendations rating and SNSs users' engagement have positive impacts on e-WOM adoption by SNSs users. There is also a positive impact for e-WOM adoption by SNSs users on their sharing behavior intention.

These research results are compatible with prior research, about the significance of source credibility, and its impact on the message credibility. This can be explained specifically by the ELM literature. ELM research argued that some factors not related to the message content, like source credibility, could influence the receiver perceptions of the message credibility. Meaning that, SNSs users believe online messages published by credibly perceived users. We extended this by studying its impact on the message adoption by SNSs users. When online users believe online messages and perceive it as credible, they adopt it, especially in their decision making process. This was supported by results of this research.

Recommendation rating was found to positively impact the message adoption. This result is consistent with prior research that found online message, endorsed by many other SNSs users, is considered as worthy of reading and hence, adopting (Xu, 2013). Johnson, Bichard, and Zhang, (2009) argued that the huge amount of information, available online, forces online users to be selective in their choices and decisions. We provide an evidence that information that have already been selected by many SNSs users will influence others to select it, believe it, and apply it in their decisions making processes. This can be explained more using Fiske and Taylor (1984) findings. They found that online users are lazy, in a way that make them resistant to spend any efforts in their selection of online information. They seek for an easy way that help them to decide what information worth reading, selecting, and adopting.

On SNSs, e-WOM adoption is an important factor to be investigated, because there are needs to know more about factors that make SNSs users adopt a message more than just believe it. Firms were found to be more interested in understanding how users of SNSs would be affected by their products' online reviews, and how they are convinced to act toward these products' reviews, rather than just believe it to be true and credible.

Results of this research showed that SNSs users, who felt engaged in SNSs groups, adopted published e-WOMs more than those who don't feel engaged in it. Engagement in SNSs groups brings more reasons for these group members to adopt e-WOM published in these groups. Research showed that engaged users spend more time online (Imlawi and Gregg, 2014) and hence, be affected more by online contents. Our results were consistent with prior research that found that users describe systems, which are perceived by them as engaging, as attractive systems (Mayes, 1992), and systems that encourage users to finish their activities (Laurel, 1991)

We also investigated the impact of message adoption by SNSs users on their sharing behavior intention. One of the main issues in e-WOM literature is spreading the word. SNSs have a huge spreading opportunity that is under investigated in literature. This research contributed to theory by investigating these factors. That is, when SNSs groups' members find message sources to be credible, when they feel engaged in these SNSs groups, as well as, when they recommended by other SNSs groups' members by receiving positive rating from them on these online messages, they adopt these online messages content for them first, and hence, share it with others on SNSs.

Investigating sharing behavior intention is one of the contributions of this research for practice as well. Firms should have a great interest in understanding how to spread the word about their products and services, especially when SNSs users do this with their friends, followers and other SNSs groups' members. Practitioners must be interested in results of this research because sharing e-WOM with more SNSs users reflects users' believe in e-WOM contents they get, and reflects users' adoption of e-WOM. Adoption of information about any product or service, and spreading and sharing of information about a product or a service are the best advertisement practitioners can offer for their products and services.

Results of this research provide strategies for firms to adjust their online activities in order to succeed in improving their customers' adopting of these firms' products and services' information, and improving those customers' sharing of information about these products and services. Specifically, firms can encourage their customers to spread e-WOM through their private SNSs platforms, because this source of e-WOM was proved by this research to be more influential on e-WOM readers than traditional sources.

Another way can practitioners do to enhance their products and services information adoption and sharing by customers is by encouraging customers to highly rate products and services on SNSs by more likes, comments and sharing. Recommendation rating on SNSs is proved by this research to be more influential than rating on the firm's formal websites or even third party websites, because SNSs recommenders are friends on SNSs, and so are perceived as more credible sources.

5.1 Limitations and Future Research

This research studied: source credibility, recommendation rating and users' engagement in SNSs. However; there might be other factors that affect e-WOM adoption and its sharing behavior by online users (e.g. previous experiences). Future research could conduct an inductive approach to understand and list all of the different factors that might affect SNSs users' adoption and sharing of online information.

Recommendations rating have been manipulated using two levels of treatment, high (329) and low (6). There may be an optimum amount of recommendations rating that attract SNSs users. This study might be repeated with additional recommendation rating levels to help understand its effect on e-WOM adoption and sharing behavior.

The simulated Facebook groups used by this research may not sufficiently capture the impact of the factors studied in this research. Accordingly, future research is recommended to repeat the study with an experiment design, where SNSs users be engaged in a real SNSs groups.

External validity might be one of the limitations of this research, since the sample included students only. Using student as sampling units is overrepresented in information systems literature, mainly because of their availability; students are a readily available population on college campuses. However, they are not always representative of the general population. In this study, students were considered for the study sample, because we think that they are very similar in characteristics with the online customers, they are online customers anyway, because we asked a screening question to check if they used any SNSs to share e-WOM about products they are interested in. In addition, students shown to be main users on SNSs. However, targeting online users directly in their SNSs where they exchange e-WOM, about some products and services, might yield a better external validity, and so this would be recommended for future research.

Finally, e-WOM published by SNSs friends/followers were considered in this study. However, e-WOM published on SNSs by strangers (anonymous e-WOM) might have a different impact. Future research could study the difference between anonymous e-WOM and e-WOM from private social networks to understand more about the impact of each one of these e-WOM types on users' engagement and on other factors studied in this research.

5.2 Conclusions

SNSs have begun to be popular in different contexts and fields. Online information published in SNSs is increasingly influencing online users' decision-making process, and their attitude toward the content of this online information. Practitioners have started to recognize the outcomes when more e-WOMs are published by SNSs users who actually tried products and services mentioned in these e-WOM.

This research focused on using SNSs in message persuasiveness literature, by understanding how source credibility, recommendation rating and SNSs users' engagement in SNSs groups affect SNSs users' adoption of online information, as well as, online information sharing behavior intention.

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Appendix A

Measurements and Items

Table A1 shows measurements and items used in the study.

Table A1. Measurements and Items

Construct	Items	Source
Source credibility	<ul style="list-style-type: none"> ○ Based on the rating system of the recommendation provider, this provider is reputable ○ Based on the rating system of the recommendation provider, this provider is highly rated by the forum members ○ Based on the rating system of the recommendation provider, this provider is good ○ Based on the rating system of the recommendation provider, this provider is trustworthy ○ Based on the rating system of the recommendation provider, this provider is reliable 	Zhang, and Watts, (2004)
Recommendation rating	Based on overall rating of other Facebook users regarding an e-WOM review (e.g., likes and others' comments below the message): <ul style="list-style-type: none"> ○ The review was found to be favorable by other audiences. ○ The review is highly rated by other audiences. ○ The review was found to be approving by other audiences. 	Cheung, Luo, Sia, and Chen, (2009)
Engagement	<ul style="list-style-type: none"> ○ This Facebook group kept me totally absorbed in the browsing ○ This Facebook group held my attention ○ This Facebook group excited my curiosity ○ This Facebook group was fun ○ This Facebook group was intrinsically interesting ○ This Facebook group was engaging 	Webster & Ho (1997)
E-WOM Adoption	<ul style="list-style-type: none"> ○ To what extent do you agree with the review? ○ Information from the review contributed to my knowledge of discussed product/service. ○ The review made it easier for me to make a purchase decision. (e.g., purchase or not purchase). ○ The review motivated me to make a purchase action. ○ The review has enhanced my effectiveness in making a purchase decision. 	Cheung, Luo, Sia, and Chen, (2009)
Sharing behavioral intention	<ul style="list-style-type: none"> ○ How likely you will discuss the news with your friends ○ How likely you will share the news with your friends ○ How likely you will recommend the news to others 	Hu and Sundar, (2010)

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Barriers in Adopting Human Resource Information System (HRIS): An Empirical Study on Selected Bangladeshi Garments Factories

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Abstract

Garment industry can be considered as the sprinter of the economy in Bangladesh for its significant contribution to the economy. Demand for Bangladeshi garments products are increasing so are the competitions. The garment industry, to keep pace with the increasing competition, needs to adopt Information System (IS) in business functions that help ensure cost management effectively in the labor-intensive garments factory. However, very few garments factories have adopted IS in their operations. This paper tried to identify the factors inhibiting the adoption of HRIS in the garments industry of Bangladesh through a semi-structured questionnaire survey of 150 samples from 25 garment factories in Bangladesh. We have used Exploratory Factor Analysis (EFA) method to identify the factors impeding to adopt HRIS in garments sector of Bangladesh. From the study, we have identified three broad inhibiting factors termed as Financial, Management related, and Organizational; specifically, High investment, Costly maintenance, Long-term benefit, Organizational Structure, Culture of the Organization, Top management support, lack of experts and user, are found as major barriers in this regard. The findings may be useful to both the academicians to explore the factors in their respective countries and the HRIS practitioners in garment sector to emphasize on these areas so that organizations can ensure better HRIS implementation.

Keywords: HRIS, adoption, barriers, garments sector, garments factory, Readymade Garments (RMG), Bangladesh

1. Introduction

Organizations have the pressure to reduce operational cost and to be responsive to the demand of customers. It is more intense for production-oriented and labor-intensive organizations especially garment sector than others. (Beadles et al. 2005) Mentioned that the use of HRIS generates valuable outcomes for the firms since it helps to reduce cost and time as well as improves communication to perform HR related activities. In fact, in today's business world, Information System (IS) is considered as one of the most effective tools to achieve competitive advantage. In comparison with the traditional business environment, companies with the integrated information system are more competitive because integrated information systems enable companies to reduce cost and increase productivity which has a positive impact on the company's Return on Investment (ROI) and Growth. Nevertheless, due to the several barriers firms cannot implement the HRIS successfully or even if they implement, there is difficulty to achieve full-fledged benefit from HRIS. This paper aims at finding out those barriers in HRIS adoption in Bangladeshi garment sector and provide suggestions how the barriers can be overcome to make the successful HRIS adoption that will lead to higher HR performance.

2. Literature Review

Human Resource Information System (HRIS) is a method that utilizes the knowledge-based technology for the management of human resource functions and applications. It is a processed system comprising knowledge base or lay to rest connected database that tracks employees and their employment specific information (Gill & Johnson, 2010).

2.1 Historical Studies Conducted on HRIS

The literature on HRIS implementation suggests that organizations have challenges once they implement new technologies. One of the major obstacles to the implementation of HRIS is a high cost in maintenance (Beckers & Bsat, 2002). According to (Nagai et al. 2006 & Batool et al. 2012), shortage of funds and the untrained employees are major types of barriers in this regard. Additionally, support from top level management is one of the largest impediments to implementation of HRIS (Kovach & Cathcart, 1999).

For most of the companies adoption of IS in operation is an innovative thing and Bal, Y.et.al (2012) mentioned that companies' values such as flexibility, freedom, cooperation, promote innovation; whereas values such as rigidity, control, sure thing, and stability hinder innovation to boost up. However, values of the companies are the reflection of top management's cognizance. The robust commitment of management, especially of a specific 'innovation champion' results in rapid adoption, whereas a scarcity of top management commitment inhibits adoption (Hendrickson & Anthony 2003; Chakraborty & Mansor, 2013). Companies' values are reflected in the company culture.

The culture of the organization continues to cite as a vital consideration in the success or failure of HRIS adoption (Krishna, and Bhaskar, 2011; Thite et. al., 2009). Most organizations misjudge the cultural impact of technology on their employees (Bal et al. 2012). It ought to provide an equal priority to addressing these changes with workers as they are providing training and implementing the HRIS, assessing the workers' talent and ensuring acceptance of technology and mentoring programs among employee's teams to assist stressed workers (Krishna & Bhaskar, 2011). Moreover, intra and interdepartmental politics, an absence of communication, short-term value analysis and a failure to incorporate key decision-makers result in HRIS adoption failure (Bal et al. 2012). Company culture is a shared practice and belief of the employees.

A survey conducted by Delorme & Arcand, (2010) found that the main barrier to managing HRIS embrace less qualified HRIS employees, challenges with time management, the necessity to figure with alternative departments, and therefore lack of IT support. Previous studies on IT adoption and implementation have also shown difficult technologies, like HRIS applications, perceived obstacles are relevant as a result of the adoption method tends to be challenging and expensive (Hong & Zhu, 2006). Security is another issue to contemplate the IT professionals. Human Resource Division deals with confidential information and corporations should be respectful in managing that information (Awazu & Desouza, 2003; Ball, 2001, Behera, 2016).

Table 1. Barriers to HRIS Implementation

Barriers	Short Explanation	AUTHOR(S)
High Investment/Capital requirement	Requirement of launching, running and implementing the system	Nagai, et, al., 2006, Batool et al. 2012
Long Term Benefit	Absence of trend gaining long term benefit	Survey (Author), 2017
High Maintenance Cost structure	One of the major cost incurred after the system is implemented	Beckers, Bsat, 2002,
Top Management Support	Whether the top level management agrees to implement the system.	Kovach, and Cathcart, 1999, Anil C. 2011, Chakraborty, A, Mansor, N. 2013
Lack of Privacy and Security	Whether any risk involved regarding disclosure of private data to external parties? What types of data will be stored in the database? Who will access the data?	Awazu & Desouza, 2003; Ball, 2001, Behera, M. (2016)
Lack of Expert User (Top to Bottom Level)	Do the users of the system have the expertise to operate and use the system?	Nagai, et, al., 2006, Batool et al. 2012, Rodriguez, 2003, Shiri, 2012, Delorme, M., & Arcand, M. (2010)
Organizational Structure	Whether the organizations are adaptive with the system.	Anil C. 2011
Culture of the Organization	Culture indicates whether the people working within the organization are ready to accept the new system.	Bal, Y.et.al 2012
Size of the Organization	Whether the size of the organizations is suitable to implement the system.	Survey (Author), 2017

Moreover, different technological and structural factors used by the employees which discourage technology adoptions were conjointly found; such as the value of technology, an absence of social control and technological skills, an absence of system integration, the shortage of a reliable supply of data for firms to develop knowledge-base in HRIS, and short of data and knowledge in act information regarding new systems (Rodriguez,

2003). Among these factors, one potential issue of HRIS management may be a lack of technical coaching and knowledge in data management (Shiri, 2012). Winning technology implementation is possible to occur, once structure resources (e.g. time, funding, and technical skills) are supported throughout the first stages of implementation (Anil C., 2011).

Decision-making approach also has an influence on the IS adoption. Centralization in decision-making plays an oversized role in Information System usage, and adoption opinions on the best degree of centralization take issue from study to review (Anil C. 2011). On the other hand, localized decision-making is the strongest facilitators of IS adoption, and IT usage in sophisticated organizations maintain strong collaboration (Wiblen, 2010).

2.2 Necessity of HRIS

The importance of HRIS in the business firm is beggar description. Organizations need to look for paths to manage their internal process efficiently. In HR platform, the process consists of many transactions which affect people and the benefits they get along with the ways of their organizations (Lengnick et al. 2003). For most of the organizations tracking HR activities by using HRIS seems to be efficient. From organizations' owner perspective, it is hard to make judgment and decision which system will be affordable and best suited for their business firms. There are several reasons behind the adoption of HRIS in the business firms (Lengnick et al. 2003). Firstly, HRIS manages information; such as current employees' position, job responsibilities, salary structure, whether they require training or not. In fact, about every job in an organization HRIS users can create reports about workforce to determine organizations' workforce requirement. Secondly, based on the number of workforce requirements, they can conclude easily and quickly about what kind of resources they have to meet the requirement (Panayotopoulou et. al. 2007). By using HRIS, they can identify employees who are skilled and well trained along with companies can reduce their cost of recruitment and use this money for future investment even in staff training and development propose (Lengnick et al. 2003). Thirdly, organizations have the opportunity to get the feedback directly and instantly from the employees of the firms to trace their expectation and how well they can be justified to make them competent (Panayotopoulou et al. 2007). Apart from these benefits derived from using HRIS, firms can ensure the cost reduction for storing data, higher speeds in data retrieving and data processing with accuracy. (Khanka S.S 2003).

2.3 HRIS Practice in Bangladeshi Garment Sector

The economy of Bangladesh mostly depends on agriculture. The Ready Made Garment (RMG) sector has emerged to be the biggest foreign currency earner. This industry has an exponential growth since the 1980 and contributes significantly to the GDP (Latifee, 2016). RMG sector of Bangladesh is the largest (approx. 82% of the total export) foreign exchange earning sector, which has about 900 buying houses and employs about 5 million workers (Akhter, Salahuddin, Iqbal, Malek, & Jahan, 2010)) in about 6,393 garments manufacturing factories (BGMEA, 2013; Ferber, 2009). The recruitment system of garment sector in Bangladesh is still traditional with some exceptions. Majority garment firms do not show their interest in shifting their HR function to HRIS. Thus, the current scenario of HRIS practices is far below the level. Garment firms are family owned and controlled by family members. Hence, HR tasks tend to be viewed as owner's desire. Consequently, firms which are trying to adopt HRIS, become fail due to the several factors especially investment areas and top management willingness and firms' size.

3. Research Design

Considering limited previous research on HRIS in both private and public firms an exploratory research approach has been undertaken (Griffin, 2010, Williams, 2010). The sample framework of this study was 150 participants from 25 garment firms in Bangladesh. Convenient sampling method has been used due to its cost effectiveness and wide applied applicability in information systems research (Azam et. Al., 2013). For analysis of data, we have used Exploratory Factors Analysis tool with Principal Axis Factoring (descriptive procedure) extraction method where varimax for rotation has been used because the focus is not to generalize the results beyond the sample. To collect data, structured questionnaire survey method has been followed. The first part of the questionnaire has been to collect demographics data and second part included different constructs using a 5- point Likert scale ranging from (1) "Strongly Disagree to (5) "Strongly Agree." We have distributed 180 surveys questionnaire with 156 returned filled, resulting in an 87% response rate. Among 156 returned filled, six have been found to be incomplete thus we left with 150 samples.

4. Findings

4.1 Demographic Information

From the demographic analysis (See Table 2), it can be seen that respondents were basically male dominated (82%). Half of the participants (50.66%) whose age between 30 to 40 years have master's degree (56%). About 15%

of the respondents have more than five years of employment experience, and 35.33% of the respondents have less than five years of employment experience in RMG. The scenario regarding the experience segment is not too vast because HRIS concept was developed in Bangladesh just 10-15 years ago.

Table 2. Demographics of the Respondents

Descriptions	Frequency	Percentage (%)
Gender	Male	123
	Female	27
Age	<30	19
	30-40	76
	40-50	37
	>50	18
Education	Bachelors	52
	Masters	84
	Others	14
Experience	<5	53
	5—10	75
	>10	22

4.2 Factor Analysis

The result of the factor analysis shows that Kaiser-Meyer-Olkin measure of sampling adequacy is 0.503 which is well above the recommended value of 0.5 suggested by Williams et al. (2010) and Bartlett's test of sphericity is significant ($\chi^2(36) = 261.789, p < 0.5$) (See Table 3).

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.503
Bartlett's Test of Sphericity	Approx. Chi-Square	261.789
	df	66
	Sig.	.000

Factor analysis generated three factors with eigenvalue more than one along with item loading more than 0.30 (See Table 4). We considered nine items for the study and all of them were loaded and each factor contains three items which are more than recommended value by Williams et al. (2010). We named the first factor as a financial factor because its items related to high capital requirement, long-term benefit, and high maintenance cost structure. According to the analysis, financial related factor has internal reliability (Cronbach's Alpha > 0.722) and explains 31.86% of the variances. We termed the second factor as management related factors, which include top management support, lack of privacy and lack of expert users related to decision making from the top level management. This factor also has internal reliability (Cronbach's Alpha > 0.703) and explain 10.41% of the variances. The third factor is also internally reliable as it achieved the recommended Cronbach's Alpha of 0.700. Three factors together explain 49.66% of the variances.

Table 4. Factor Analysis Result

Items	Factors			Communalities *
	Financial Related (1)	Management Related (2)	Organization Related (3)	
High Investment/Capital requirement	.873			.587
Long Term Benefit	.577			.523
High Maintenance Cost structure	.694			.591
Top Management Support		.678		.634
Lack of Privacy		.545		.546
Lack of Expert User (Top to Bottom Level)		.729		.417
Organizational Structure			.557	.518
Culture of the Organization			.625	.322
Size of the Organization			.514	.429
Eigenvalues (>1)	3.302	1.878	1.311	
Percentage of Variance	31.86%	10.41%	7.39%	
>Cronbach's Alpha	.722	.703	.700	

Extraction Method: Principal Axis Factoring, Rotation Method: Varimax

The traditional way of HR operations has already become obsolete. The HR systems are shifting from traditional manual systems to HRIS or e-HRM with the help of Information Technology. This study reveals that there are three main factors responsible for unsuccessful HRIS implementation: financial related factors, management related factors, and organization related factors. Among these factors, financial related factors have a greater

power of explaining the variances followed by management related factors and organization related factors.

Interview with the professionals revealed that HRIS seems to be a very costly (comparing to the traditional systems) for the organizations especially for middle and small sized organizations to maintain. Our study also reveals that IS experts and users are dominated by the males who are young and educated that is a common scenario in the world irrespective of the industry. Our study is in line with previous findings of Batool et al. (2012) and Chakraborty, et.al. (2013); such as lack of expertise, time consumption, technical problems, lack of funds, organizational size and management commitment have a deterrent effect on adopting HRIS.

5. Conclusion and Implication

Garment companies across the world are trying to implement, upgrade, their business functions especially HR function primarily for achieving competitiveness and bringing operational efficiency. The Recent trend of engaging with Information Systems has contributed to two things: one is information processing, another is decision-making tool in HRM. The emergence of the HRIS field gave the HR function more credibility within the managerial hierarchy which compel the more sophisticated use of information. As garment industry experienced increased pressures that cause greater cost contains demands from top management, it leads towards greater automation in data management in HR function. However, due to management, organizational and financial factors, the RMG sector is not able to implement HRIS.

5.1 Managerial Implication

Managers may emphasize on these three factors while implementing HRIS. In the case of financial factors, the most stimulating issue is a high investment and high maintenance cost. If the firms do not get the financial support and unable to manage the long-term maintenance cost, it will be quite difficult to implement HRIS. The second crucial factor focuses on management perspective. Unless top level management shows a positive attitude towards HRIS benefits, successful implementation of HRIS remains aside. Along with top-level management support, it is a clear requirement to have expert users from the top-level to the bottom-level where privacy of data must be maintained. Moreover, organization structure, size, and culture also have a significant effect in this regard. For small sized factories, HRIS may not be helpful from economic context. Therefore, managers should consider first if the firm's size is justified to implement the HRIS which is user-friendly and flexible and capable of ensuring efficiency for the longer period.

5.2 Theoretical Implication

This study indicates that financial factors, managerial factors, and organization related factors together explain 49.66% of the variation in adoption of HRIS that clearly indicates that other factors are there to explain rest of the variations. Future researchers can do further research on this issue to find out other factors involved in implementing HRIS in garments industry both locally and globally.

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Critical Examination of the Impact Accounting Ethics and Creative Accounting on the Financial Statements

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Abstract

This study aimed to determine the impact accounting ethics and creative accounting on the financial statements in Jordan, the study importance arises from the need to recognize creative accounting and profession ethics for accountants, creative accounting can be used to manage profits, income smoothing.

Earnings management occurs when accountants use judgment in financial statements and in structuring transactions to alter financial statements to either mislead some shareholders about the underlying performance of a company, sometimes to impact contractual outcomes that depend on financial reporting.

To achieve the objectives of this study a questionnaire designed and distributed to the society of tax auditors and mathematical model built to link between creative accounting and accounting ethics percentage and some financial figures.

The statistical analysis showed that ethics and creative accounting had a positive impact on the financial statements.

Keywords: accounting ethics, creative accounting, financial statements, tax gap

1. Introduction

Creative accounting and accounting ethics and ethics one of the most recent subjects in the accounting field, and which considered as one of the main reasons of argument which face many concepts in accounting like true and fair of financial statement, and the earning quality from informational perspective.

Many researchers or writers try to get definition for this concept like (Naser, 2015) who give an academic view offers a definition “creative accounting and ethics is the transformation of accounting figures from they actually are to what prepares desire by taking advantages of the existing rules and/or ignoring some or all of them” this definition take one of the creative accounting and ethics sides, which related to the high flexibility and alternatives of financial rules and standards, but creative accounting and ethics does not stop hear, Jameson write about this subject as the following “The accounting process consist many of dealing with many matters of judgment and resolving conflicts between competing approaches to the presentation of the results of financial events and transaction” in our opinion this view look more wider Which mean that creative accounting and ethics may consist the judgments factor which can be used in a wrong way from some parties, so from previous we can see that we got many definitions of creative accounting, because according to our view there is no clear picture about creative accounting and ethics yet.

Accountants use their knowledge in the accounting rules and standards to manipulate the financial figures in the reported financial statements to get more favorable appearance for it, this process become considered as creative accounting, which was handled by many of studies from the theoretical or argument perspective, and rarely from empirical one. For that we try in our Research to view this subject from Empirical perspective, So this is put us in front of big question, which is “Do we got creative accounting and ethics in practice or not and even the answer Yes on No, how can we specify or get this answer?”

And what make this subject important as a research field. That creative accounting and ethics increased recently in a significant way. (Qatawneh & Afaneh, 2006)

we will try in this study to reach to a clear view of creative accounting and ethics and ethics in Jordan and to which extent it exist in the practice in Jordanian companies, and try to make a relation between some financial ratios or figures and the existing of creative accounting and ethics and ethics.

This view will be from a tax perspective which mean that we want to explain if the differences between the income presented by companies in reported financial statement and the adjusted income by ISTD, and try to know if the different caused by creative accounting and ethics or differences between taxes law and accounting standards (IFRS). (Qatawneh, 2012).

2. Study Problems

Due to the lack of researches addressing the critical examination of the impact ethics and creative accounting on the financial statements particularly in Jordan, this study attempts to answer the following questions:

1. What is the impact of accounting ethics on the financial statements?
2. What is the impact of creative accounting on the financial statements?
3. What is the importance of accounting ethics and creative accounting on the financial statements?
4. How does creative accounting impact on the financial statements?

3. Literature Review

Kamau, (2015), study the creative accounting of several companies in Kenya, the study was based on the theories, which were used to identify these practices, data was acquired through administering questionnaires and interviews, accountants, internal auditors and mangers of companies publicly listed on the market. A sample of 39 out of a target population of 64 Companies listed was extracted from the market website. Analysis of variance (ANOVA) was used to establish if there is a statistical significance between the observed and expected amounts. Regression analysis together with the Pearson coefficient of correlation, were used to test hypothesis. The results showed the level significant impact on creative accounting among the companies listed on the market for practices such as Managements compensation, contractual obligation, and tax.

Qatawneh, (2013), investigate the effect of developing the international financial reporting standards and international standards on audit on the tax legislation in Hashemite kingdom of Jordan, This study found that there is a statistical evidence of the international financial reporting standards on the tax law, with the presence of some weak effect from the point of view of the research sample related to the fair value and the extent of its use in the investments, and the financial instruments. And there is no effect with statistical evidence of the auditing standards on the tax law, with the presence of some difficulties related to the evaluations and the future values which necessitate the auditor to take them into consideration during the audit.

The study recommended that is important to understand the necessity of the awareness for auditors with what's related to the importance of the most convenient planning and the importance of analytical revision in auditing activities with what corresponds with the goals on which auditing has been used in order to achieve harmony between IFRS and tax law. The necessity of awareness for accountants and auditors with the importance of the fair value and its impact on financial data and information through showing the financial data risks that are related to the application of the fair value and its effect on reporting financial statements and the accounting acknowledgement of financial data. The paper also recommended to Increasing the coordination and collaboration between the legal association of accountants and the income tax department for the purposes of standing on all the obstacles that occur without the acceptance of all the certified accounts from auditors in the patrol and without auditing from the income tax department.

4. Methodology

The previous empirical studies even it rare, like (John and others, 2005) study which, depend on asking direct question about the creative accounting and ethics like question: Do you consider the use of creative accounting and ethics to be a serious problem?, Do you consider the use of ethics to be a serious problem?

By this methodology they forget an important matter, which is, does the people who answer these questions get the knowledge and the right knowledge.

This means that there results maybe not correct, and this point becomes more important in our study because the education level and knowledge in this field is to narrow, especially that our questionnaire introduce to tax department auditor.

So if we want to get a real result about the existing of creative accounting and ethics and ethics in the Jordanian companies we have to get two main two things which is, the ability to separate between what it's creative and

what isn't, the second thing is get ability to monitor the real practice in the Jordanian companies.

This study consist two parts the first is monitor the practices of creative accounting and ethics and ethics throw ask the auditor about all the rejected transaction which they face when they make their assessment on the companies, from here we will get all the disagreement matters between the tax department and companies.

Then we take this case and develop it to questionnaire, also we add some points that we found it necessary to make the questionnaire more extent, like mention some point like, record revenue before it accrued, even it not possible in Jordan, and because most of the Jordanian companies try to reduce the tax expense by decrease the net income.

Also we add some points, which it exists in law as a disagreement matters with it. maybe our classifications to these cases which we get from assessors look argument, but it look better that ask about creative accounting and ethics in direct way , and get many views about the definition of creative accounting and ethics , and what is creative or not, which will effect on our results significantly.

Also it's important to mention that the nature of shenanigans in the Jordanian company focus on decrease the profit , not increase it , that not mean that we didn't mention points related to the creative practices which affect in the income and increase it.

As shown previously, the questionnaire will consist a group of cases cause the difference between the number of net income which present by the companies and the one which tax department apply, and we ask the tax Auditors two mention to which degree he face this case while he audit the companies.

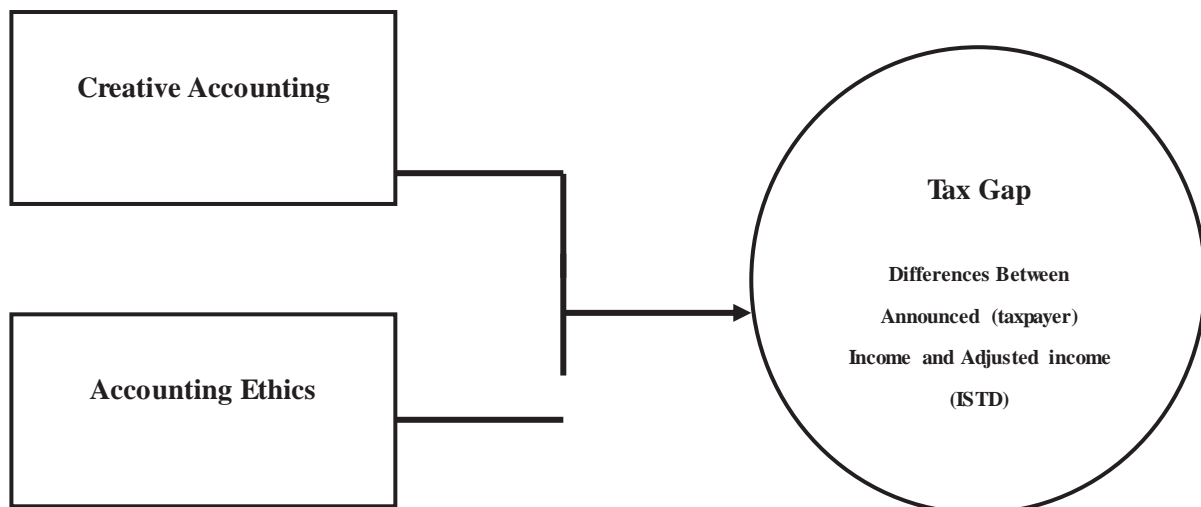
5. Hypothesis

After reviewing literature and some previous papers that related to the subject of this study, the researcher developed the following hypotheses to test them later to answer the questions for this study, draw some recommendations, present some finding based on the results of hypothesis testing.

H₁: Is creative accounting and ethics Cause the differences which exist between the net income that presented by company and other that adjusted by ISTD.

H₂: Is there a difference between International Financial Reporting Standards (IFRS) and taxes law cause the difference between the net income that presented by company and other that adjusted by ISTD.

We also can represent the previous hypothesis in the following chart:



In more details, we will analyze the questionnaire result to see the percentage of creative accounting, and then we will link between creative accounting and ethics percentage and some financial figures, so our mathematical model will be as the following:

$$Ca = b_0 + b_1 \text{ DBA} + b_2 \text{ PRO} + b_3 \text{ GRR} + b_4 \text{ CFOP}$$

The variables are:

CA: Creative accounting and ethics and ethics

DBA: Total Debt to Total Assets Ratio.

PRO: Net profit after Taxes.

GRR: Growth Rate.

CFOP: Cash Flow from Operation.

As following we will explain why we choose the above variables and the theoretical relation with existence of creative accounting:

Total Debt to Asset Ratio

We choose this ratio because it represent the percentage of Debt in companies, which mean that the possibility of non-real transaction become more and more, because the transaction that doesn't depend on cash bases, easy to manipulate with, so regarding that we see that forensic accountant try to detect these transactions.

We measure this variable as following.

Total Debt to Asset Ratio = short and long debt / total Assets

Net profit after taxes

Also we choose this variable because it well known that (especially in Jordan) that creative accounting and ethics activities increase when the net income become higher and higher, because management want always to pay less amount than it should be , this variable is calculated throw the income statement .

Growth Rate of the Company

As some researcher mention, the possibility of the existence of creative accounting and ethics increase when is there high and not expected growth rate in the firm or company, because they thing that creative accounting and ethics manipulate the fact to make it bigger and more favorable, so this will reflect on growth rate in significant way.

Any way we calculate this variable as following:

Growth rate = (market value for owner Equity + book value of liabilities)/book value of total Assets.

6. Questionnaire Design

In this Part we will explain all figures which included in the questionnaire, and reason behind classify it as Creative or not, but before that we will mention the main shenanigans types as mention by Howard schilit 2001

- 1- Recording Revenue too soon.
- 2- Recording bogus revenue.
- 3- Shifting future expenses to current period.
- 4- Shifting current income to later period
- 5- Boosting income with one time gain.
- 6- Failing to record all disclosed or liabilities.
- 7- Shifting current expenses to later period

Questionnaire items:

- Use IFRS method but differ with Taxes law like calculation and recording alternatives. This is will be the starting point to monitor the opinion of the person who will answer the questionnaire, and consist of the answer with the other cases.
- Recording expense of bad debts related to account receivables not accrued. This case is creative one, because it not allows even in IFRS or Taxes law, if we want to consider a debt as bad one it has to be accrued first and get other conditions also.
- Recording Revenues before the date of accrual, or not real one. This case related to point number one and goal to make inflated revenue and profit.
- Omit current revenues and shifting it to later periods. This transaction includes hide revenue figures and keeps related expenses, which will effect on the final result hardly.
- Change Inventory pricing method from period to another. This related to creative one , because change pricing method mean that company results will change , so when company decide to change pricing method for the inventory that mean it get benefit from that, which considered from many parties as kind of shenanigans.

- Record depreciation expense Related to unused Assets. This point consider as difference between taxes law and IFRS, because many methods of deprecation allow to record department. Expense even it used or not, but regarding to taxes law if the assets not used it not allow to record any depreciation related to it.
- Record expenses in the current period but in fact it related to later periods. This is one of the shenanigans and consists with point number three above kinds, and it allows even in or Taxes law.
- Recording mulct as expense. Taxes law rejects this point because it considered like expenses can be omit if the management work probably , but in IFRS it accepted because it's one of expenses kinds .
- Mix between capitalizing some expenses figures or considering it period expenses. IFRS get many alternatives in this field, so we can consider the same point as period expense or capitalize it, under what so called materiality, but according to taxes law, it limited by specific rules, even capitalize the figure or not, so we can say this point represent the differences between IFRS and taxes law.
- Record some allowances which is accepted by IFRS and rejected by Tax law. In IFRS allowances, record because it represent a reasonable perspective , but taxes law look at as a figure will create an expense toward it , so how we will record an expense without it exist , so the we got here difference in theoretical framework.
- Change the amount of ending inventory by change the price or quantity, especially under periodic method. Because as it known changing ending inventory effect on the cost of goods sold, so it probable to be a good place for shenanigans and creative accounting.
- Record expenses not support with probable expenses. This is creative one because this is meaning that we record not real expenses. Depends on more than one exchange rate in evaluating purchases or sales.
- Record salaries as expenses, but income tax not deducted from these salaries.
- Record training expenses and this training were internally generated.
- Record inflated salary expense like record not real one or inflate some figures.
- More than one exchange rate to evaluate purchases or sales. Because the exchange rate may change sometimes the results, because it mainly effect on cost of cost sold.
- Record Tax deducts able salaries, without deduct tax from it. This point consider as differences between Taxes law and IFRS , because in IFRS salaries consider as expenses even you deduct tax from it or not , but in taxes law to consider salaries as accepted expense you have to deduct tax from it if it tax deduct able.
- The use of unacceptable depreciation methods from taxes law perceptive. This point also consider as difference point because in IFRS you got many alternatives in deprecation method , on the contrary of taxes law which got only one deprecation method and consider accepted which is straight line method.
- Hide some revenue resources that refer to the firm and not recorded in books. This point creative one, because it rejected in both IFRS and Taxes law to hide some revenues or expenses.
- Shift accumulated loses for more than six years. Regarding Taxes law is rejected to shift loses to more than six years, but in IFRS there is no limitation on this.
- Record donations to other parties more than the actual payment. This consider as creative, because inflate the expenses more that on fact consider as manipulate of the fact of period expenses.
- Depend on low exchange rate to evaluate the purchases on the end of year, and then correct that price next year. This will change the cost of goods sold and then change the final result of period so this consider creative transaction.
- Inflate the salaries expenses by increase salaries amount, of number of employee.
- Consider some fees or salaries for foreign experts or something like that as apart from asset cost but not pay taxes for these salaries.
- Record expenses related to revenues not tax deduct able, and consider it relate to income resources that consider as tax deduct able. Here regarding taxes law you have to specify expenses regarding their Revenue source , this to some extent consider as agreed with matching principle , but also we have to know , that some alternative In IFRS that allow to you make what so called single step income statement which contain all Revenues on aside and all expenses on the other side , without specify which expense relate to revenue, but in taxes law you have to , because it deal with net profit for every Revenue source as separate figure.
- Omit part from ending inventory amount to increase the cost of goods sold. This will increase the cost of goods sold and decrease the net profit, this point is agreed to consider as creative transaction.
- Deprecate sold assets or depreciation expense become more than book value.

- Record expenses refer to external supplier, and transfer this amount to his bank in his country then retransfer it to the company by partners accounts. Which mean that supplier not real, especially when there is no tax in his country, in this case he will retransfer the amount again, but will enter by the current accounts for? Partners, so by this transaction he increase the amount of expenses and get tax free with amount 25% even if he pay 10% tax on the previous transfer.
- Consider some export goods that included in export protocol as not included in the protocol.
- Increase non-real liabilities refer to Assets or expenses transactions.
- Record the shortage in Cash and it effect on cash account.

This point consider as differences between taxes law and IFRS, because IFRS allow to record an expense called shortage in cash in management accept that, but for taxes law this amount rejected and will get back to net income.

7. Results and Recommendations

Our results consist four parts, the first part include descriptive results, by get a percentage of how much creative accounting and ethics questions score to the total score of these questions, then we find the mean of these percentages, and we repeat it again for differences questions.

Regarding that the result was 65% for creative accounting and ethics and 55% for differences between taxes law and IFRS, which mean that the focus of answers was relate to creative accounting.

Also we notice the frequency of creative accounting and ethics question and it was like the following:

Details	Most frequent answer
Unreal expenses	Mostly
Increase revenues	Little
Decrease Revenues	Mostly
Record expenses not related for this period	Mostly
Shift current revenues to later periods	Medium
Manipulate ending inventory amount	Medium
Manipulate Firm Assets or liabilities	Medium

So we can notice that creative accounting and ethics shapes concentrate on Decrease revenues or increase expenses, on other words decrease net profit, regarding that we can say that creative accounting and ethics on Jordan focus on decrease the Tax expense and not on make financial statement more favorable.

The second part of our results refer to regression results, the result of mathematical model predict creative accounting and ethics with 35.5% which is good to some extent, and the main factor of this prediction was total liabilities to total assets, which mean than when the capital structure of the firm depend a lot on short and long Debts, the possibility for the existence of creative accounting and ethics increased.

On the other side we notice that the relation between net profit and creative accounting and ethics was negative, on other words the firms that announce about low profit more possible to use creative accounting.

The variable that not plays any role in prediction was growth rate.

The third part of our result relates forensic accountant methods we suggest some methods as methods to discover creative accounting and ethics and the result was like the following:

Method	Frequency
Comparative Numbers or Data	Always
Use other financial statement like cash flow	Always
Use external resources to get information	Always
Use analytical procedures, ratio etc...	Always
Assess the risk of audited figures	Mostly
Use samples in auditing	Mostly
Compare with other companies in the same segment	Medium
Use detailed auditing	Medium

These results meet our expectation of the methods that the assessor (forensic accountant) to discover creative accounting.

In the fourth part we try to arrange the accounts or financial statement regard how much it more possible to contain creative accounting, the results was as the following

Financial statements

1. Cost of finished good statement.
2. Income statement.

3. Balance sheet.

4. Cash flow.

Accounts:

- Inventory.
- Expenses.
- Revenues.
- Account receivables.
- Account payable.
- Assets.
- Cash.
- Others.

As we notice the most statement that contain creative is Cost of finished goods and this look logically, because if we look to accounts, we will see the inventory on the top of accounts, that contain creative accounting and ethics, also then second statement which is income statement, look sequence with accounts No. two and three, revenues and expenses, then we can say that the focus in Jordan in few on Balance sheet and the accounts relate with.

Lastly we recommend for future research the following:

- 1- The necessity of the awareness for accounting ethics and creative accounting with what's related to the importance of the most convenient planning and the importance of analytical revision in tax law with what corresponds with the goals on which tax auditing has been used in order to achieve harmony between IFRS and tax legislations.
- 2- Find clearer relation to link between the variables of this study and the existence of creative accounting, for the time being this is the only way to link between financial figures and creative accounting, but we thing it still have argument sides.
- 3- Try to find a clearer definition of creative accounting and ethics that can be translate into specific figures and say this consider creative and that not, we believe if we reach to that level, we can find the appropriate solution for creative accounting.
- 4- Increasing the coordination and collaboration between the legal association of accountants and the income and sales tax department (ISTD) for the purposes of standing on all the obstacles that occur without the acceptance of all the certified accounts from tax auditors in the patrol and without auditing from the ISTD.
- 5- The necessity of awareness for the tax and external auditors of income and sales taxes with the importance of international accounting standards.

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Comparing Renewable Energy Policies in the European Union and Turkey

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Abstract

The European Commission's policy on "climate change and energy" under the Renewable Energy Directive is an important part of the European Commission policies. As a target, the Commission wants its member countries to increase total energy consumption from renewable energy sources to 20% in the European Union (EU) by 2020. This means, any country which is interested in joining the EU should adhere to its policies and conditions regarding energy consumption. In this paper, firstly, we study the trend of renewable energy consumption in the EU. Data illustrate that the EU region, as a whole, is near its goal, although some members still have to work more or undertake reforms to reach the 20% renewable energy target. Secondly, the renewable energy condition in Turkey, a country that has been preparing in the past decade to join the EU, is surveyed. Based on the results, Turkey needs to pay attention to new renewable resources in order to reach the EU's target.

Keywords: renewable resources, European Union, energy policies, climate change and energy

1. Introduction

The European Commission makes decisions that affect the global community. There are many plans and programs in various areas (such as budget, energy, climate change, and transportation), which address the existing situation and outline future plans and strategies to meet set targets. Today, energy policies are considered among the most important policies in the EU¹. In turn, climate changes and energy can be very important for EU countries for various reasons. Firstly, energy supply security has forced the member states to discover existing domestic energy sources or decrease imported supplies. Secondly, the price of energy can create financial problems for some governments. Lastly, environment and greenhouse gas emission pose problems to the world as well as the EU. Energy policies affect economic variables. In other words, changes in energy resources can play positive or negative roles in an economy, the most important being their contribution to GDP. Moreover, energies based on consumption are divided into oil, gas, nuclear and renewables (including solar, wind, etc.) and all of them can be used in different parts of the economy; renewable energy sources, especially, can affect certain variables because they are cleaner and cheaper and relatively free comparison to the others. Renewable energy, according to the International Energy Agency (IEA), is energy that comes from natural sources (such as sun and wind) and is returned to the environment faster than it is consumed (IEA, Executive Summary, 2013).

Some subjects such as global growth, population and productivity growth, energy consumption, renewable energy policy, and energy sources statements affect future conditions (British Petroleum (BP), 2016, p.1). In this paper, after reviewing the European Commission 2020 targets, the current situation of renewable energy use in the EU is studied. After that, we survey the trend of renewable energy in Turkey, a country that wants to join the EU. Lastly, energy consumption is compared between Turkey and the EU and some suggestions for Turkey are presented.

2. Importance of Energy

After World War II, energy was considered one of the key factors of production in industrialized countries, and it influenced economic development. Energy imports had a considerable effect on the balance of payments in energy consuming countries (Stevense, 2000). In the 1970s, the cost of energy had a significant effect on

¹In this paper, EU refers to EU28.

inflation rates and many countries' competitive positions changed internationally (Jones et al, 2004, p.15). Therefore, in recent decades, having a reliable and sustainable energy supply has been one of the key challenges facing industrialized countries.

There are two opinions in the energy sector; some economists believe that the expansion of a free market system is a good idea in all markets, including the energy market, resulting in efficient performance in all respects. This line of thinking explains energy markets, as well as other commodities markets, based on the principles of economics. This approach considers all commodities (including energy) as being similar. Unfortunately, many of these economists have limited knowledge of the realities of the energy market, especially the international oil industry, and they lack understanding in their analysis of the oil market. In contrast, another group of economists thinks that, according to the characteristics and realities of the energy market (especially the role of the oil industry and the pivotal importance of energy supply in the economy) the world can be divided into different blocks of economic and political powers that compete to gain a greater share of energy resources for their economic and political goals (Correlje and Linde, 2006, p. 533).

In other words, the energy sector is one of the examples of market failure in which the balance point is not a maximization point for all groups; the balance point depends on the political and economic power across the groups. Some economists believe that stable conditions and growth in the Persian Gulf could help secure energy supply for the European Union (Correlje and Linde, 2006, p. 537). There are a variety of policies in major energy consuming countries to ensure energy supply security, but they have always emphasized that a domestic energy supply, technological changes and better facilitated transportation can reduce the risk of uncertain supply (of energy) in the West. It is believed that energy supply security in the contemporary times can be realized beyond merely reducing dependence on crude oil and natural gas. Energy supply security based on this view is defined as a condition in which the focus does not lie on promoting energy independence or reducing dependence of Persian Gulf States, but instead, on reducing the risks associated with this dependency (Mitchell, 2002, p. 263). After the oil crisis of the 1970s, energy security policies were changed in industrialized countries to policies of diversification, including diversification of energy sources and diversification of the source of crude oil imports.

3. EU Climate Change and Energy Policies

The acceptance of the UN Framework Convention on Climate Change (UNFCCC) by many member countries in 1994 was considered as a strong point for more fundamental measures in the future. The Convention on Climate Change forced industrialized countries to reduce greenhouse gas emission in order to match plans and policies to climate change, protection of food production, and sustainable economic development.

The first survey about the commitments of developed countries in terms of competence took place in the first meeting of the Conference of the Parties (COP) (1995, Berlin). In 1997, the conference concluded with the adoption of a protocol according to which industrialized countries were required to reduce their collective greenhouse gas emissions between 2008 and 2012 to at least 5% compared to their 1990 emission levels. The Kyoto Protocol was opened for signature on March 16, 1998 and after 90 days was ratified by at least 55 Parties to the Convention. In fact, in the Kyoto Protocol, industrialized countries were required to try to decrease the share of greenhouse gas emissions to (at least) 5% of their 1990 emissions between 2008 and 2012 (UNEP/IUC, 1998).

The European Commission bases its decisions on directions from the EU and world conditions. The EU Directives contain a section on Climate Change and Energy. The EU has set targets in the Europe 2020 strategy as well as the directions for following its plans. In the energy section, there is a program called "The 2020 package" that defines a set of binding legislation to help the EU in achieving its goals and targets on climate and energy. The package follows three important goals, including a 20% cut in greenhouse gas emissions (from 1990 levels), 20% of EU energy to come from renewables, and a 20% improvement in energy efficiency. These goals were made by EU leaders in 2007 and two years later came to be known as the legislation "Smart, Sustainable and Inclusive Growth," an important part of the Europe 2020 strategy. The EU has attempted to act in several areas for achieving these targets. As mentioned above, one of the policies on climate change is designed to decrease environmental problems in the EU region. The EU Emissions Trading System (ETS) plays as a key role for cutting greenhouse gas emissions. About 45% of greenhouse gas emissions in the EU are covered by the ETS with a goal of decreasing it to 21% lower than in 2005. The EU has another plan for sectors that are not in the ETS, including housing, agriculture, waste, and transportation (excluding aviation). In fact, the EU has additional plans to continue decreasing greenhouse gas emissions, such as building annual targets in comparison to 2005 under the "Effort Sharing Decision." A different target for each country was planned based on national wealth. This meant the program forced richer countries to cut a minimum of 20% in greenhouse gas emissions while permitting the least wealthy nations to increase them gradually until they reach the 20% limit. Even the least wealthy must plan to limit

their emissions. The EU Efforts concerning renewable energy are based on targets in this section; members must increase the energy consumed from renewable sources as a proportion of the total energy consumption. There was a big gap between members in terms of renewable energy consumption: about 10% energy in Malta and 49% in Sweden is derived from renewable energy sources. The share of renewable energy in the EU as a whole was 9.8% in 2010. The EU commission decided to raise it to 20% by 2020, that is, the EU wants to experience more than double the consumption between 2010 and 2020. The EU also planned to increase renewable energy in the transportation sector to 10% (EU 2020 Climate and Energy Package, 2009).

Energy efficiency is a variable that can play a key role in energy policies. The EU wants to improve energy efficiency because it thinks it will support its energy policies. Therefore, the EU has defined indicators as instruments for modifying energy efficiency in Europe.

“These include (EU 2020 Energy Efficiency Plan, 2009):

- An annual reduction of 1.5% in national energy sales
- EU countries making energy efficient renovations to at least 3% of buildings owned and occupied by central governments per year
- Mandatory energy efficiency certificates accompanying the sale and rental of buildings
- Minimum energy efficiency standards and labeling for a variety of products such as boilers, household appliances, lighting and televisions (Eco Design)
- The preparation of *National Energy Efficiency Action Plans* every three years by EU countries
- The planned rollout of close to 200 million smart meters for electricity and 45 million for gas by 2020
- Large companies conducting energy audits at least every four years
- Protecting the rights of consumers to receive easy and free access to data on real-time and historical energy consumption.”

Energy efficiency can be improved if suitable progress is brought about by policy makers. The Energy Efficiency Communication of July 2014 discussed that “the EU is expected to achieve energy savings of about 18%–19% by 2020, missing the 20% target by 1%–2%. However, if EU countries implement all of the existing legislation on energy efficiency, the 20% target can be reached without additional measures” (EU 2020 Energy Efficiency Plan, 2009).

The 2020 targets in the energy section are also important for the EU in other areas including energy security, employment, and growth because energy policies will help the EU to be more independent and/or decrease dependence on imported energy. Energy policies will create new job opportunities, increasing the employment rate in the EU member countries.

New objectives require new policies and programs that must be followed by each country. However, this article focuses on issues related to renewable energy. It is very important for all EU members to follow and attain all European Commission decisions and plans. This presents a challenge for candidates in joining the EU. As such, a survey of renewable energy policies can answer the following questions about the present and possible situation of all candidates, as well as Turkey. Firstly, what is the present situation of the candidate in comparison with other EU members and the EU targets? Secondly, is it possible for the candidate to achieve these goals by 2020? And finally, if yes, how can the candidate attain these goals? It should be mentioned that the present paper has surveyed only the first question to attain comparable statistics and data on renewable energy.

4. Renewable Energy Consumption in the EU

As mentioned above, all members in the EU should follow the European commission policies such as for climate change and energy that require members to make 20% of their energy consumption from renewable resources. Usually, different targets are defined for each member. For comparing the share of renewable energy consumption in the EU, members have been divided into three groups including:

- Group A: Countries² that have reached the target;
- Group B: Countries³ that may reach the target (less than 5% difference from the target in 2014); and

²Including Bulgaria, Czech Republic, Estonia, Croatia, Italy, Lithuania, Romania, Finland and Sweden.

³Including Belgium, Denmark, Germany, Greece, Spain, Cyprus, Latvia, Austria, Poland, Portugal, Slovenia and Slovakia.

- Group C: Countries⁴ that may not reach the target (more than 5% difference from the target in 2014).

Before surveying these groups, the average of renewable energy consumption in the EU is illustrated from 2004 to 2014, showing that the European region continued with renewable energy policies up till a 16% mark. It seems the region will reach the target in 2020. As it is indicated in Chart 1, the movement of EU members (on average) started from 8.5% in 2004 and rose to 16% in 2014, the rate has grown annually at about 6.57%.

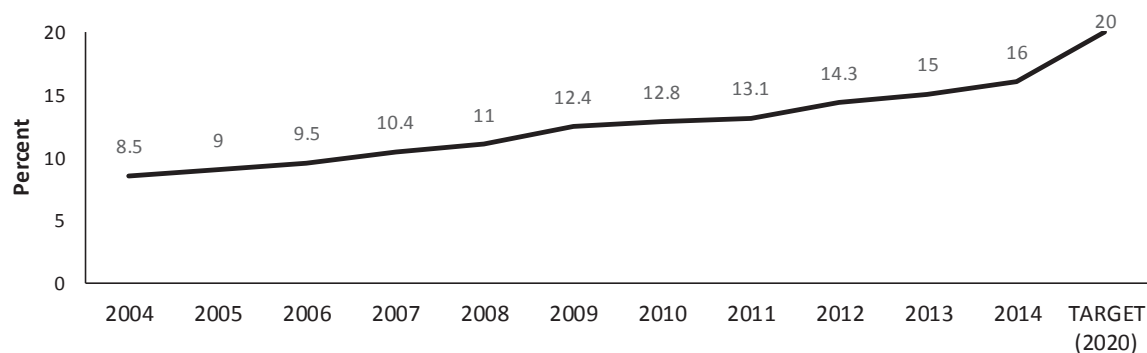


Chart 1. The Share of Renewable Energy consumption in the EU (%)

Source: Eurostat database

Table 1 shows the share of renewable energy consumption in Group A, the members that reached the target in 2014. Croatia was the first country to reach the target, followed by Sweden and Estonia, which exceeded the target in 2011. In 2012, Bulgaria and then one year later Lithuania, reached the target. The other members in this group reached the target in 2014.

Table 1. The Share of Renewable Energy Consumption in Group A (%)

	2009	2010	2011	2012	2013	2014	TARGET (2020)
Bulgaria	12.1	14.1	14.3	16	19	18	16
Czech Republic	8.5	9.5	9.5	11.4	12.4	13.4	13
Estonia	23	24.6	25.5	25.8	25.6	26.5	25
Croatia	23.6	25.1	25.4	26.8	28.1	27.9	20
Italy	12.8	13	12.9	15.4	16.7	17.1	17
Lithuania	20	19.8	20.2	21.7	23	23.9	23
Romania	22.7	23.4	21.4	22.8	23.9	24.9	24
Finland	31.4	32.4	32.8	34.4	36.7	38.7	38
Sweden	48.2	47.2	49	51.1	52	52.6	49

Source: Eurostat database

The share of renewable energy consumption in Group B is presented in Table 2. It identifies the members who must continue to follow their energy policies to reach the target. Based on their progress, Denmark, Greece, Spain, Latvia, Austria, Poland, Slovenia, and Slovakia will reach the goal while other members (Belgium, Germany, Cyprus, and Portugal) are likely to reach the target.

Table 2. The Share of Renewable Energy Consumption in Group B (%)

	2009	2010	2011	2012	2013	2014	TARGET (2020)
Belgium	5.1	5.5	6.2	7.2	7.5	8	13
Denmark	20	22.1	23.5	25.6	27.3	29.2	30
Germany	9.9	10.5	11.4	12.1	12.4	13.8	18
Greece	8.5	9.8	10.9	13.4	15	15.3	18
Spain	13	13.8	13.2	14.3	15.3	16.2	20
Cyprus	5.6	6	6	6.8	8.1	9	13
Latvia	34.3	30.4	33.5	35.7	37.1	38.7	40
Austria	30.2	30.6	30.8	31.6	32.3	33.1	34
Poland	8.7	9.2	10.3	10.9	11.3	11.4	15
Portugal	24.4	24.2	24.7	25	25.7	27	31
Slovenia	20	20.5	20.2	20.9	22.5	21.9	25
Slovakia	9.4	9.1	10.3	10.4	10.1	11.6	14

Source: Eurostat database

⁴Including Ireland, France, Luxembourg, Hungary, Malta, Netherlands and United Kingdom.

As Table 3 shows, the situation in Group C is different from the other groups. In this group, Ireland, France, Netherlands, and the United Kingdom show a big gap in reaching the target. This means these countries must attempt to reform energy policies in relation to renewable energy or grow faster than in their recent past. Other members in Group C may not reach the goals with the present trend but they must have a better situation in comparison to those mentioned above.

Table 3. The Share of Renewable Energy Consumption in Group C (%)

	2009	2010	2011	2012	2013	2014	TARGET (2020)
Ireland	5.1	5.6	6.6	7.1	7.7	8.6	16
France	12.1	12.6	11.1	13.4	14	14.3	23
Luxembourg	2.9	2.9	2.9	3.1	3.6	4.5	11
Hungary	8	8.6	9.1	9.6	9.5	9.5	14.65
Malta	0.2	1.1	1.9	2.9	3.7	4.7	10
Netherlands	4.3	3.9	4.5	4.7	4.8	5.5	14
United Kingdom	3.3	3.7	4.2	4.6	5.6	7	15

Source: Eurostat database

5. Renewable Energy and Turkey

Turkey is known as a natural energy bridge between the Middle East, the Caspian Regions (that have many energy resources) and the EU energy markets. Therefore, it seems that a development of this bridge can help and benefit both the EU and Turkey. Based on documents, the Turkish governments did not concentrate on the effects of energy policies on environment in the past (such as in the 1950s). There are three causes for this. Firstly, paying attention to environmental norms, setting policies, and implementing renewable energy are more recent phenomena (these regulations started in 2000s). In this area, more recent laws have helped to increase investments in renewable energy industries compared to the past. Secondly, the Turkish government did not play a key role in creating rules related to environment problems. There was no government support for this area. Finally, an additional reason comes from the structure of the Turkish government; the centralized government makes it difficult to make local governors decide on renewable energy investment and the needs of the local population (Çalışkan, 2013, P.70).

Some types of renewable energy are considered better sources in comparison to others and some areas or countries have more capacity for developing, producing and using them. Hydropower is one of the best renewable energy sources and one that has a large potential in Turkey. Studies illustrate that Turkey should increase development of the production of this kind of energy because Turkey can increase capacity of electricity thorough hydropower (Gök, 2013, P.66).

Turkey has created some laws that were barriers to investment in the renewable energy sector in the past. Actually, this area has faced three problems. One has been the role of the private sector in Turkish energy market. In fact, some evidence show that since the 2000s, the competitive situation has changed little. Another reason is that the regulations related to renewable energy have not been complete in all areas, meaning that there were not adequate laws and framework for the categories of renewable energy (for example, solar energy). The third reason is that the existing laws were not adequate to stimulate reform and improvement (Çalışkan, 2013, P.72).

The Ministry of Energy and Natural Resources of Turkey prepared a strategic plan (2015-2019) to approach the energy concerns for the country (based on the Law on Organization and Roles of the Ministry of Energy and Natural Resources (ETKB)) in two areas: firstly, to improve defense, security, welfare and the national economy in relation to energy and natural resources and secondly, to provide conditions in energy and natural resources sector to investigate, develop, generate and consume resources in a duly manner. A foregoing law refers to renewable energy directly. It has defined the role of the Ministry as follows:

“Involved with the studies in respect to the determination of the policies and strategies intended for enhancing energy efficiency and the evaluation of renewable energy resources and performing the studies in regard to the determination of these policies and strategies” (ETKB, 2013, P. 14).

Also, there is another strategic plan called the “Energy Efficiency Strategy Paper from 2012 to 2023” which, in the long run, will play a key role for Turkey. This document specified some strategic goals for energy efficiency. One goal is concentrated on renewable energy in the building sector; it states below:

“To decrease energy demand and carbon emissions of buildings; to promote sustainable environment-friendly buildings using renewable energy sources” (ETKB, 2012, P. 10).

The government in Turkey has attempted to improve the share of renewable resources in the total energy supply by creating laws (such as the Law on Usage of Renewable Energy Sources as Electricity Energy Production,

2005 and 2011, and the Geothermal Sources and Natural Mineral Water Law) but results illustrated they have not increased development renewable energy investment a great deal (Erdoğan, 2007, P.1).

The Turkish government has set goals related to the renewable energy sector that attempt to increase the role of renewable energy. Documents from the Ministry of Energy and Natural Resources show that the government and policy makers are paying more attention to the number of hydropower plants and to the use of hydropower. In the strategic plan for 2023, it is announced that electricity produced by renewable sources should be increased to 25% by 2020 (ETKB, 2013, P. 14).

Hydroelectric power plants played a key role in renewable resource investment in Turkey and many investors are showing growing interest in them. Another alternative is wind power. The first wind facilities were started in 1998 (GENI, 2001, P. 5) and since then, the regulation framework has come to motivate investors.

Some studies show that the Turkish renewable sector has three main problems; 1) the hydropower sector has more financial and technological facilities and it is not very environmentally friendly; 2) geothermal energy, although known as a fine and cheap source, is not applied a great deal; and 3) the lack of regulations and financial support for new sources of renewable energy (Çalışkan, 2013, p.77).

Fossil fuels are the most important source of energy in the Turkish energy system and unfortunately, they are not suitable for sustainable development. Based on the Ministry of Energy and Natural Resources (ETKB), Turkey's goals are as follows: "It is our mission to ensure efficient, effective, safe, and environmentally-sensitive use of energy and natural resources in a way that reduces external dependency of our country, and makes the greatest contribution to our country's welfare" (ETKB, 2013). Renewable resources in Turkey include solar energy, biomass energy, geothermal energy, wind energy and hydropower that can be used in many areas (especially for heating purposes and generating electricity). For example, the share of renewable energy sources in electricity consumption was about 25% in Turkey in 2012 and, as mentioned above, hydropower was the most employed renewable energy source (DEK-TMK, 2013).

Solar energy can provide electricity and Turkey has a high potential for solar energy based on its geographical position. Studies illustrate that the Turkey experiences an average annual sunshine duration of about 2640 hours (with a daily total of 7.2 hours) (ETKB, 2010). Biomass comes from living or recently living organisms, however much of this energy currently comes from non-sustainable sources (Natural Resources Defense Council (NRDC, 2013). Actually, biomass is separated into two kinds, traditional and modern. As mentioned, the traditional type is not environmentally friendly, but modern biomass is produced in more sustainable ways (Benefits of Recycling, 2013). Recently, researchers have stated that traditional biomass should not be considered renewable energy because is not a replaced sourced (Goldemberg and Coelho, 2004, P. 711). Using modern biomass, studies estimate that Turkey has a potential of about 90 billion KWh/year (Karayilmazlar et al, 2011, P. 69) of production. Geothermal energy is derived from hot water, steam, dry steam, and hot dry rocks. This resource can be found near active fault systems, volcanic and magmatic units (ETKB, 2010). Until 2013, there were about 190 geothermal fields in Turkey found by the General Directorate of Mineral Research and Exploration (MTA). The economic potential in geothermal energy for Turkey is estimated about 1.4 billion KWh/year (Cebeci, 2005, P. 78). Geothermal energy, in comparison to other resources, plays another role for Turkey because it has uses in thermal tourism, heating applications, the obtaining of industrial minerals and in electricity production (MTA, 2012). Wind energy is another renewable source, obtained from the movement of the wind across the earth. It is related to solar processes (YEGM, 2012). In this area, many economic studies show that Turkey has a great potential for wind energy, about 50 billion KWh/year (Cebeci, 2005, P. 76). Research and feasibility studies have discussed that there are around 5000 MW, as minimum wind energy, in regions (with annual wind speed of 8.5 m/s and higher) and 48,000 MW (with wind speed higher than 7.0 m/s) (ETKB, 2010). Hydropower is another renewable energy that is known as an important element in the Renewable Portfolio Standard (RPS) and has caused increasing production of energy from renewable sources (NREL, 1997). Hydropower potential in Turkey is about 433 billion KWh/year and the economic potential is estimated at around 140 KWh/year (YEGM, 2012).

Chart 2 compares the average cost of renewable energy production per kWh in 2010 and 2015. The costs of electricity that is produced are shown in gray with horizontal bands of fossil fuels located within. Accordingly, the production cost of electricity from fossil fuel per kWh changed between 0.05 USD and 0.14 USD.

As a comparison, hydropower costs, on average, were stable at USD 0.046. Onshore wind costs declined from 0.071 USD to 0.060 USD while offshore wind costs were 0.157 in 2010 and increased to 0.159 USD in 2015. The most important cost reduction was experienced in the solar PV area, with a decline of USD 0.126 to USD 0.285. Similarly, solar thermal energy investment costs decreased from 0.245 USD to 0.331 USD. Biomass costs

changed from USD 0.056 to USD 0.055, but geothermal energy investment costs went up from 0.071 to USD 0.80 per kWh (Based on IEA definition, solar photovoltaics (PV), solar thermal electricity and solar heating and cooling are the kinds of solar technologies which solar photovoltaic (PV) systems directly convert solar energy into electricity).

Overall, among sources of renewable energy, hydropower, biomass, onshore wind and geothermal costs have remained at the level of fossil fuels costs. The structure of cost in electricity production per capita, especially in developing countries, is one of the most important elements for determining the direction of investment in renewable energy sources. Renewable energy sources with lower production cost cause increased consumption, and Turkey is an example of this phenomenon. The desire to join international agreements, such as those for climate change, is another factor for using renewable energy sources.

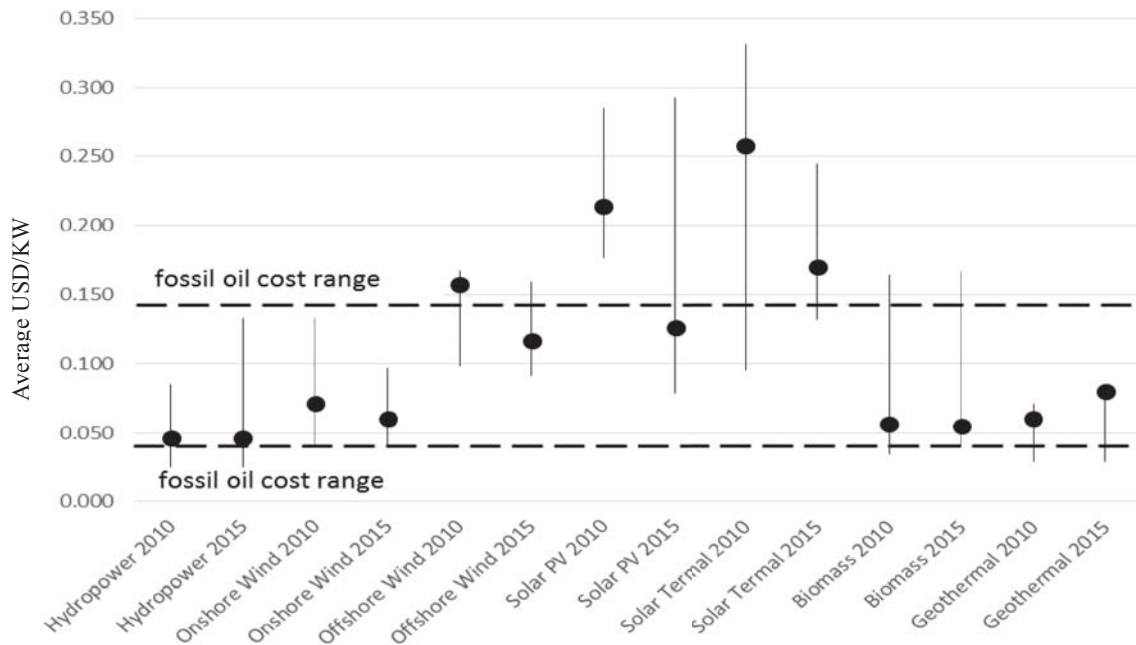


Chart 2. Trends in Global RE Levelled Cost of Electricity 2010–2015 (Ranges and Weighted Averages)

Source: International Renewable Energy Agency (IRENA)

It has emerged more clearly which costs of renewable energy sources have risen for Turkey in 2010 and 2015. Turkey's renewable energy capacity was 17.369 MW in 2010, while it rose to 31.704 MW in 2015. The highest increase in installed capacity experienced the highest cost reduction (26%), which was in the solar and wind energy areas. The increase in the cost of fossil fuels should be added as a part of this cost.

Table 4. Turkey's Renewable Energy Capacity and Cost

	CUMULATIVE INSTALLED CAPACITY (MW)			COST (USD/KWH)		
	2010	2015	Artış	2010	2015	Artış
Hydropower	15831	25867	63%	0.046	0.046	0%
Bioenergy	118	261	121%	0.056	0.055	-2%
Geothermal	94	623.9	564%	0.071	0.080	13%
Solar	5.7	248.8	4265%	0.331	0.245	-26%
Wind	1320	4694	256%	0.071	0.060	-15%
TOTAL	17369	31704	83%			
Fossil fuel				0.040	0.140	

Source: International Renewable Energy Agency (IRENA)

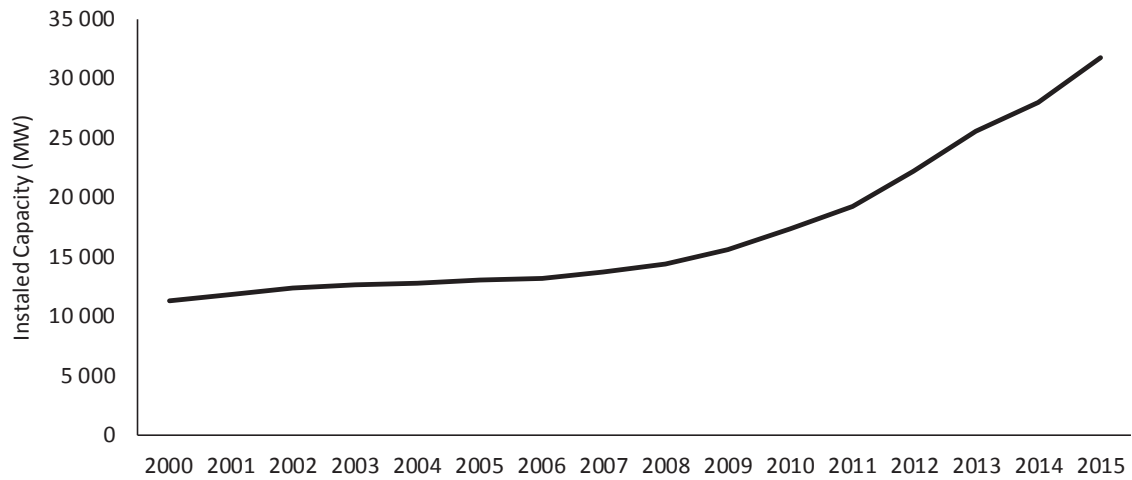


Chart 3. Renewable Energy Power Capacity and Electricity Generation

Source: International Renewable Energy Agency (IRENA)

Also in Eurasia, wind and solar energy costs should be added because they are lower than in other parts of the world (see Chart 4).

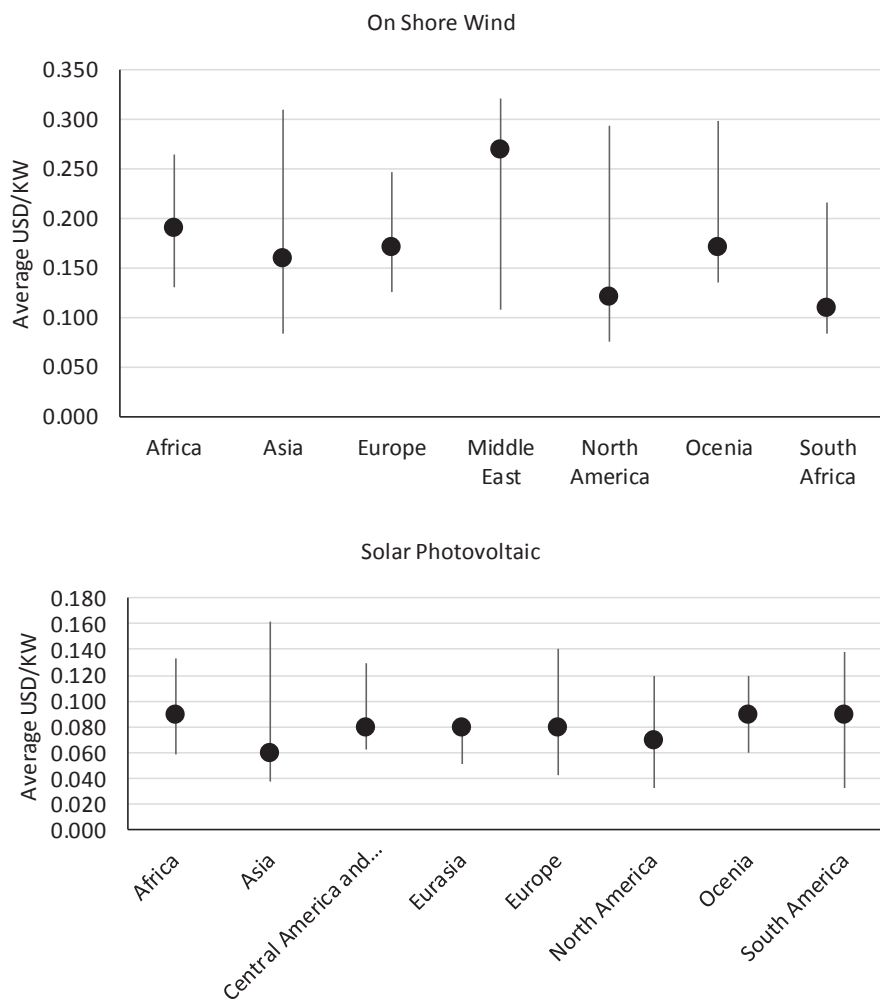


Chart 4. Wind and Solar Energy Costs in 2014

Source: International Renewable Energy Agency (IRENA)

As mentioned above, Turkey has plans to improve the situation of renewable resources in the energy sector. Chart 5 illustrates that Turkey, as a country that desires to join the EU, has defined about 20.5% for its share of renewable energy consumption in 2023. In fact, based on Turkish National Renewable Energy Action Plan (YEEP), the share of this kind of energy should increase from 13.92 in 2013 by about 3.9% annually.

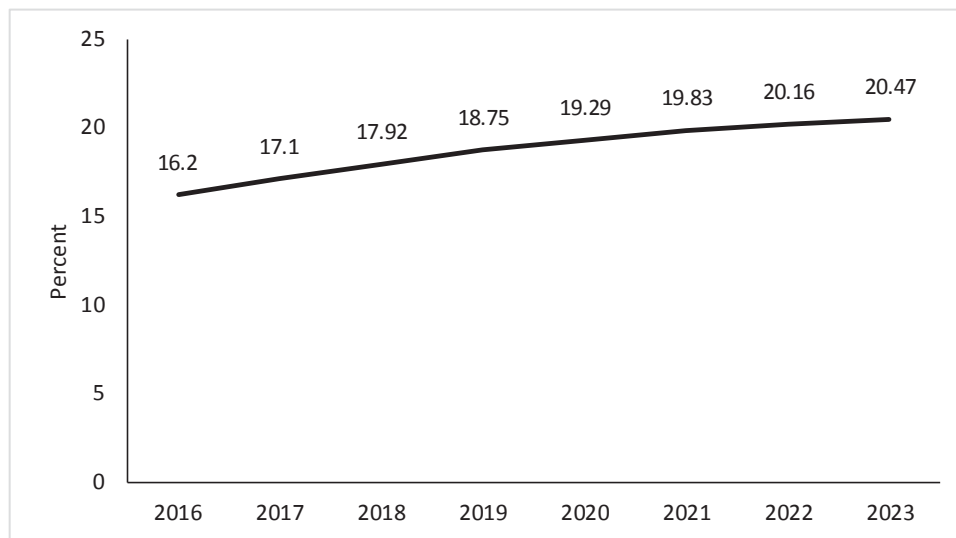


Chart 5. Target of Gross Final Energy Consumption in Turkey (%)
(Energy produced from renewable sources)

Source: Turkish National Renewable Energy Action Plan, 2014.

6. Conclusion

Generally, the EU has attempted to initiate effective policies including positive initiatives on climate change and energy. Energy is an important subject for the world's economists and policy makers because it can be a variable that plays a key role in politics and economics. Renewable energy is environmentally friendly and can decrease a country's or region's dependence on imports to meet its energy needs. The European Union as a powerful region of the world, has concentrated on renewable energy as a strategic subject that can help the EU in two ways; firstly increasing local energy production, and secondly, decreasing dependence on imported energy.

This paper surveyed EU policies in the energy sector and, after illustrating the share of renewable energy consumption in the EU, reviewed energy data in the EU that illustrated two conclusions; firstly, the policy package was created based on real conditions, and secondly, the targets were reachable. Based on the data, the present situation in renewable energy for the EU is near to target (set for 2020) because the share of renewable energy consumption was 16% in 2014. It seems that the European Commission target of 20% can be approachable during the six years. This study classifies EU members into three groups: countries that have reached the target are Group A; countries that may reach the target (having less than a 5% difference with target as of 2014) as Group B; and countries that may not reach the target (having more than a 5% difference with target as of 2014) as Group C. Data illustrate that reform may be necessary for four members in Group C (Ireland, France, Netherlands and the United Kingdom) because they are far from the renewable target.

The next section looked at the renewable energy standards of Turkey as a candidate for joining the EU. As mentioned previously, there are some main problems for renewable energy in Turkey. One of these is the attractiveness of hydropower, which can actually be unsuitable for as a green environment. In contrast to hydropower, geothermal energy is environmentally friendly, but does not have a remarkable share of the energy sector in Turkey. Research shows Turkey is in a strong geographical position for wind and solar energy, however, there are not enough users available or laws to regulate these sources at this time. Our studies show that the government's support and encouraging plans in these kinds of renewable energy had been less than expected. Therefore, policy makers in the energy sector should pay more attention to new plans and projects (especially the development of solar and wind programs) in Turkey to increase the role of renewable resources in energy supply. The Turkish government has a duty to follow and survey a strategic plan in the energy sector because Turkey desires to improve its renewable energy production in ten years from 2013 to 2023, according to the Turkish National Renewable Energy Action Plan (YEEP) According to this plan, the Turkish government must follow the trends of renewable resources with targets at the end of 2018 (in the middle of the plan). It is so soon to discuss

the success or failure of this plan because strategic plans are considered long-run issues that need a long time to review and consider.

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Learning Management System versus Social Networking Sites

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Abstract

Purpose - The motive of this study was the notice of the constant movement of the students in The University of Jordan (UJ) from official communities to creating groups on SNSs. The purpose of this paper is to illustrate an analysis about students' usage of E-learning and Facebook, and identifies the major functions that are missing in the e-learning system. This paper firstly, compared students' usage for Learning Management Systems (LMSs) vs. Social Networking Sites (SNSs), and secondly, investigated the students' perceptions towards educational value of integrating social networking features in the LMS through Mobile Learning (m-learning).

Design/methodology/approach – Data were collected from students from multiple sources: observation, interviews, and survey. The obtained results formed students perceptions toward currently used LMS in the university and SNSs, which lead to extracting their requirements to enhance the LMS used.

Findings – The results of this research emphasize the importance of SNSs as a communication tool and the development of e-learning systems to move beyond LMS and engage students in an active use of the system as a resource of their information and collaborative activities.

Originality/value –This study contributes to examining UJ students' perceptions toward embedding the characteristics of the smart learning and the social network services into an e-learning system. In contrast to previous studies in enhancing LMS by just integrating features of SNSs into LMS without utilizing smart learning.

Keywords: learning management systems, social networking sites, educational technology

1. Introduction

With the emergence of Web 2.0 whose main value is social networking, Internet users now can create and share information collaboratively and easily. Social networks provide tools that can either be presented by SNSs (such as Facebook, LinkedIn, etc.) or by indirectly extracting data about user interaction (such as emails, chats, blogs, etc.) (Aşkar, 2011; Musiał and Kazienko, 2013). These tool-initiated potentials cannot be ignored with regard to educational settings, and have moved educational technology beyond the ordinary use of computers, laptops, 3D printers, etc.

E-learning incorporates all teaching and learning activities by using networked information and communications technology. Other terms also described this mode of educational activities such as online learning, virtual learning, and web-based learning, however, e-learning embraces more than the other terms since the letter “e” which stands for “electronic” would incorporate e-learning of all educational activities, whether they were performed by individual users or groups working online or offline, through computers or other electronic devices. Moreover, a key attribute of e-learning is its ability to enable electronic access to various multimedia-based materials and flexible access to information and resources (Naidu, 2003; Pilli, 2014). E-learning has become increasingly diffused in many educational institutions implementing Learning Management Systems (LMSs). Due to their flexibility, LMSs have been used to accelerate e-learning applications whether they were used for

distance education (off campus: who cannot be physically present in class at the time a course is being offered) or on-campus (to complement synchronous classroom learning) (Pilli, 2014).

Learning Management Systems are used to manage and deliver instructional content, and monitors the learning process by presenting the required data through tracking the progress of identifying, assessing, and meeting individual and organizational learning goals. However, many applications of LMS are limited by the form of Course Management System (CMS), and need to develop to support the evolving understanding of teaching and learning styles (Gremu and Halse, 2012). CMS which is group of software tools, typically includes a variety of online tools and environments for course communications such as: course content delivery capabilities, and an area for students to submit assignments, a grade book for scoring that can be viewed by students, assessment process such as quizzes, learning outcomes assessment, reporting of learning tasks completion, and communication tools such as discussion forums, email and announcement posts (Gremu and Halse, 2012; Naidu, 2003).

As mentioned earlier, with the inception of web 2.0 technologies, the online interaction via SNSs is increasing rapidly. There are numerous SNSs supporting a wide range of interests for millions of users by various technological affordances. Many of these users have incorporated these SNSs into their daily practices (Boyd and Ellison, 2010). A SNS is defined as “web-based services that allow individuals to (1) create a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they form relationships, (3) view their list of connections and those made by other users within the system” (Boyd and Ellison, 2010). SNSs are user-centred systems that encourage individuals to express themselves, create new relationships and maintain old ones (Yu *et al.*, 2010). Thus, SNSs have become increasingly prevalent in all areas including the field of education (Pilli, 2014). The role of social networking sites in education varies, as new students resort to social media to gain new friends, and universities from the other side use social media to draw attention and encourage pupils to enrol in the universities. Aside from social purposes, social media is integrated in the field of education for teaching purposes as students and teachers can share files, documents, videos, and ideas (Pilli, 2014).

In contrast to SNSs, LMSs lack the personal touch and mainly support formal learning (which is institutionalized, organized, class centred, hierarchically structured educational system, and in which the learner’s objective is to gain knowledge) whereas SNSs support both informal learning (which is not organized, user centred, and in terms of learning outcomes has no set objective) and non-formal learning (which lies between formal and informal learning) (Brady *et al.*, 2010; Gremu and Halse, 2012). Researchers perceive that the diverse affordances of SNSs, developing communities of practice, student-student interaction, and online social presence among students makes online courses more often successful (Barab and Duffy, 2000).

As aforementioned, research has shown that integrating features of SNSs into a LMS enriches discussions, increases engagement, and consequently facilitates formal learning environments (Chen and Bryer, 2012). This makes the two systems complementary to each other and utilizes the benefits of each system. As a result, this will enhance both formal and informal learning.

2. Research Background

Considering Learning Management Systems (LMSs) as a primary educational tool in universities is expanding significantly. Simultaneously, the growth of the usage of Social Networking Sites (SNSs) among students and teaching staff means that blended learning is increasing and spreading. Many educators are considering LMSs and SNSs as a source of information and communication by mixing them or completing each other’s missing parts. LMSs tend to be more focused, but lack the networking capacity, and the user centred approach that SNSs offer. On the other hand, in SNSs is difficult to keep the concentration on the topic with the communication drifts. Several studies have been done on LMSs and their insufficiency in providing social experience and failure to support personalization that is afforded by SNSs (DeSchryver *et al.*, 2009; Naveh *et al.*, 2010; Schroeder *et al.*, 2010; Veletsianos and Navarrete, 2012). Further studies, some of which are discussed below, highlighted the positive impact of using social networking in education to support learners’ collaboration, sharing ideas, creating products, and constructing identities (Dron and Anderson, 2009b; Greenhow, 2011; Greenhow and Robelia, 2009; Irwin *et al.*, 2012). However, few studies investigated the integration of a LMS and a SNS (Gremu and Halse, 2012).

DeSchryver *et al.* (2009) investigated the impact of using the SNS Facebook for discussions in an online course. They contrasted a course using Facebook discussion boards and the other Moodle forums with regards to student conception of social presence, and their discussion interactions frequency and length. However, the evaluation results revealed that there were no differences in the measures. A similar study was done by Irwin *et al.* (2012)

who investigated the students' perceptions of using 'Facebook pages' within individual university subject as a learning aid. Their preliminary evaluation suggests that Facebook has the potential to foster collaborative and cooperative learning, however, this study did not examine if Facebook can enhance learning outcomes. Ractham and Fripo (2011) explored the possibility of using SNSs, specifically Facebook, to enhance learning. They found that Facebook provides usable and simple technologies for social networking to share knowledge amongst learners. Using Facebook as an informal learning environment for presenting up to date topics, moreover, the thoughts of guest experts and leaders, was successful as Cain and Policastri (2011) investigated in their study. Mozhaeva et al., 2014 verified in their study the need of an integrated approach of LMS and SN in the learning process and a need to develop LMS that enhance learning in many aspects like efficiency, frequency, information content, interaction, emotionality, motivationally and cooperatively. Further studies investigated the use of Facebook as an online discussions tool, the evaluation of students' use, and perceptions found that Facebook facilitated online discussion and is considered as a valuable study tool (DiVall and Kirwin, 2012; Estus, 2010). Although SNSs (specifically Facebook) are used sometimes by students informally for learning purposes, however, most of undergraduate students thought that Facebook was used most importantly for social reasons not for teaching purposes as revealed in a study done on undergraduate students (Madge et al., 2009). The aforementioned study explored that Facebook was a communication aid that helped students settle into university life, and it was an important social tool for informal learning to collaborate on group projects and making department level administrative arrangements but most students were opposed to the idea of contacting tutors via Facebook (Madge et al., 2009). Further studies examined the effect of Facebook on education, findings showed that faculty members more likely use traditional technologies and it is more beneficial for communication amongst students (Roblyer et al., 2010). However, some students' informal learning practices using Facebook are viewed as a source of procrastination and to avoid distraction during assessment periods students use 'SNS self-control' practices that reduce their Facebook use (Vivian, 2011).

The common things amongst all these studies are that they examined the use of LMSs and SNSs in education and their pros and cons, which showed the limitation of LMSs to support informal and non-formal learning, and the hinder of using SNSs that distracts some students, and delays the process by using more than one source to look for information. Therefore, none of the systems should disappear; both contexts should be integrated to provide a comprehensive solution (Conde et al., 2011). This can be achieved through modifying LMSs to reflect social tools that support user interactions (Gremu and Halse, 2012). To examine if social networking service enhances e-learning system, LMS (Moodle) was incorporated with Mahara (an open source portfolio system that encloses social networking features) (Shrestha and Kim, 2013). After the incorporation, Moodle has both characteristics of LMS and user management system. In this case e-learning system supports non-formal learning, and consequently enhanced collaboration between users. A similar study investigated the integration of LMS (Moodle) and a SNS (Mahara), but, the assumption proved to be incorrect and most students experienced challenges using Mahara (Gremu and Halse, 2012). This was because students were familiar with their use of SNSs like Facebook and already have well-established relationships, which affected their willingness to spend time to create connections with others in the system. Additionally, overall responses of the students indicated that Mahara's features were not useful and did not make an impact on their learning. However, they thought that social features should be part of the LMS rather than being introduced by another system, as was the case in the aforementioned study. It is noted from the above-mentioned studies that integrating features of SNSs into LMS enriches the education process and supports interaction between learners-learners or learners-instructors. Although, students are familiar with current SNSs, and there are existing open source systems that contain social networking features, however, previous studies showed that some students neither prefer using new systems that contain social networking features which they are not familiar with, nor using current SNSs in the time of assessments in order to not get distracted. Therefore, this study embedded the characteristics of the smart learning (which is learner-centred), and the social network services into the e-learning system, through using an application installed on smart phones, whereby activities can be used anytime and anywhere. As a result, this will enable students to exchange their opinions in real-time, easily adapt themselves to the system, and allow cooperative learning.

3. Empirical Research Methodology Design

This research investigated King Abdullah II School for Information Technology (KASIT) students in The University of Jordan (Jordan is located in the Middle East) as a case study. The study explored the students' usage for LMS vs. SNSs, and their perceptions toward tools provided in each system. Furthermore, students' insights towards social networking services in m-learning will be examined. The results will be the basis for future implementation of mobile learning application in the university.

3.1 Areas of Improvement

Faculty members are encouraged to post any handouts on the Learning Management System used in the university (e-learning), on which every course being taught on each term is provided with a course site and the students enrolled into the course site are kept in sync with the e-Learning Management System.

Each student, once enrolled, is provided with a university-administered e-mail that allows authenticated e-mail communication. Moreover, each student is provided with a user-ID and password to access the e-Learning systems. Researchers recognized that some students tend to use e-learning for academic purposes (download materials, submit assignments...) and they prefer to use Facebook for communication with each other and with faculty members. This communication happens via (1) personal accounts for students and faculty members, (2) official/unofficial pages for the university and the faculties within it (3) official/unofficial groups on Facebook.

The researcher examined the use of Facebook rather than the other SNSs for the following reasons. Facebook has rapidly become the most widespread social networking site in the world (Mazman and Usluel, 2010). Although previous studies stated that students use Facebook to support both their academic and social goals (Bosch, 2009; Irwin *et al.*, 2012; Madge *et al.*, 2009; Mazman and Usluel, 2010; Tian *et al.*, 2011), the majority of evidence infers that students' main drive for using Facebook is for social connectivity (Bosch, 2009; Madge *et al.*, 2009; Mazman and Usluel, 2010; Ophus and Abbitt, 2009; Roblyer *et al.*, 2010; Wise *et al.*, 2011). At the commencement of our study, it was noticed that most students and employees are members of groups or 'liked' pages related to this university on Facebook, researchers believe that it is an important platform for communication. However, the use of Facebook has potential risks and limitation. Issues regarding content ownership, and students' distraction and its influence on their academic performance have been raised (Kirschner and Karpinski, 2010; Wise *et al.*, 2011). Facebook also has an impact on dedicated study time, whilst some studies suggested that Facebook affects study time and academic results negatively, other authors have not found this association (Kabre and Brown, 2011; Kirschner and Karpinski, 2010).

Many educational institutions have used e-learning platforms to enable knowledge sharing, however, this e-learning has concentrated on close environment that may limit the sharing of open communication (Capó-Vicedo *et al.*, 2011; Daniel *et al.*, 2012; Othman *et al.*, 2012). Whilst e-learning using web 2.0 technology supports interactive methods while learning (Fan *et al.*, 2008; Othman *et al.*, 2012). Most universities create learning social network software called "Moodle" (Othman *et al.*, 2012). Despite the popularity of the Moodle system, which allows users to create an account, update profile, view course materials and access required information; adding functions that allow collaboration between multiple users can enhance it (Shrestha and Kim, 2013). These functions are achieved by social network services were the user could form circle of friends, control users, form a group on their own, etc. (Shrestha and Kim, 2013). Despite the fact that the Moodle system contains some social networking features, improvements is still needed to overcome the major research problem. The main focus of the research is to examine students' satisfaction of the currently used LMS and their willingness to enhance the Moodle system in the university by applying social networking features.

3.2 Instrumentation

To enhance the study's validity and reliability, the methodology is the result of a mixed method approach; data were collected from multiple sources as follows:

- First: Survey the number of pages and groups of the university on Facebook; An observation of the usage and discussions conducted on these pages and groups; Analysis of quantitative data: statistics of usage of Facebook pages and groups, and analysis of qualitative data: posts and discussions on Facebook;
- Second: Interviewing students to know their perceptions about e-learning and SNSs; Analysis of qualitative data obtained from interviews;
- Third: Administration of a survey to IT students: in this study, we carried out a questionnaire survey to gain knowledge about the present situation of the participants' perception on academic websites and SNSs. The survey area consists of the use of the systems, Internet, and communication tools; Analysis of quantitative and qualitative data.

4. Results

As abovementioned, the study started by surveying the number of pages and groups of the university on Facebook and observing their usage, then interviewing students, and finally administrating a survey to students. Shown below are the obtained results.

4.1 Observation

Statistics were performed on the number of members on some of the groups and pages related to the university at the time of the conduction of this research (academic year 2016-2017). Members of these pages and groups are faculty members, administratives, students (current and graduated), and others who are interested in the university's news. As shown in Table 1, the number of people who liked official pages related to the university ranges from 2,338 to 190,192. And the number of group members in groups related to the university ranges from 1,268 to 24,656. For the case study of this research, KASIT students usage, there was 2,338 students on the KASIT official page, and 7,376 members on "KASIT Academic Team" group whilst the current number of students 1,530.

Table 1. Statistics of Facebook usage for UJ pages and groups

	Page name on Facebook	Number of likes
1.	"University of Jordan"	190,192
2.	"University of Jordan Youth"	180,135
3.	"The University of Jordan" news	150,380
4.	"University of Jordan" website	69,830
5.	"UJ Students Union"	42,148
6.	"Students of University of Jordan"	13,096
7.	"The University of Jordan: The Faculty of Graduate Studies"	8,727
8.	"The University of Jordan events"	6,514
9.	"The University of Jordan Library"	5,040
10.	"The University of Jordan: Faculty of Dentistry"	5,303
11.	"KASIT"	2,338
	Group name/Link on Facebook	Members
1.	University of Jordan news https://www.facebook.com/groups/universityofjordan/	24,656
2.	Official group for registration unit https://www.facebook.com/groups/scireg/?ref=br_rs	16,668
3.	"Students of University of Jordan"	12,743
4.	"KASIT Academic Team"	7,376
5.	"University of Jordan"	4,866
6.	"English Conversation Club- University of Jordan"	3,367
7.	"The University of Jordan (UJ) – Department of Chemistry"	2,132
8.	"The University of Jordan: Faculty of Graduate Studies"	1,537
9.	"The University of Jordan- Computer Center"	1,352
10.	"University of Jordan – School of Dentistry Alumni official Group"	1,281
11.	"University of Jordan, Faculty of Medicine Group"	1,268

The students perform wide range of social and academic-related tasks using Facebook such as:

- Keeping in touch with friends within the same faculty;
- Coordinating activities, as students use Facebook to create events and organize them such as trips, graduation projects ceremonies, seminars, etc.;
- Keep up to date with university news, as official pages on Facebook post updated news;
- Students from different faculties create groups to exchange information, share resources and files related to materials;
- Discuss university-related issues, and it has been noticed that decision makers were part of these discussions and took into account students opinions posted on these pages in their decision-making process;
- Communication tool between instructors and students, as many instructors created private groups for themselves to share posts related to material (documents, videos, etc.), announcements, and discussions.

4.3 Interviews

Interviews were conducted with students from different departments and academic years. Students were asked if they prefer to contact their instructors via SNSs. Most of the students' answers were "Yes, they prefer to contact their instructors via SNSs or e-mail". And for whom who answered "No" the main reason was that not all their instructors have accounts on SNSs. Students were asked if they get response on what they want, students answered that some instructors reply from their personal accounts, others from their private groups, and the rest do not reply instantly through Facebook. And finally, students were asked if e-learning satisfies all their needs or they tend to use SNSs for some services, most of the answers were that students prefer to use SNSs when they need to contact instructors quickly, as it is easier contact them through SNSs via mobile applications.

4.4 Questionnaire

The questionnaire design and analysis was as follows; the questionnaire is divided into four parts consisted of 22 questions:

- The first part includes 4 questions regard the demographic information (personal profile of the student);
- The second part that contains 2 questions about the students' usage of Internet and SNSs;
- The third part that contains 4 closed-ended questions. This part concerns the use of the e-learning system by students and how satisfied they are compared with SNSs;
- The fourth part includes another 5 closed-ended questions concern statistics about usage SNSs;
- And the fifth part has 4 closed-ended and 3 open-ended questions to compare between usage of e-learning and SNSs. Students were given in this part enough space to express their opinions about features that they would like to see in e-learning, and pros and cons of SNSs and e-learning.

Analyses of the data that was collected via questionnaire administered online, KASIT consisted of 1530 students at the time that the research was commenced. A questionnaire was administered to 261 students (participants volunteered to participate in the research): The analysis of the demographics of the questionnaire leads us to the following results (Question 1 – Question 4):

The dominant age of the students was between 20 and 22 years with a percentage of 81.2%. The parameter is confirmed since the participants who consist the 75.2%, study in academic years 3 and 4 with percentages of 29.89%, and 46.73% respectively. From the whole sample of this research, 32.2% of the participants were males and the rest 67.8% are females. The vast percentage of the participants, 39.6% were in The Computer Information Systems Department, while 32.7% and 27.7% were in Business Information Systems and Computer Science Departments respectively.

The analysis of the second part of the questionnaire about the students' usage of Internet and SNSs was as follows (Questions 5 and 6):

Participants were asked closed questions about the time spent on Internet. It is obvious from answers on question 5 that students spend a significant amount of time online. The majority of participants, 32.94%, spend between 3 and 6 hours on internet on daily basis, followed by 28.83% and 28.35% spend more than 6 hours and between 1 and 3 hours on Internet on daily basis respectively, then 8.44% spend between 30 minutes and 1 Hour, and only 1.92% spend less than 30 minutes on internet on daily basis.

In the sixth question, students were asked about the most used SNS by them. The majority of students, 63.3%, use Facebook the most, then 18.81% use Whatsapp the most, then 10.93% use YouTube the most, 2.9% use Twitter the most, and 4.07% stated that they use other SNSs.

The analysis of the third part of the questionnaire (Question 7 – Question 10) concerns the use of the e-learning system by students and how satisfied they are compared with SNSs was as follows:

From the whole of the sample that participated in this research, the answer on the question about using academic websites (e-learning, faculties websites, faculties members personal websites) to get academic materials and other related documents (where students can select multiple options), leads us to the conclusion that the percentage of the students who prefer to use academic websites to get academic materials and documents is large, as shown in Figure 1, at a total of 89.1% use e-learning. Whereas 19.8% of the participant KASIT website, 14.9% use Faculty members webpages, and 5.9% use other resources.

The answers on the question about the usage of e-learning to download materials and academic-related work was: the majority of 34.82% use e-learning once a week, 18.39% of the participants use e-learning once a month, whilst 18.07% use e-learning on daily basis, then 8.03% use e-learning once in the semester, and the rest of 7.67% use e-learning irregularly.

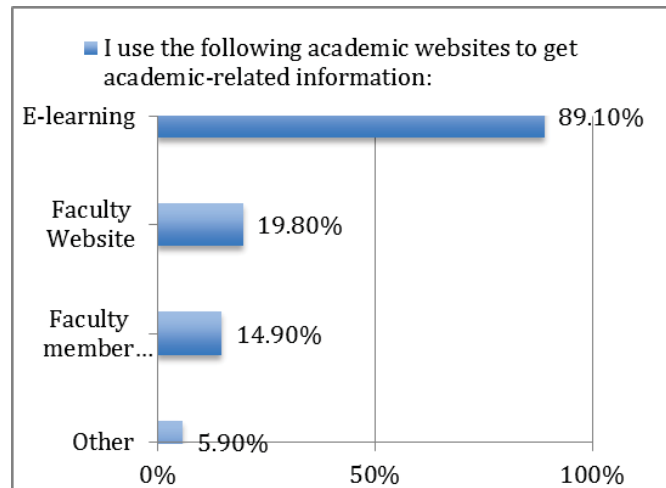


Figure 1. Results of question 7 “I use the following academic websites to get academic-related information

The results of question 9 “I trust e-learning as a source of materials more than SNSs (such as Facebook groups)” (which adopts the five-rated Likert type (1. Strongly Disagree – 5. Strongly Agree) indicates that students trust e-learning as a source to get materials as 67.7% (37.8% and 29.9% answered “Strongly Agree” and “Agree” respectively), 3.7% answered “Neutral”, and the rest of 28.8% (14.9% and 13.9% answered “Strongly Disagree” and “Disagree” respectively) prefer to use SNSs more than e-learning as a source for materials.

Participants were asked in question 10 about their satisfaction with the options that e-learning provides for communication and academic tasks (such as downloading materials, submitting assignments, and conducting online quizzes, etc.), most of the participants with the percentages of 36.46% and 14.22% were “Dissatisfied” and very “Dissatisfied” respectively, as only 8.03% of participants were “Very Satisfied”, and 27.98% were “Satisfied” and the rest of 13.3% were “Neutral”. Students prefer to have the notifications aspect in academic websites to enhance and accelerate communication process between students and instructors, as the majority of 65% responded.

The analysis of the fourth part of the questionnaire concern statistics about usage SNSs was as follows (Question11 – Question15):

Participants were asked in question 11 how frequently do they access SNSs to accomplish academic task, 24.14% answered “Very Frequently”, 43.31% answered “Frequently”, 19.52% answered “Occasionally”, 9.2% answered “Rarely”, 3.07% answered “Very Rarely”, and the rest of 0.7% answered “Never”.

The result of question 12 shown in Figure 2, which asked the participants about their usage of the mentioned SNSs for communicating colleagues and instructors, as well as for academic-related tasks.

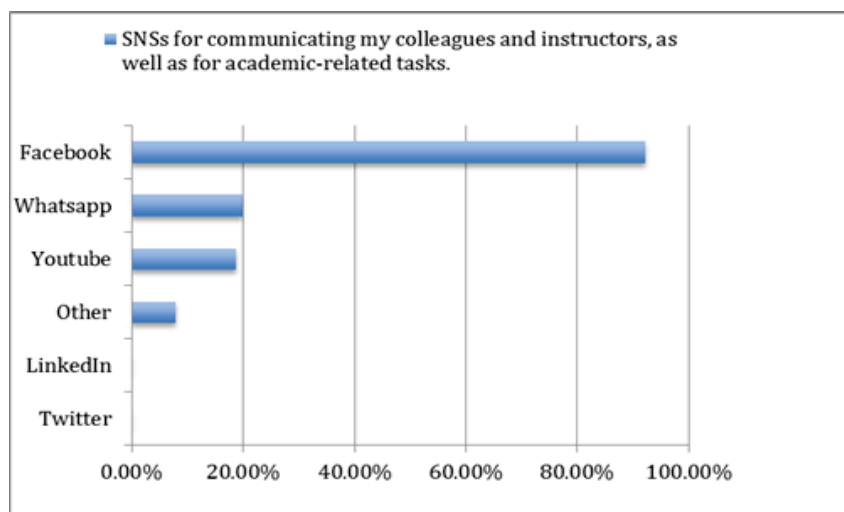


Figure 2. Results of question 12 “I use the following SNSs for communicating my colleagues and instructors, as well as for academic-related tasks.”

The result of question 13 shown in Figure 3, which asked the participants about their reasons of using SNSs for communicating instructors. 63.4% of students use SNSs for contacting their instructors because they “get faster responses”, 32.7% and 25.7% use SNSs for communicating instructors because “Accessibility (via smartphones) is easier than e-learning” and “Less steps required” respectively, 14.9% do not contact their instructors via SNSs.

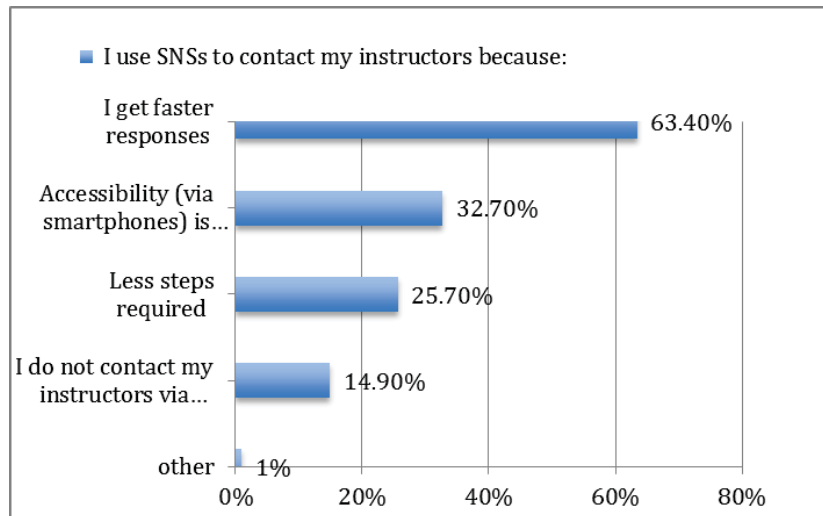


Figure 3. Results of question 13 “I use SNSs to contact my supervisors because:”

The result of question 14 shown in Figure 4, which asked the participants about their reasons of using SNSs for communicating their colleagues. 50.5% of the students use SNSs for contacting their colleagues because they get the latest news related to their faculty quickly, 42.6% and 38.6% use SNSs for communicating colleagues because they get faster notifications and “It improves our communication” respectively, then 25.7% use SNSs for communicating colleagues because “Accessibility (via smartphones) is easier than e-learning”, 6.9% do not contact their colleagues via SNSs.

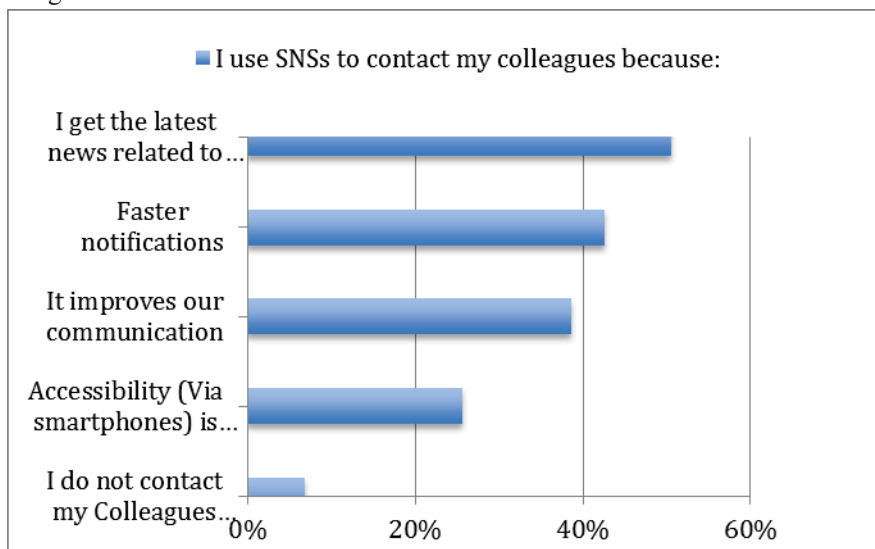


Figure 4. Results of question 14 “I use SNSs to contact my colleagues because:”

It is noticed that participants get distracted and spend extra time when they use SNSs to accomplish any academic task as the results of question 15 showed (Figure 5). As 50.17% of participants spend extra time on unrelated information when they use SNSs to get academic-related information. Whereas, 26.81% answered “Maybe” and 22.98% of the students do not spend extra time on unrelated information when they use SNSs to get academic-related information.

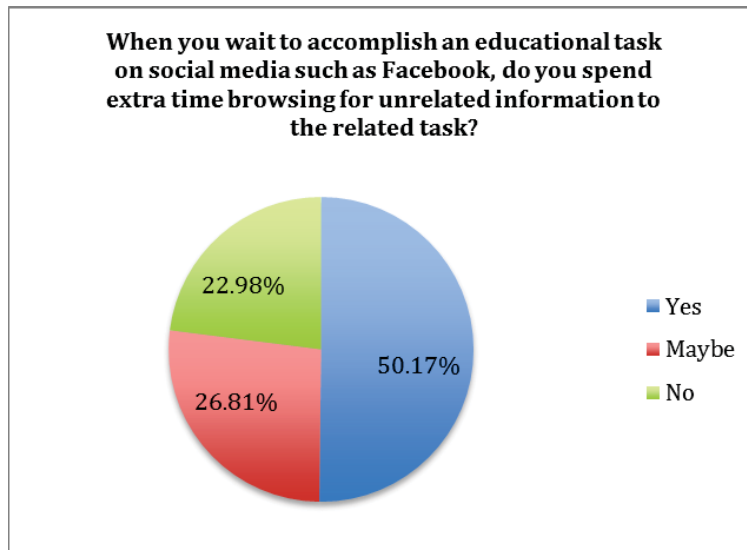


Figure 5. Results of question 15 “When you wait to accomplish an educational task on social media such as Facebook, do you spend extra time browsing for unrelated information to the related task?”

The analysis of the fifth part of the questionnaire to compare between usage of e-learning and SNSs (Question 16 – Question 22) was as follows:

The researcher can notice that students prefer to get materials from e-learning and they express interest in SNSs for communication. As results of Questions 16 and 17 showed (Figures 6 and 7 and respectively). 79.2% of students prefer to download materials from e-learning, 16.8% prefer to get materials from SNSs, and the rest of 4% answered “Other” (which includes hardcopy materials from colleagues, bookshops, etc.). In Question 17 participants were asked if they prefer to contact their instructors via SNSs, academic websites, or other. As shown in Figure the vast majority of the students, 61.88%, prefer to contact their instructors via SNSs, whereas 21.6 % of the participants prefer to contact their instructors via academic websites and 17% answered “Other” (As face-to-face communication in office hours).

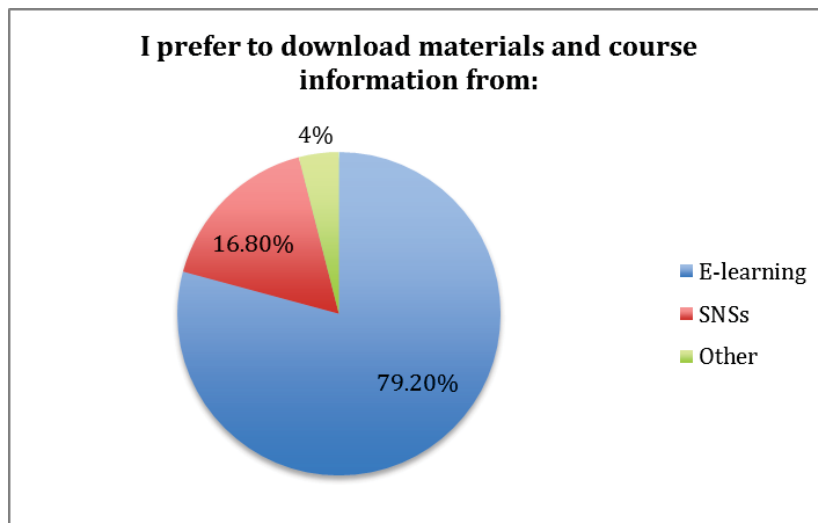


Figure 6. Results of question 16 “I prefer to download materials and course information from:”

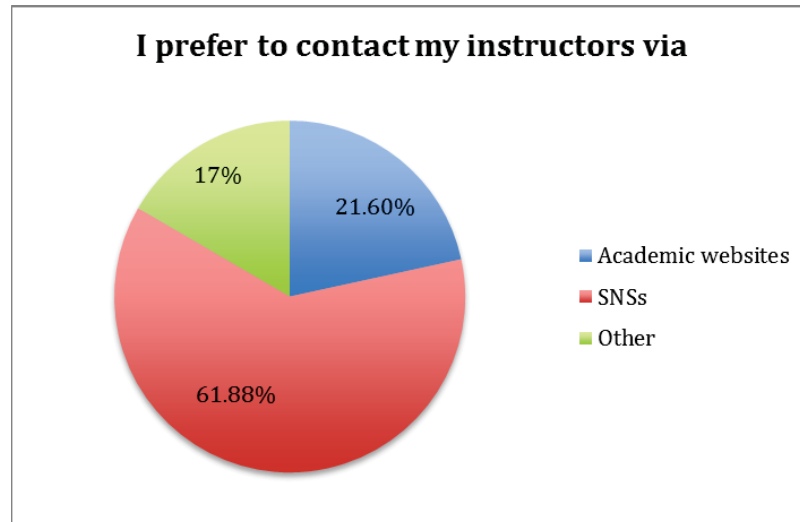


Figure 7. Results of question 17 “I prefer to contact my instructors via:”

Questions 18 was “If e-learning become m-learning (mobile based application) I will use it more frequently” and most of the participants responded positively with the percentages of 39.07% and 29.13% “Strongly Agree” and “Agree” respectively, 13.03% were “Undecided”, and 8.41% and 10.34% “Disagree” and “Strongly Disagree” respectively.

Participants were not satisfied with the communication tools provided in e-learning, thus they still prefer to use SNSs even if communication tools were fostered in e-learning as 48.67% of the participants responded, whereas, 25.69% were uncertain and the rest of 25.69% prefer to use e-learning if communication tools were enhanced (Question 19). However, it has been noticed that participants did not prefer to use e-learning even if communication tools were enhanced because they prefer to use mobile applications to websites. This outcome was affirmed by Question 18 results which showed that 68.2% of participants prefer to use e-learning if it was via mobile application (details are shown in Question 18).

The open-ended question (Question 20) was about the things that students would like to see in the academic websites to enhance communication and/or perform academic tasks on e-learning easier (such as downloading materials, uploading assignments, etc.).

From the population who answered this question, we can summarize the answers as follows:

- In order to ease access and get the required information in timely manner, most students prefer to access the system via mobile application (m-learning).
- Students also focused on enhancing the communication features; real-time interaction, notifications, interactive students groups, reminders and alerts for deadlines.
- Reduce the number of steps required to login and download materials.
- Add all required information in the system so they will not need to get information from multiple sources (i.e. university or faculty website, Facebook, etc.). And students would like to find all the related announcements to the materials regarding exams, events, assignments, and deadlines on e-learning.
- More user friendly Graphical User Interface (GUI).

In the second open-ended question (Question 21) students were asked to write down advantages and disadvantages of SNSs if they find any. And their answers were summarized as follows:

- SNSs advantages: Students are accessing Facebook, Twitter, LinkedIn and other such SNSs to connect and share information with those around them; since most people are continuously connected to the Internet through their mobiles, tablets, etc. it is easier to share information with all connections (friends, family, etc.); Immediacy: easier and faster to interact with peers or instructors about class-related topics. Likewise, Facebook group’s posts are fast to write and read; new students get the additional benefit of gaining new friends and to participating in special interest group communities; students can find experts in their fields and contact them easily.
- When students were asked about social media disadvantages their answers were as follows:

- Students are being distracted when they do their study due to the difficulty of keeping concentration on topic with the increase in communication drifts.
- Students find SNSs unreliable source for academic materials.
- Posted messages in informal groups sometimes are not consistent, and topics organization is not always clear.

In the third open-ended question (Question 22) students were asked to write down advantages and disadvantages of e-learning if they find any. And their answers were summarized as follows:

- e-learning advantages:
 - Centralized learning environment: since the main function e-learning is delivering lesson content to students, students mainly concentrate only on the substance of the lesson topic.
 - Easier to access academic materials.
 - Trusted content regarding announcements, assignments, grades, and incorporated lessons into the standardized curriculum.
- Regard disadvantages of e-learning students were asked to mention them if they find any, and the main issues for students were the lack of:
 - Communication tools;
 - Instant feedback;
 - Notifications, alerts, and reminders.

5. Discussion

The results of analysis underlines students perceptions and usage of LMS and SNSs: all students generally appreciate them; particularly the survey confirmed the active involvement of students on SNSs for communication with instructors (61.88% of participants) and their positive acceptance of LMSs as an important source to get materials and lessons notes (79.2% of participants). Despite the appreciation just described, LMSs are losing population in favor of communities created on Facebook. Students declared that it is more practical (accessed anywhere anytime via smart phones) and immediate. On the other hand, students trust LMSs more as a source of information and academic documents, and they see that LMSs are more focused and do not distract them to accomplish required tasks in timely manner. The qualitative data gathered from the open questions of surveys is consistent with this result as 92.1% of students contact their instructors via Facebook and 72.3% of them use Facebook the most amongst all other SNSs whereas only 21.6% of students use academic websites for communication.

Although previous research suggested that Facebook has potential benefits as an academic tool (Mason, 2006; Selwyn, 2007), however, in our research it is clear that Facebook was an important social tool used by the majority of the respondents as a communication aid. Students generally thought that Facebook utilization for social purposes, informal learning purposes (interactions about academic-related matters), but not for formal learning purposes (which involves formal assessment).

Despite the fact that students prefer to use Facebook for communication, students concern is the credibility of the shared content and the distraction, as 50.17% of participants spend extra time on irrelevant information when they use SNSs to get academic-related information. Here students appeared to draw a distinction between the positive use of Facebook for communication and the negative effect on time and reliability of shared academic-related materials. On the other hand students are not satisfied with the e-learning's communication tools as 50.68% of participants stated. Notably, their suggestions were to add communication functions such as notifications, reminders, and alerts as the majority responded as the analysis of the qualitative data in open-ended questions revealed. But they still prefer to use SNSs even if communication tools were enhanced as 48.67% of the participants responded unless it becomes mobile based application. This result was reinforced by the participants' responses of the majority of 68.2% who prefer to use e-learning if it was via mobile application.

Findings from this study reinforce the results of recent studies (Kirschner, 2001; Cheong *et al.*, 2012; McLoughlin and Luca, 2000) on the importance of enhancing LMSs, demonstrating the educational value of smart learning system which plays crucial role in complementing cooperative function, this was considered as a limitation in the current e-learning system. Using smart phones facilitates collaborative learning through the interaction between learner-learner and learner-instructor. Collaborative learning (which is the shift from traditional teacher-centered approaches to new learning approaches including student-centered, social and active

learning (Kirschner, 2001)) allows learners achieve an academic goal collectively. This in its turn enhances learners' critical thinking and problem solving abilities, and retains information longer compared to individual learning (Kirschner, 2001; Cheong *et al.*, 2012; McLoughlin and Luca, 2000).

Therefore, this paper presents the readiness and perceptions of students to the transition from e-learning to m-learning with the characteristics of smart learning by implementing social networking services.

6. Conclusion

This paper discusses the integration of social media tools in education while comparing these tools with the ones provided by LMSs. Actually, this paper presents both aspects of these tools. A clear picture emerged that Facebook is an important social tool used by the majority of the respondents as a communication aid but not for formal teaching purposes. Though most of students are keen to contact instructors on Facebook but they spend more time on unrelated information, which takes away from the time determined for studying. Since LMSs primarily just delivers lesson content, students are mainly concentrating on the lesson topic. Students would prefer to use e-learning if communication tools were enhanced and it became mobile based.

7. Future work

In this study, we went through the theoretical part of examining students' perception towards LMSs, SNSs, and willingness to adapt m-learning system to fulfill students' requirements. We therefore will do further theoretical research on the university's instructors to examine the same aspects. After the analysis, major missing functions in the Moodle system will be identified. The main concern of the practical part is to implement a mobile-based learning system for the purpose to take the researches' findings further, whereby smart learning system will enhance students' performance.

The expected outcomes from the practical part are: First, m-learning will afford social networking features, and students will interchange information real-time, as a result, interaction between learner-learner and learner-instructor will be easier. Furthermore, immediate feedback will facilitate solving problems, and utilize group-learning advantages, which will enable cooperative learning. Second, m-learning system will use social networking features that students are familiar with. Accordingly, students will easily adopt the system. This will support their interest in learning and enhance their academic performance. Third, by integrating the social networking features in the university system, the content ownership of the exchanged materials, discussions, and any other information will be for the university. Moreover, all the above-shared information will be, to some extent, related only to university issues, which will diminish students' distraction and keep them focused.

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Designing Optimal Knowledge Base for Neural Expert Systems

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Abstract

One of the limitations of conventional expert systems and traditional machine induction methods in capturing human expertise is in their requirement of a large pool of structured samples from a multi-criteria decision problem domain. Then the experts may have difficulty in expressing explicitly the rules on how each decision was reached. To overcome these shortcomings, this paper reports on the design of an optimal knowledge base for machine induction with the integration of Artificial Neural Network (ANN) and Expert Systems (ES). In this framework, an orthogonal plan is used to define an optimal set of examples to be taken. Then holistic judgments of experts on these examples will provide a training set for an ANN to serve as an initial knowledge base for the integrated system. Any counter-examples in generalization over new cases will be added to the training set to retrain the network to enlarge its knowledge base.

Keywords: decision rule, expert systems, neural networks, knowledge acquisition, knowledge representation, knowledge-based systems

1. Introduction

Since expertise is scarce and not always available in some domain, Expert Systems (ES) seek to transfer the knowledge on problem solving from human experts to computer-based systems and then on to other human non-experts. To map the expert knowledge into the current state of ES technology, the expert's "know how" / production rule is required to be explained in a detailed manner. However, literature on cognitive psychology points out that most experts cannot express explicitly how the decisions were reached (Nisbett & Wilson, 1977; Ericsson & Simon, 1980). Therefore, the knowledge acquisition for conventional ES has to deal with seemingly incomplete and/or inconsistent information provided by the experts. Then a machine induction technique has been used to deduce new knowledge from exemplary solutions from problem domain provided by the experts. However, most machine induction techniques are hindered by the inadequacy of traditional statistical methods and/or the requirement of a large sample set to represent a problem domain.

To overcome these limitations, this paper reports on the design of an optimal knowledge base for an integrated system of Artificial Neural Network (ANN) and ES. In this framework, an orthogonal plan is used to define an optimal set of examples to be taken from a problem domain. Then holistic judgments of experts on these examples will provide a training set for an ANN. With its ability in pattern recognition and function approximation, the ANN will learn the decision patterns and production rules in the sample set to build the system's initial knowledge base and then generalize this rule base to new cases. Any counter-examples in generalization will be added to the training set to retrain the network in order to enlarge its knowledge base. The knowledge base of the integrated system will grow over time as the system learns new patterns in the same way human beings broaden their knowledge.

The paper is organized as follows. In the next section, limitations of conventional ES and machine induction technique are reviewed. Then the ability of ANN as a machine induction technique is discussed. After that, the design of an initial knowledge base for an integrated system of ANN and ES is presented. It is followed by an illustration on the capacity of such initial knowledge base in an integrated system. The paper concludes its findings and directions for future research.

2. Limitations of Conventional Expert Systems and Machine Induction of Expertise

The goal of knowledge acquisition for ES is to obtain necessary information to represent the knowledge by production rules in the form of cause/effect, situation/action, if-then-else (Chorafas, 1990). But discovering the

expert's mental models could be very difficult. Verbal protocols may be informative but incomplete. The technique may even yield erroneous information since people may state their beliefs and actually believe in one thing, but frequently act in quite a different manner. Furthermore, it has been noted that personal belief structures are not available for inspection (Norman, 1983).

Anderson (1983) proposes that the skill acquisition of human experts goes through three stages. In the *declarative stage*, new information is acquired in a declarative form containing domain-independent facts. Next comes the *knowledge compilation stage* in which the declarative knowledge is transformed into a domain-specific procedural form by recording the conditions under which a piece of declarative knowledge fits into production rules. The final stage is the *procedural stage* in which procedures become more automated. As the declarative knowledge becomes procedural, the ability to verbalize knowledge is lost. The cognitive changes in acquisition of knowledge reduce the ability to report on cognitive processes and increase the inaccessibility of proceduralized task knowledge.

Due to the automatization of cognitive skills and the proceduralization of domain knowledge, there is evidence that people generally have little or no introspective access to higher order cognitive processes. People are rarely able to give retrospective reports on what they were thinking about in solving a problem (Nisbett & Wilson, 1977; Ericsson & Simon, 1980). In fact, there is indication that the more people have about task knowledge the less ability they have to verbalize that knowledge (Berry & Broadbent, 1984).

Numerous literatures have reported on the limitations of human cognition (Best, 1998). Human memory is prone to forgetting and distortion of stored information (Baddeley, 1976). The rationality of human thinking in the formal logical sense can be questioned and some aspects of deductive reasoning prove to be problematic for human beings (Johnson-Laird & Wason, 1977). People have difficulty in handling combinations of uncertain evidence in multi-dimensional decision problems (Kahneman, Slovic & Tversky, 1982).

Within these cognitive limitations of human beings, one faces difficulties in building conventional ES since these systems require structured rule sets, but experts cannot always express explicitly the rules and procedures used in arriving at a solution. As the domain gets larger and more complex, the experts become unable to explain how they operate (Giarratano & Riley, 2004). However, they can supply suitable examples of problems and solutions reflecting their conceptualization of a domain. Hidden behind the holistic assessment of problem alternatives, there always exists implicitly a logic on the association between input-output patterns. The machine induction could be a suitable means to recognize and reveal these patterns.

It has been found that human beings in general do have the ability to make holistic judgments (Slovic & Lichtenstein, 1971), and expertise is based mostly on the recognition of patterns in the problem space (Smith, Adams & Schorr, 1978; Chase & Ericsson, 1982). These characteristics make machine induction a more appropriate technique to discover the decision patterns from a set of holistic assessments provided by experts.

Machine induction offers the possibility of deducing new knowledge (Hassoun, 1995; Haykin, 2009). It can list all the factors that influence the decision, without understanding their impacts, and induce a rule that works successfully (Turban, Sharda & Delen, 2011). The method needs only pre-classified examples and consideration of all samples in the domain. Apparently, one of its major disadvantages is in the requirement of a database containing sufficiently documented cases structured around human knowledge on a problem domain. In addition, the induced rules can be too large or too complex leading to unintelligibility.

Machine induction method has used various algorithms to convert knowledge on related attributes, values and relationships in problem solving, into rules. Such algorithms vary from statistical methods (e.g., decision tree, discriminant analysis, step-wise regression, principal component analysis, factor analysis...) to neural computing (Flores, 2011). Most machine induction techniques rely on traditional statistical methods. It has been pointed out that these traditional methods cannot handle the nonlinear relationship without imposing strong assumptions on behavior of the data.

3. Machine Induction of Expertise with Integrated ANN and ES

To overcome the inadequacy of traditional machine techniques in handling the nonlinear relationship and to avoid imposing *a priori* restrictions on the data, Artificial Neural Networks – ANN could be an appropriate technique in machine learning and ES building. This technique is particularly useful in recognizing the input-output patterns in heuristics, which cannot be expressed explicitly by the experts. An ANN does not require *a priori* elaborate models or pre-specified probability distribution function of the data in order to learn the underlying discriminant patterns and association.

An ANN contains processing/computing units called neurons (or nodes). These nodes are arranged into layers, in

which a node in one layer has a weighted connection to each node of the next layer in a particular configuration. A node, as a processing unit, receives inputs from other nodes or from an external stimulus. A weighted sum of these inputs constitutes the argument to an activation or transfer function.

Most applications have used 3-layer networks consisting of one input, one hidden and one output layer. The hidden nodes are needed to introduce nonlinearity into the network. In some cases, more hidden layers are necessary to approximate a higher order function. An input node provides an external signal to the network. An output node produces an output of the network as a whole. A hidden node that is necessary for the computation of complex functions. Node inputs and activations can be discrete, taking on values $\{0, 1\}$ or $\{-1, 0, 1\}$, or be continuous, taking on values in the interval $[0,1]$ or $[-1,1]$. Each node u_i computes a single numerical node output or activation. Output of a node can be the output of the network as a whole and/or it can be the input to other nodes. Every node, other than input nodes, computes its new activation u_i as a function of the weighted sum of inputs directed to it from other nodes:

$$S_i = \sum_{j=0}^n w_{i,j} u_j \quad (1)$$

$$u_i = f(S_i) \quad (2)$$

where the activation function, $f(\cdot)$, is usually a nonlinear, bounded and piecewise differentiable function such as the sigmoid function,

$$f(x) = 1/(1 + e^{-x}) \quad (3)$$

Such an ANN produces a response, which is the superposition of n sigmoid functions, where n is the number of hidden nodes, to map a complex function. As one adds more hidden layers, ANN will be able to map higher order functions. Therefore, the function mapping with ANN is more general than the regression of traditional methods.

In theory, an ANN can learn from past data and generalize over new cases. With its ability as a universal function approximator, an ANN can discover the associations between groups, elements of the domain space and those of the problem space. It has been shown that an ANN can approximate a functional relationship using a sample of input-output patterns, and learn probabilities and statistical distributions from the data (Cybenko, 1989; Hornik, Stinchcombe & White, 1989).

In practice, an ANN can offer the advantage of computer execution speed. The ability to learn from cases and train the system with data rather than to write programs may be more cost effective and even more convenient when frequent updates are needed (Medsker, 1995). In applications where rules are unknown, an ANN may be able to represent those rules implicitly in its stored connection weights.

However, previous integration of ANN and ES (Medsker, 1995) is hindered by the availability of examples and the cognitive effort of experts in providing judgment on these examples. The cognitive limitation of human experts made the assessment of a large sample impractical if not erroneous. Most importantly, these systems did not consider the trade-off in multi-criteria decision making which transcends all business problems. The representation of trade-offs in an appropriate rule set for conventional ES is extremely difficult. Taking into account the tradeoffs in their assessment, experts might provide judgments that seem to be contradictory and/or inconsistent with the formal logic. These limitations could be overcome by building an optimal training set for the ANN containing holistic assessments of experts on a set of examples defined by an orthogonal plan. Knowledge acquired from this optimal training set will serve as the initial knowledge base for an integrated system of ANN and ES.

4. Orthogonal Plan as Initial Knowledge Base for Integrated ANN and ES

To alleviate the burden of information processing on human experts in knowledge engineering, one can implement an orthogonal plan to define the minimum size of sample to be assessed. In the experimental design and analysis of variance, an orthogonal main-effect plan (Addelman, 1962) permits the study of several factor effects without going into every combination of factor levels. A factorial experiment is called *symmetrical* when each of its factors has the same number of levels. The experiment with factors having different number of levels is called *asymmetrical* factorial.

Consider a symmetrical factorial experiment involving $(s^n - 1)/(s - 1)$ factors, each of which has s levels with s^n treatment combinations, where s is a prime or a power of a prime number. These $(s^n - 1)/(s - 1)$ factors can be presented by n factors, each having s levels and their generalized interactions. Therefore, the treatment combinations of a main-effect plan for $(s^n - 1)/(s - 1)$ factors in s^n trials may be obtained by choosing the

treatment combinations of a complete s^n factorial plan and generating the remaining factors by the interactions of the s^n experiment (Addelman, 1962). For an asymmetrical factorial experiment, the orthogonal main-effect plan can be constructed by collapsing factors occurring at s_1 levels to factors occurring at s_i levels by using a many-to-one correspondence of the set of s_1 levels to the set of s_i levels.

It has been estimated that, by using an orthogonal design, a set of 49 holistic assessments of production rules can cover the dimensionality of decision problems having up to eight criteria, with seven levels per criterion (Barron & Person, 1979). For example, in a four-criterion problem with five levels per criterion, instead of making 4^5 or 1024 assessments to define a set of production rules for a conventional ES, with an orthogonal plan one needs only 25 assessments to capture the main effects of problem factors. Orthogonal plans not only help to reduce the information processing burden on the experts, but also serve to define initial knowledge bases for integrated systems of ANN and ES.

This paper investigates the implementation of an optimal knowledge base designed by an orthogonal plan in an integrated system of ANN and ES. Such integration will help to overcome the difficulties often encountered by the conventional ES technology. Within the proposed framework, one starts with an appropriate orthogonal plan to define a set of basic examples from the problem domain. The holistic judgments of an expert on these basic examples constitute a training set for the ANN. The holistic assessments intend to overcome difficulty of the expert in explaining explicitly production rules of his/her heuristics. Once the decision patterns of this set are learned, the network acquires an initial knowledge base on the problem domain.

After being trained, the network will be used to generalize over new cases. The expert will then be asked to evaluate the network performance on these cases. Any wrong prediction will constitute a counter-example to be added to the training set. Consequently, the network will be retrained to learn new decision patterns emerging from the addition of counter-examples to the training set. One notes that the integrated system can be put in production, even if it has learned only partial information on the problem domain. Since the system is trained with basic patterns of problem domain, it can generalize well over new cases.

Table 1. Knowledge Acquisition Process of the Integrated ANN and ES

- | |
|--|
| <ol style="list-style-type: none"> 1- Select an appropriate orthogonal plan to define the optimal training set. 2- Acquire holistic judgments of expert on the training examples to build the initial knowledge base. 3- Train the network to learn the decision patterns from the initial knowledge base. 4- Generalize the trained network over new examples. 5- On the opinion of the expert, add counter-examples to the training set. 6- Retrain the network to acquire a new knowledge base. |
|--|

The process of “learning by doing” continue as needed to acquire a robust knowledge base for the integrated system. Over time, the system will enrich its knowledge base with additional decision patterns as it learns from its own production and the expert’s opinion. This knowledge acquisition process is intuitive since it is similar to the one used by human beings. The knowledge base of the integrated system will grow over time as the system learns new patterns in the same way human beings broaden their knowledge.

5. An Illustration: Project Evaluation and Economic Appraisal

The following illustrates the implementation of an optimal knowledge base in an integrated system of ANN and ES. The problem relates to project evaluation and economic appraisal of proposals for new products in a manufacturing company. The proposal is evaluated on five criteria: (i) Net Present Value (NPV) of cash flows generated over the next five years, (ii) initial capital investment requirement, (iii) market growth rate in the next five years, (iv) capability to market the new product, and (v) prospect of technical success. Before submitting any proposal, the related department estimates the values of each project criterion. Some criteria are quantitative, others are qualitative. In the appraisal process, the quantitative data are converted to categories to avoid the difficulty in dealing with data on a continuous scale. For example, the flow of NPV is classified into five categories ranging from one to five million dollars. Similarly, the amount of initial investment is classified into five categories ranging from half a million to two and half million dollars. In the appraisal, there exist trade-off among criteria and no single criterion absolutely dominates any others. The experts will rate each proposal on a scale ranging from 0 to 100. In this study, the appraisal was taken by a senior manager, a senior engineer and a chartered accountant indicated as Expert A, Expert B, and Expert C respectively.

Table 2. Project Evaluation and Economic Appraisal: The Problem Domain

NPV of Cash Flow	\$[1.0	2.0	3.0	4.0	5.0] millions
Initial Investment	\$[2.5	2.0	1.5	1.0	0.5] millions
Market Growth Rate	[fair	good	very-good]		
Capability to Market	[fair	good	very-good]		
Prospect of Technical Success	[fair	good	very-good]		

For this problem domain, a complete set of 864 production rules would be needed to build a knowledge base for a conventional ES and make such ES functional. To alleviate this cognitive burden in this study, an orthogonal plan was used to define a sample of only 24 examples of production rules from the problem domain to be assessed. To validate the performance of the integrated system, two test sets, each containing five out-of-sample examples, are set up. Each expert was asked to provide his/her overall preference judgment for each example of the training set and test sets. For instance, the preference of Expert A for the first training example (1 2 2 3 3 50) in Appendix 1 is interpreted in the following production rule.

If NPV is 1 million dollars,
 AND Initial Investment is 2 million dollars,
 AND Market Growth Rate is good,
 AND Capability to Market is very good,
 AND Prospect of Technical Success is very good,
 then the Proposal score is 50 /100.

In this manner, the sample constitutes a set of production rules implicitly expressed by the expert. Using this set, one trains an ANN to acquire an initial knowledge base for the integrated system. To test the performance of the system, one uses the acquired knowledge base to generalize over two test sets. The expert is asked to evaluate the network prediction of his/her preference on the first test set. If there is any disagreement between a network prediction and an expert judgment, this counter-example will be added to initial training set. Then the network is retrained to learn the new decision pattern and make generalization on the second set. The knowledge base of the system will grow over time with the learning of new patterns emerging from the counter-examples.

In this study, an ANN is configured with five input nodes, one for each criterion, five hidden nodes and one output node. This network uses a backpropagation algorithm with sigmoid transfer function, a learning rate of 1 and a momentum of .9. The training and testing tolerance are set at .1 and .3 respectively.

For Expert A, the network converged after 119 training epochs with a Root Mean Square of Errors (RMSE) of .0304. In generalization over the two test sets, it made RMSE of .0170 and .02275 respectively. For Expert B, the network converged after 104 training epochs with an RMSE of .0333. In generalization over the two test sets, it made RMSE of .0381 and .0473 respectively. In these cases, the experts judged that the system had provided satisfactory generalization on both test sets.

The case of Expert C is illustrated in Appendix 2. In this case, the network converged after 2425 training epochs, with an RMSE of .0334. On the first test set, it made two wrong predictions with an estimate of 81.70 for the example having a preference score of 70 and an estimate of 79.42 for the example having a preference score of 65. These two counter-examples were added to the training set and the network was retrained to learn new patterns in these examples. In the second run, the network converged at 1769 epochs with an RMSE of .0369. On the second test set, it made only one wrong prediction with an estimate of 93.34 for the example having a preference score of 60. The network training for this case takes longer time to learn the decision patterns and production rules of Expert C. However, the system's knowledge base and predictability for preference of Expert C will increase over time as it learns more about the decision patterns of this expert.

6. Conclusion

The limitation of conventional ES and traditional machine induction techniques in knowledge engineering is in their requirement of explicit production rules from an expert on a large structured sample taken from a problem domain. This study has shown that an integrated system of ANN and ES can perform well with an initial knowledge base designed with the orthogonal plan to capture expertise in a problem domain. This optimal

sample contains only a subset of all possible production rules in a problem domain. Consequently, much less cognitive effort is required from the experts since they make judgments only on a set of fewer examples. In addition, holistic assessment does help experts to overcome the difficulty in expressing explicitly the production rules of their heuristics. Any counter-examples in generalization will be added to retrain the network in order to enlarge its knowledge base. This approach is particularly attractive, as the knowledge base of the integrated system will grow over time as the system learns new patterns in the same way human beings broaden their knowledge.

To acquire a robust knowledge base for the integrated ANN-ES system, one may consider aggregating judgments of multiple experts in a composite training set or in a composite individual ANNs. The result from this aggregation may provide a starting point for negotiation in a group decision support system. In a future work, we shall report on the implementation of such system and show that once the system aggregates group preference from individual judgments, it will provide a consensus solution for the group in a decision problem.

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Appendix 1. Results in Learning and Predicting Preference of Experts A and B

Training Set	Expert A		Expert B	
	Score	Prediction	Score	Prediction
1 2 2 3 3	50	54.63	45	47.64
1 3 3 1 2	40	39.50	46	48.07
1 4 3 2 1	45	44.90	54	53.86
1 5 1 3 3	60	60.49	65	62.25
2 1 2 2 2	35	33.43	42	44.89
2 2 3 3 1	50	49.79	52	51.02
2 3 3 1 3	55	55.08	57	56.56
2 4 1 3 1	40	38.26	58	57.88
2 5 1 1 3	45	44.46	63	64.50
3 1 3 3 3	70	69.89	58	56.85
3 2 3 1 1	35	34.78	52	51.85
3 3 1 2 3	50	49.48	62	61.35
3 4 1 3 2	55	55.81	69	69.81
3 5 2 1 1	40	40.39	70	70.78
4 1 3 3 3	75	73.78	65	65.46
4 2 1 1 2	30	29.72	55	53.62
4 3 1 3 1	45	43.61	66	66.33
4 4 2 1 3	60	60.88	76	76.05
4 5 3 2 1	65	68.24	83	82.35
5 1 1 1 1	20	24.21	52	49.95
5 2 1 2 3	55	54.31	68	69.03
5 3 2 3 1	60	61.66	75	77.07
5 4 3 1 3	75	73.99	85	82.91
5 5 3 3 2	90	82.35	93	87.42
<u>Test Set 1</u>				
3 3 1 2 1	30	29.83	55	54.75
5 1 3 1 1	40	38.39	58	58.26
1 5 2 3 3	70	69.51	68	65.09
4 4 2 2 2	60	62.35	76	77.24
1 4 3 3 2	65	65.45	62	58.44
<u>Test Set 2</u>				
3 1 2 2 2	40	38.16	48	48.65
3 4 1 2 2	45	44.49	63	66.28
1 4 3 3 3	75	72.76	65	60.48
2 2 2 2 3	50	49.44	52	50.61
4 1 1 2 3	45	42.47	55	53.71

Appendix 2. Results in Learning and Predicting Preference of Expert C

First Run			Second Run		
Training Set	Score	Prediction	Training Set	Score	Prediction
1 2 2 3 3	30	26.95729	1 2 2 3 3	30	27.86282
1 3 3 1 2	40	38.94524	1 3 3 1 2	40	37.15381
1 4 3 2 1	60	59.76158	1 4 3 2 1	60	60.95514
1 5 1 3 3	50	50.36586	1 5 1 3 3	50	50.32877
2 1 2 2 2	30	32.01082	2 1 2 2 2	30	34.2081
2 2 3 3 1	60	60.53619	2 2 3 3 1	60	60.18925
2 3 3 1 3	50	51.25394	2 3 3 1 3	50	52.09837
2 4 1 3 1	60	59.45174	2 4 1 3 1	60	59.10262
2 5 1 1 3	70	69.31223	2 5 1 1 3	70	69.52824
3 1 3 3 3	95	87.93129	3 1 3 3 3	95	88.05566
3 2 3 1 1	95	94.61041	3 2 3 1 1	95	92.54405
3 3 1 2 3	80	81.79112	3 3 1 2 3	80	80.6783
3 4 1 3 2	90	89.84055	3 4 1 3 2	90	92.66843
3 5 2 1 1	90	96.23819	3 5 2 1 1	90	96.90807
4 1 3 3 3	80	84.30698	4 1 3 3 3	80	83.20506
4 2 1 1 2	70	68.95001	4 2 1 1 2	70	67.50552
4 3 1 3 1	70	70.09775	4 3 1 3 1	70	69.33841
4 4 2 1 3	90	88.72336	4 4 2 1 3	90	88.78882
4 5 3 2 1	95	96.38002	4 5 3 2 1	95	97.11317
5 1 1 1 1	60	60.36818	5 1 1 1 1	60	60.69984
5 2 1 2 3	60	59.5041	5 2 1 2 3	60	61.01624
5 3 2 3 1	80	79.36691	5 3 2 3 1	80	79.62003
5 4 3 1 3	90	89.9671	5 4 3 1 3	90	90.27477
5 5 3 3 2	95	95.8607	5 5 3 3 2	95	97.06953
			3 3 1 2 1	70	70.63234
			5 1 3 1 1	65	65.18605
<u>Test Set 1</u>			<u>Test Set 2</u>		
3 3 1 2 1	70	81.70384	3 1 2 2 2	50	63.24843
5 1 3 1 1	65	79.42801	3 4 1 2 2	60	93.34921
1 5 2 3 3	70	63.60191	1 4 3 3 3	60	59.30336
4 4 2 2 2	95	94.17838	2 2 2 2 3	40	49.93819
1 4 3 3 2	60	59.23135	4 1 1 2 3	60	55.38448

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Financial Resources Management for SME'S of Mongolia

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Abstract

This paper Financial resources management analyzes the sources of financing for the medium enterprises in Mongolia by comparing between limited liability companies and public listed companies who are actively working in trading, manufacturing and service providing companies external and internal sources of finances. The paper gives an overview of the related theories of financial sources and capital structuring and aimed to approve based on the empirical studies on the selected three different industries 14 companies (based on the empirical studies done on 14 companies within three different industries). This paper also defined an optimal capital structure for the selected industries and each company based on the scenario analysis and assumptions. This paper investigates the sources of financing for the medium enterprises in Mongolia in different ownership structures by a capital structure theories and their impact on corporate financial performances. There are several theories regarding the process of business financing in general, companies can obtain sources of finances from short term sources, debt finance, venture capital, equity finance and internal sources.

Keywords: Small & Medium Sized Enterprises (SME), capital structure, optimal capital structure, financial performances

1. Introduction

1.1 Statement of the Problem

The primary purpose of the business is to maximize shareholder's value and in order to fulfill that each business needs sources of finance. Why and how to finance a business is one of the key concerns for business owners or business executives.

However, depending on the business enterprise's background, type of operation, financial position and business sector, business entities are available to use (single or multiple types of financial sources) in Mongolia.

This paper is only exploring medium enterprises that are actively operating at the Mongolian market in particular with trading, manufacturing and service providing industries.

Medium enterprises have difficulty to obtain finance from different sources because of tight liquidity constraints. So, most of medium enterprises lack experience and expertise to collect financial sources from short term sources, debt finance, venture capital, equity finance and internal sources. However, some enterprise's financial position, strategy and executive's knowledge and experience who are using different type of sources of finances. So, this paper is aimed to explore a different type of financial sources management by exploring internal and external sources of financial instrument.

1.2 Purpose

Mongolian medium enterprises face a number of difficulties and challenges including tax pressure, financial sources, financial position of buyers etc., from business communities on their firms' entire life. But one of the biggest problems is sources of finances for their main business activities and further strategic diversifications.

Most of medium-scale enterprise has limited resources on their workforce, financial, physical, and educational and knowledge. Specially, financing is the most difficult work to deal with. So, this paper 'Financial sources management' analyzes the sources of financing for the medium enterprises in Mongolia by comparing between trading, manufacturing and service providing companies external and internal sources of finances. This paper also defined an optimal capital structure for the selected industries and each company based on the scenario analysis and assumptions.

Every business enterprise has own financial strategy and its sources based on their business and ownership

structure. However, depending on their scope of business, they are using different sources of finances from different type of financial institutions such as local banks, international banks, SME funds etc..

Medium enterprises cannot operate properly without any funding. In order to create a fund, enterprises need to use some certain sources. But depending on the enterprise background and capacity, some sources of funding are limited for them.

1.3 Methodology

The financial statements were obtained for selected 14 enterprises and they are categorized into three groups based on their business activities namely Manufacturing (5), Trading (5) and Service providers. From the financial statements, various financial ratios were derived. Using the financial ratios, the enterprises were ranked and categorized as well performing (WP) and non-well performing enterprises (NWP). At the same time, in order to compare a capital structuring, this paper also selected 13 companies who are publicly listed on the Mongolian Stock Exchange and calculated each industry beta that measure the volatility of the security in comparison to the TOP-20 index. Therefore, paper also calculated debt to equity ratio between industries and defined an existing capital structure that is aimed to compare between Limited Liability Company and public listed companies. Last chapter of the paper defines an optimal capital structure of the selected industries.

The paper uses carefully analyzed and chosen research methods and techniques, including the rationale behind a qualitative research approach. Additionally, the exploited data collection and analysis methods are characterized.

1.4 Selected Enterprises

In order to analyze and understand medium-sized enterprises sources of finances and its capital structures, this paper obtained financial statements for selected three industries from a primary source on both of Limited Liability Company and public listed companies.

Based on the collected data, this paper analyzed 14 companies, three (Note: numbers from 1-10 should be written out in sentences) years financial performances in 3 different industries. Selected industries are based on the majority number of business enterprises. A study is selected 14 enterprises based on the Top Taxpaying Mongolian Small and Medium Enterprises' (2016) by General Department by Taxation, Mongolia and categorized enterprises into 3 industries by business activities. Manufacturing (5), Trading (5) and Service providers (4). In order to keep confidentiality, names of the industries are not given here, instead codes are used. As of 4th quarter, 2015 there are 64, 301 actively operating business registers in Mongolia and based on the World Bank assumption 98% (63,014) are SMEs (population) based on the registered entities at National Statistics Office of Mongolia. This paper aimed to perform both of qualitative and quantitative analysis for the sources of finances for the selected enterprises, financial performance analysis for 3 consecutive years.

1.5 Selected Medium-sized Enterprises

This paper used selection methodology to define selected enterprises of 3 different industries financial statements of medium enterprises including 5 trading, 5 manufacturing and 4 service providing industries of Mongolia, totally 14 enterprises on 3 industries, during 2014 to 2016.



Figure 1. Population of the selected medium-sized enterprises

Trading Manufacturing Service provider

Source: Author's selected industries

2. Literature Review

2.1 General Review of the Literature

This chapter reviewed the literature review and theoretical frameworks related with the sources of finances and enterprise capital structures including definition and types/classifications of sources of finances, definition of capital structure, Modigliani-Miller theorem, trade-off and pecking-order and agency theories. The theory of capital structure was initiated by Modigliani and Miller since 1958 discussing on the effect of capital structure on the firm value by concluding their work that the "capital structure is irrelevance" which means that the firm value was not influenced by the financial structure.

2.2 Introduction to Small and Medium Enterprises (SMEs)

(Togtokhbuyan Lkhagvasuren, 2014), there is no single, uniformly accepted, definition of a small enterprise (Storey, 1994).

((OECD), 2005), Small and medium-sized enterprises (SMEs) are non-subsidiary, independent firms which employ less than a given number of employees. This number varies across countries. The most frequent upper limit designating an SME is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while the United States considers SMEs to include firms with fewer than 500 employees.

Essentially, small and medium enterprises definitions measured by firm size such as number of employees and annual turnover and which means firms differ in their levels of capitalization, sales and employment. In Mongolia, 'Law of Small-Medium Enterprise' of Mongolia (adopted in 27 June, 2007), as defined; a business is considered to be an SME if:

- Its number of employees are up to 9-19, annual sales turnover up to 50-250 million tugriks are small enterprises
- Its number of employees are up to 49-199, annual sales turnover up to 1.5 billion tugriks as defined by medium enterprises

Those who engage (Companies that engage...) in manufacturing, wholesaling, retailing, trading, service providing, individual or entities are defined as small and medium enterprises.

Table 1. SME Law of Mongolia (2007)

Category	Sector	Number of employees	Annual revenue in MNT
Medium	Manufacturing	No more than >199	Up to >1.5 billion
	Wholesale trade	No more than >149	Upto >1.5 billion
	Retail trade	No more than > 199	Upto >1.5 billion
	Services	No more than > 49	Upto >1.0 billion
Small	Small Trade/services	No more than > 9	Up to >250 million
	Manufacturing	No more than > 19	Up to >250 million

This paper analyzes external and internal sources of finances for selected 14 medium enterprises on 3 different industries in Mongolia. As of Q4, 2015 (Business register, NSO), there are 64,301 entities are registered at National Statistics Office and those entities are engaged in below industries.

2.3 Pecking order Hypothesis

While the trade-off model of corporate leverage has to be considered the "mainstream" choice as the dominant capital structure theory today, there are several regularities in observed corporate behavior that it cannot explain. Three real-world patterns are particularly hard to reconcile with even the most sophisticated trade-off model:

- 1) Within almost every industry, the most profitable firms have the lowest debt ratios, which is exactly opposite of what the trade-off model predicts;
- 2) Leverage increasing events, such as a stock repurchase and debt-for-equity exchange offers are almost invariably associated with large positive abnormal returns for a company's stockholders, while leverage-decreasing events lead to stock price declines. According to the trade-off model, these events should both net out to zero abnormal returns, since some firms will be below their "optimal" debt level when they increase leverage, while others will be above the optimum;
- 3) Firms issue debt securities frequently, but seasoned equity issues are very rare. Announcements of new issues of seasoned equity are invariably greeted with a decline in the firm's stock price (Myers & Majluf, 1984). Donaldson (1961) has found a pecking order for how firms establish their long-term financing: Firms

prefer internal financing to external financing of any sort (debt or equity), when financing positive NPV projects. When a firm has insufficient cash flow from internal sources, it sells off part of its investment in marketable securities. As a firm is required to obtain more external financing, it will work down the pecking order of securities, starting with very safe debt, then progressing through risky debt, convertible securities, preferred stock, and lastly common stock.

The pecking order Hypothesis does not provide a formula for calculating an optimal capital structure but it helps to explain observed patterns regarding financing preferences.

Table 2. Number of business register in Mongolia (Q-4, 2015)

Divisions	2015 4/4
Total	64 301
Agriculture, forestry and hunting	3 329
Mining and quarrying	655
Manufacturing	5 176
Electricity, gas and water supply	251
Construction	5 390
Wholesale and retail trade, repair of motor vehicles, household goods	23 415
Hotels and restaurants	1 957
Transport, storage and communications	2 296
Financial services	1 830
Real estate, renting and other business activities	6 121
Public administration and defense, compulsory social security	1 434
Education	2 973
Health and social work	3 116
Other community, social and personal services	6 334
Extra-territorial organization and bodies	24

Most of active establishment entities had 1-9 employees and majority of them are limited liability companies as registered by Q3, 2015 (Business register, NSO).

Table 3. Number of business register by employees in Mongolia (Q-3, 2015)

Business Register	Q-3, 2015			
	Number of employees			
	1-9	10-19	20-49	50+
Total	54 514	4 936	3 853	2 408

World Bank (2014) stated that SMEs make up 98% of all enterprises in Mongolia (about 80% of which are microenterprises). They contribute 25% to GDP and employ 52% of the workforce.

2.4 Signaling Hypothesis

1. What is valued in the market place is the perceived returns for the firm. However, managers of the firm have access to information about the firm that the public does not have access to. Therefore managers might select to use financial policy decisions to convey this information to the market.
2. The signaling Hypothesis suggests that a higher financial leverage can be used by managers to signal an optimistic future for the firm. Unsuccessful firms cannot mimic these signals because such firms do not have sufficient cash flow to back them up (Ross, 1977).
3. The signaling Hypothesis offers a good prediction of the market responses to the different types of security issues. Debt issues are signaling good news, and are greeted with a positive stock price response, while equity issues signal bad news, so that it brings a decline of stock price. However, observed capital structure patterns suggest that the signaling Hypothesis does not predict actual behavior very well. For example, leverage ratios have been found to be inversely related to profitability

in most industries and not directly related as the signaling Hypothesis predicts them to be.

4. Another proof to be found is that the signaling hypotheses predicts that industries with extensive growth options and other intangible assets should employ more debt than mature and tangible-asset wealthy industries, since growth companies have more severe information asymmetry problems, and therefore have a greater need for signaling. However, the total opposite has been found in empirical studies. It can therefore be concluded that the signaling Hypothesis does not explain the real world of modern corporate finance very well (Megginson, 1997).

2.5 Optimal Capital Structure

The optimal capital structure is the mix of debt and equity that maximizes a firm's return on capital, thereby maximizing its value. The target (optimal) capital structure is simply defined as the mix of debt, preferred stock and common equity that will optimize the company's stock price. Capital structure of a firm is determined by various internal and external factors. Following are the main factors which affect the capital structure decision.

2.6 Factors Determining Capital Structure

Table 4. Factors determining capital structure

Trading on Equity	The word "equity" denotes the ownership of the company. Trading on equity means taking advantage of equity share capital to borrowed funds on reasonable basis. It refers to additional profits that equity shareholders earn because of issuance of debentures and preference shares. It is based on the thought that if the rate of dividend on preference capital and the rate of interest on borrowed capital is lower than the general rate of company's earnings, equity shareholders are at advantage which means a company should go for a judicious blend of preference shares, equity shares as well as debentures. Trading on equity becomes more important when expectations of shareholders are high.
Degree of control	In a company, it is the directors who are so called elected representatives of equity shareholders. These members have got maximum voting rights in a concern as compared to the preference shareholders and debenture holders. Preference shareholders have reasonably less voting rights while debenture holders have no voting rights. If the company's management policies are such that they want to retain their voting rights in their hands, the capital structure consists of debenture holders and loans rather than equity shares.
Flexibility of financial plan	In an enterprise, the capital structure should be such that there is both contractions as well as relaxation in plans. Debentures and loans can be refunded back as the time requires. While equity capital cannot be refunded at any point which provides rigidity to plans. Therefore, in order to make the capital structure possible, the company should go for issue of debentures and other loans.
Choice of investors	The Company's policy generally is to have different categories of investors for securities. Therefore, a capital structure should give enough choice to all kind of investors to invest. Bold and adventurous investors generally go for equity shares and loans and debentures are generally raised keeping into mind conscious investors.
Capital market condition	In the lifetime of the company, the market price of the shares has got an important influence. During the depression period, the company's capital structure generally consists of debentures and loans. While in period of boons and inflation, the company's capital should consist of share capital generally equity shares.
Period of financing	When company wants to raise finance for short period, it goes for loans from banks and other institutions; while for long period it goes for issue of shares and debentures.
Cost of financing	In a capital structure, the company has to look to the factor of cost when securities are raised. It is seen that debentures at the time of profit earning of company prove to be a cheaper source of finance as compared to equity shares where equity shareholders demand an extra share in profits.
Stability of sales	An established business which has a growing market and high sales turnover, the company is in position to meet fixed commitments. Interest on debentures has to be paid regardless of profit. Therefore, when sales are high, thereby the profits are high and company is in better position to meet such fixed commitments like interest on debentures and dividends on preference shares. If company is having unstable sales, then the company is not in position to meet fixed obligations. So, equity capital proves to be safe in such cases.
Sizes of a company	Small size business firm's capital structure generally consists of loans from banks and retained profits. While on the other hand, big companies having goodwill, stability and an established profit can easily go for issuance of shares and debentures as well as loans and borrowings from financial institutions. The bigger the size, the wider is total capitalization.

2.7 Theoretical Framework for Sources of Finances

2.7.1 Definition of Sources of Finances

Finance is the lifeblood of business concern, because it is interlinked with all activities performed by the business concern.

Based on the definition of (C.Paramasivan), sources of finance mean the ways for mobilizing various terms of finance to the industrial concern. Sources of finance state that, how the companies are mobilizing finance for their requirements. The both new and existing companies need amount of financial resources to meet the long-term and short-term requirements such as purchasing of fixed assets, construction of office building, purchase of raw materials and day-to-day expenses.

2.7.2 Financial Leverage and Capital Structure

Firm specific factors, firm ownership factors and country specific factors that affect the corporate financing patterns and have impact on firm's financial performance. A firm's capital structure (or financial Based on the above stated theories, this thesis will define an optimal target structure of selected 3 industries, 14 companies.

2.7.3 Definition of Capital Structure

Definitions initiated the meaning and objective of the capital structures.

- According to the definition of Gerestenbeg, "Capital Structure of a company refers to the composition or make up of its capitalization and it includes all long-term capital resources".
- According to the definition of James C. Van Home, "The mix of a firm's permanent long-term financing represented by debt, preferred stock, and common stock equity".
- According to the definition of Presana Chandra, "The composition of a firm's financing consists of equity, preference, and debt". 48 Financial Management
- According to the definition of R.H. Wessel, "The long term sources of fund employed in a business enterprise".

Paramasivan defined that (Chapter-5, Financial Management, 2008) capital is the major part of all kinds of business activities, which are decided by the size, and nature of the business concern. Capital may be raised with the help of various sources. If the company maintains proper and adequate level of capital, it will earn high profit and they can provide more dividends to its shareholders.

Financing patterns formal researches started by 2 Nobel laureates, Franco Modigliani and Merton Miller (1958) presented the capital structure irrelevance theory. Modigliani and Miller theory (1958) which was on restrictive assumptions was also under constant focus for other researchers, Myers (1984).

2.7.4 Modigliani-Miller Theorem

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) capital structure irrelevance proposition. Before Modigliani and Miller, there was no generally accepted theory of capital structure.

They start by assuming that the firm has a particular set of expected cash flows. When the firm chooses a certain proportion of debt and equity to finance its assets, all that it does is to divide up the cash flows among investors. Investors and firms are assumed to have equal access to financial markets, which allows for leverage. The investor can create any leverage that was wanted but not offered, or the investor can get rid of any leverage that the firm took on but was not wanted. As a result the leverage of the firm has no effect on the market value of the firm.

There are two fundamentally different types of capital structure irrelevance propositions. The classic arbitrage-based irrelevance propositions provide settings in which arbitrage by investors keeps the value of the firm independent of its leverage.

2.7.5 Savings and Credit Cooperatives

According to FRC, there are close to 200 SCCs in Mongolia having an asset size of about USD 40 million in total. Regarding their asset size, SCCs have less than 0.5% share in Mongolia's financial sector.

SCCs serve about 27,000 customers, most of which are low-income rural households. Similar to NBFIs, SCCs are licensed, regulated, and supervised by the FRC. The services provided by SCCs are: loans (only to members), payment guarantee, currency exchange, remittances, factoring, leasing, short-term investment, trust funds, and

electronic payments. According to the Mongolian Confederation of Credit Unions, most members of SCCs are women. SCCs clients mostly work in the informal sector and have no capacity to borrow at banks or NBFIs

2.7.6 Support Institutions for SMEs

Mongolia has recognized the potential of SMEs and has established several programs to support SMEs in the terms of funding and capacity building. The Ministry of Labor (MOL) assumes the overall regulatory role.

The SME Development Department unit at the MOL is the only department authorized by law to undertake the regulatory changes relevant for SMEs. On behalf of the government, the MOL so far has initiated two large-scale national programs for the development of SMEs. While the first program implemented between 1999-2004 prioritized issues related to infrastructure, the second program, launched in 2006 and accomplished in 2012, focused upon enhancement of the legal and policy framework, in particular the law on SMEs, Law on Legal Status of Industries, Law on Science and Technology and the Law on Credit Guarantee Fund enacted in this period.

Other programs launched by MOL were the SME support program and SME support fund, providing training through public bodies and loans at below-market rates through commercial banks. Furthermore, international agencies and NGOs provide various kinds of support to Mongolian SMEs and initiated a series of programs combining capacity building activities and financial support.

2.7.7 Mongolian Financial Sector Overview

Mongolian financial sector consists of the banking sector and non-bank financial institutions, (NBFIs) such as, savings and credit cooperatives (SCCs), securities and brokerage firms and insurance companies. (Securities, 2015), financial sector has been and is the fastest growing sector of Mongolia since 2010. It has grown 20% in 2014 and accounts for 5% of total GDP of 2014.

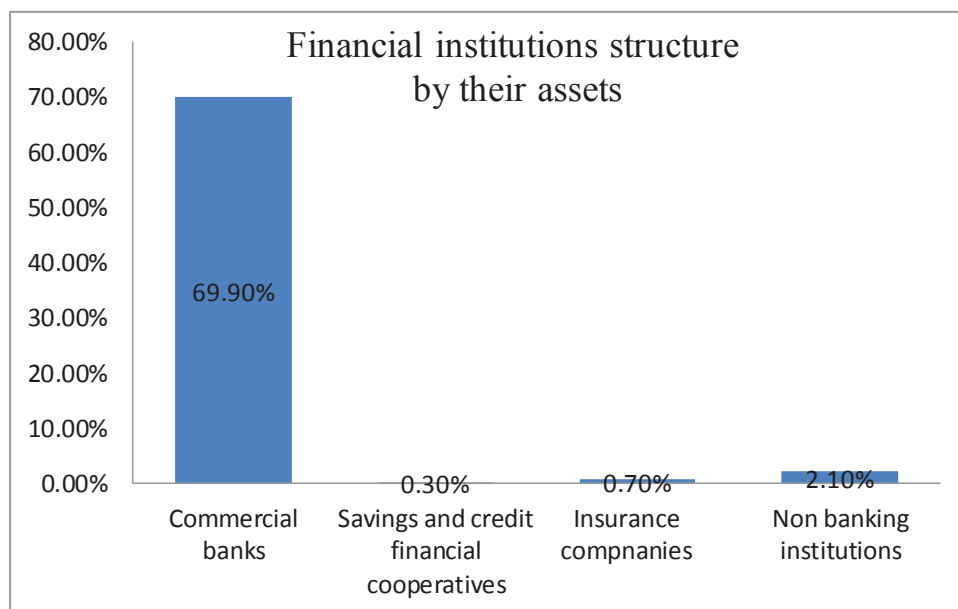


Figure 2. Financial institutions structure by their assets

- As of December 2014, Mongolian financial sector is consisting of 13 commercial banks, 1 development bank, 195 small NBFIs, 159 savings & credit cooperatives and 17 insurance companies.
- More than 96% percent of financial sector assets are held by the commercial banks as of 2014.
- According to the consolidated balance of the savings and credit cooperatives as of December 2014 (compiled by the FRC) total asset of the savings and credit cooperatives 80,527.8 mill tugriks, which accounts for only 3% of total bank assets.

Total profit of the total savings and credit cooperatives was 3,968.9 million tugriks in 2014, 2.5% lower than the previous year.

There are totally 17 insurance companies are operating in Mongolia and total assets of these companies reached to 152,522.8 million in 2014, which increased by 40.4% from 2013 level.

3. Hypotheses

Statement of the Hypothesis

Based on the literature review and theoretical studies, this paper defined below Hypothesis.

1. Hypothesis-1: Sources of finance varies with type of industries
2. Hypothesis-2: Sources of finance varies by enterprise's financial performances
3. Hypothesis-3: Enterprise capital structure varies with type of industries
4. Hypothesis-4: Capital structure varies by type of ownership
5. Hypothesis-5: Optimal capital structure varies by type of industries

4. Methods and Procedures

In order to confirm the above Hypothesis, as the first step, all the possible sources of finances, available in literature are listed. However, during this empirical study, it was observed that all the sources of finances are not exactly used by the Medium Enterprises. Based on the financial statements of the selected Medium enterprises, the following major sources of finances are identified.

4.1 Data and Methodology

The financial statements were obtained for selected 14 enterprises and they are categorized into three groups based on their business activities namely Manufacturing (5), Trading (5) and Service providers. From the financial statements, various financial ratios were derived. Using the financial ratios, the enterprises were ranked and categorized as well performing (WP) and non-well performing enterprises (NWP). In the same time, in order to compare a capital structuring, this paper also selected 13 companies who are publicly listed at the Mongolian Stock Exchange and calculated each industry beta that measure the volatility of the security in comparison to the TOP-20 index. Therefore, paper also calculated debt to equity ratio between industries and defined an existing capital structure that is aimed to compare between Limited Liability Company and public listed companies. Last chapter of the paper is defined an optimal capital structure of the selected industries.

The paper carefully analyzed and chosen research methods and techniques are described, including the rationale behind a qualitative research approach. Additionally, the exploited data collection and analysis methods are characterized.

4.2 Selected Enterprises

In order to analyze and understand medium-sized enterprises sources of finances and its capital structures, this paper obtained financial statements for selected 3 industries from a primary source on both of Limited Liability Company and public listed companies.

Based on the collected data, this paper analyzed 14 companies, 3 years financial performances in 3 different industries. Selected industries are based on the majority number of business enterprises. A study is selected 14 enterprises based on the Top Taxpaying Mongolian Small and Medium Enterprises" (2014) by General Department by Taxation, Mongolia and categorized enterprises into 3 industries by business activities. Manufacturing (5), Trading (5) and Service providers (4). In order to keep confidentiality, names of the industries are not given here, instead codes are used. As of 4th quarter, 2015 there are 64,301 actively operating business registers in Mongolia and based on the World Bank assumption 98% (63,014) are SMEs (population) based on the registered entities at National Statistics Office of Mongolia.

4.3 Data Collection

Data collection instruments for this paper are based on the mixture of observation grid study and scenario analysis and assumptions. All financial statements for the selected enterprises are collected from its primary and secondary sources.

This paper used all reliable and official sources for the data collections. Data collection sources include:

- Online sources (reliable and official sources) such as www.nso.mn, www.1212.mn, www.sme.gov.mn, www.worldbank.com, www.mongolbank.mn, www.oecd.org, www.frc.mn, www.mse.mn, www.imf.com etc.,
- Official textbooks (Corporate finance. Fundamental of Financial Management, Research Methods, Statistics etc.,)
- Previous studies and researches (Regarding the financing pattern, capital structure,

SME etc.) from EBSCO system

- Scenario analysis and assumptions for selected companies

Data collection process continued 4 weeks after defined all reliable and official sources.

4.4 Data Analysis

Data analysis procedures implemented based on the Gant-chart paper project implementation plan. Data analysis process completed 4 weeks after collected all required data. Each process's improvement done by paper mentors guideline on weekly basis.

Literature review and theoretical framework sessions used Mendeley Desktop and sampled company's financial performance analysis calculated at Microsoft Excel.

This paper analysis used below software for data analysis:

- Mendeley Desktop (Free reference manager and PDF organizer)
- Microsoft Word 2010
- Microsoft Excel 2010
- Microsoft ThinkCell 2010
- Microsoft Visio (Professional Flow Chart and Diagram Software)

This paper used arithmetic mean (an average is the sum of a list of numbers divided by the number of numbers in the list) method for financial statement analysis and industry average.

This paper calculated enterprise's financial performance analysis per each enterprise (based on the financial statement 2012-2014). But before calculating ratio analysis, this is calculated average basis on the 3 years data (But, in some cases, depending on the given set of numbers, average is calculated by each year that means in case only 2 years revenue available, calculated 2 years average). Main reason for choose in average is in statistics, an average is defined as the number that measures the central tendency of a given set of numbers. So, in order to measure a central tendency this paper calculated averages per each set of numbers. In order to show an industry tendency it's also calculated

- Mean (arithmetic mean are that helps to measures of central tendency),
- Standard deviation (STDEV) (a measure that is used to quantify the amount of variation or dispersion of a set of data values),
- Coefficient variation (CV) (Measure of the dispersion of data points in a data series around the mean)
- Standard error (SE) (standard deviation of the sampling distribution of a statistic)
- Confidence interval (CI) is a type of interval estimate of a population parameter

4.5 Limitations and Delimitations

This paper has a limitation to identify all potential sources of finances for Mongolian medium-sized enterprises. Regarding the sampling, there are also certain limitations and this paper analyzed only 14 companies, 3 years financial performances (2012-2014) in 3 different industries. Any further improvement, it's better to analyze on more enterprises up to 5 different industries, 5 years financial performances by sampling method basis. In order to make an industry comparison researches, it's better to select enterprises by its main business sectors such as mining, construction etc., In this paper, I categorized enterprises into 3 different industries, however some of the selected industries example in manufacture different range of products including socks, textiles, noodles, iron, concrete, etc.,

Initial idea for this paper was to organize an interview based questionnaire for selected companies and explore their existing sources of finances and define some of influential factors to obtain sources of finances. However, this paper is aimed to concentrate on the quantitative analysis for the sources of finances and capital structuring and its optimal structure assumptions. So, all analysis aimed to define existing sources of finances for different industries and its existing capital structure and assumption of an optimal capital structures.

In order to keep selected companies confidentiality, this paper used a 2 x multiplier on the all collected financial statement data that means all calculated primary variables are converted into multiplier before all financial performance calculations.

5. Empirical Findings

This paper is aimed to define sources of finances of different type of industries including trading (5), manufacturing (5) and service providing (4) medium enterprises (total 14 companies) that are actively operating their business during the selected period (2012-2014) in Mongolian market.

5.1 Hypothesis-1: Sources of Finance Varies with Type of Industries

In order to confirm above Hypothesis, this research listed all sources of finances on theories. However, during this empirical study all of sources of finances are not exactly used in a real life that approved based on the observatory analysis. Medium enterprises only use below listed sources of finances is commonly that are stated by numeral parameters on their financial statements.

Table 5. Sources of finances by industries

		Trading	Manufacturing	Service providing	Using sources	Total companies
Short term	Overdrafts	5	4	3	12	14
	Short-term loans	3	3	1	7	14
	Trade credit				0	14
	Leasing				0	14
Long term	Bonds	1	3	1	5	14
	Security				0	14
Venture capital	Venture capital	0	3	1	4	14
Equity finance	Ordinary shares	5	5	4	14	14
	Stock market listing				0	14
Internal sources	Retained earnings	4	5	3	12	14
	Increasing WCM efficiency				0	14
	Dividend				0	14
	Stock split				0	14
	Share repurchase				0	14
	Total	18	23	13	54	14

Author's empirical study result

Based on this empirical study, there are only 6 popular sources of finances for medium enterprises that are including, ordinary shares (14 out of 14), overdrafts (14 out of 14), retained earnings (12 out of 14), short-term loans (7 out of 14), bonds (5 out of 14) and venture capitals (4 out of 14). TOP-3 sources of finances are including ordinary shares (100% of selected industries), overdrafts (86% of selected industries) and retained earnings (86% of selected industries). That means medium enterprise has a trend that mainly uses internal sources including ordinary shares, overdrafts and retained earnings.

Table 6. Top sources of finances by industries

		Trading	Manufacturing	Service providing	Using sources	Total companies	Percentage	Ranking
Equity finance	Ordinary shares	5	5	4	14	14	100%	1
Short term	Overdrafts	5	4	3	12	14	86%	2
Internal sources	Retained earnings	4	5	3	12	14	86%	2
Short term	Short-term loans	3	3	1	7	14	50%	3
Long term	Bonds	1	3	1	5	14	36%	4
Venture capital	Venture capital	0	3	1	4	14	29%	5
	Total	18	23	13	54	14		

Author s empirical study result

In order to approve estimated Hypothesis-1, this paper defined sources of finances by each industry. However, depending on the industry specific factors, there is a small variation between trading, manufacturing and service providing industries.

Trading companies' sources of finances:

Trading companies use 5 different sources of finances including ordinary shares (5 of 5), overdrafts (5 of 5) and retained earnings (4 of 5). 3 of 5 trading companies are using short-term loans, 1 of 5 companies is using bonds (long-term loans) and 0 of 5 companies are using venture capitals.

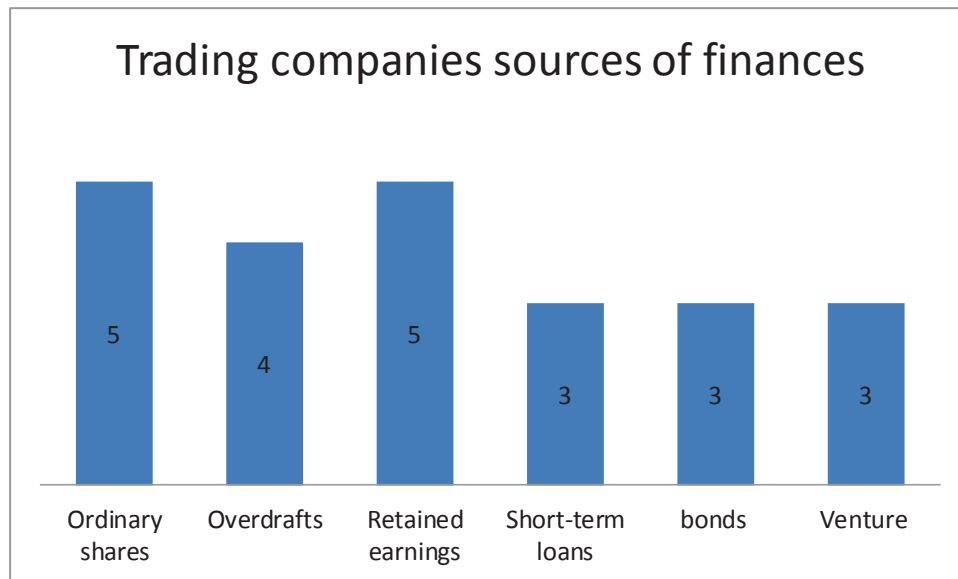


Figure 3. Top sources of finances by industries

Source: Author's empirical study result

There is a general trend of trading companies from the above list, trading companies mainly uses ordinary shares, overdrafts and retained earnings, but depending on the type of business activity and range of product, short-term loan and bonds look the popular sources in this area.

Manufacturing companies sources of finances:

Manufacturing companies are using 6 different sources of finances including ordinary shares (5 of 5), retained earnings (5 of 5), overdrafts (4 of 5), short-term loans (3 of 5), bonds (3 of 5) and venture capital (3 of 5).

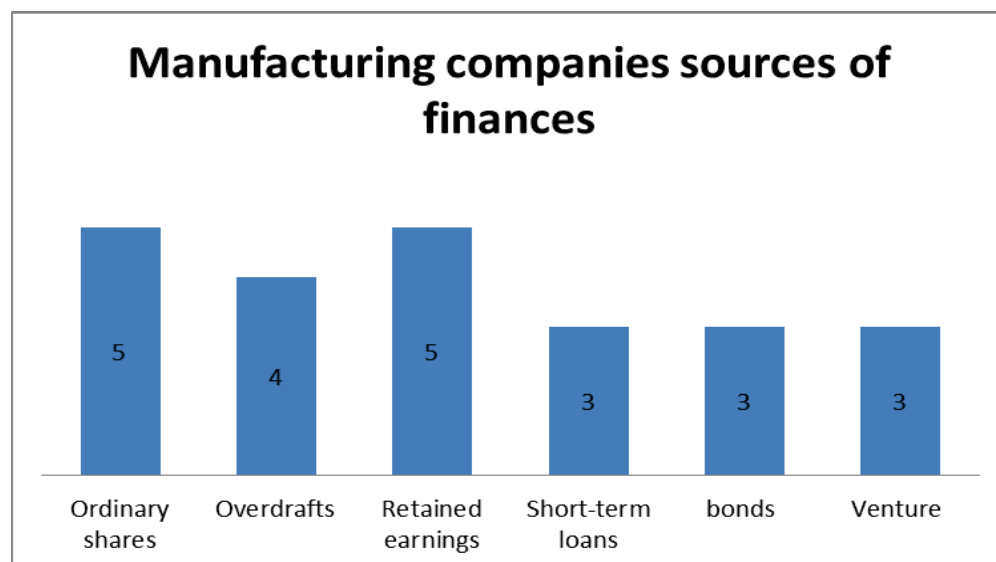


Figure 4. Manufacturing companies sources of finances

Author's empirical study result

Manufacturing companies' common sources of finances are defined by both of external and internal sources. Based on this observation study, manufacturing companies mainly use internal sources of finances including ordinary shares, retained earnings and overdrafts. And over 60% of selected manufacturing companies use external sources of finances thorough financial leverages such as bonds (long-term loans) and short term loans and venture capitals.

5.1.3 Service Providing Companies' Sources of Finances

Service providing companies are also using 6 different sources of finances including ordinary shares (4 of 4), overdrafts (3 of 4), retained earnings (3 of 4), short-term loans (1 of 4), bonds (1 of 4) and venture capital (1 of 4).

Comparison of sources of finances between industries

This paper shown a number of sources of finances by type of industries, but there is no difference on the number of sources of finances and all 3 type of industries including trading (5), manufacturing (5) and service providing (4) companies are all using 6 same type of sources of finances on their operation.

Table 7. Comparison of sources of finances between industries

		Trading	Manufacturing	Service providing
Equity finance	Ordinary shares	5	5	4
Short term	Overdrafts	5	4	3
Internal sources	Retained earnings	4	5	3
Short term	Short-term loans	3	3	1
Long term	Bonds	1	3	1
Venture capital	Venture capital	0	?	1
	Using sources	18	23	13
	Total companies	30	30	24

Source: Author's empirical study result

But, comparing with trading an service providing industries, manufacturing companies are using 6 types, 23 sources out of 30 that means who uses higher financial leverages on their activity. Trading industry uses much lower financial leverages from external sources and who mainly uses internal and short term sources. Trading companies uses 5 types, 18 sources out of 30 who mainly use internal sources of finances including ordinary shares, overdrafts and retained earnings.

5.2 Hypothesis-2: Sources of Finance Varies by Enterprise's Financial Performances

In order to approve above Hypothesis, this paper analyzed financial performances of the selected 3 industries 14 companies based on financial statement of 2012-2014. Generally, financial performance analysis is the process of identifying the financial strengths and weaknesses of the firm, in order to evaluate financial condition and performance of the selected medium enterprises, this paper used financial ratio analysis that is one of the widely used and powerful tools.

This paper ratio analysis is classified into below 5 broad groups:

This paper calculated above stated financial performance analysis per each enterprise (based on the financial statement 2012-2014). But before calculating ratio analysis, this is calculated average basis on the 3 years data (But, in some cases, depending on the collected set of numbers, average is calculated by each year that means in case if only 2 years revenue are available, calculated 2 years average only).

Main reason for choose in average is in statistics, an average is defined as the number that measures the central tendency of a given set of numbers. So, in order to measure a central tendency this paper calculated averages per each set of numbers.

Table 8. Financial ratio analysis

№	Group	Ratio	Formula	Description
1	Liquidity Ratios	Current ratio	Current asset/current liabilities	Measures the amount of liquidity available to pay for current liabilities
2		Quick (Acid test) ratio	Current asset-inventory/current liabilities	Strong indicator of whether a firm has sufficient short-term assets to cover its immediate liabilities
3	Working Capital Ratios	Inventory turnover ratio	COGS/Average inventory	Measures the amount of inventory needed to support a given level of sales
4		Receivable turnover ratio	Sales/Average receivable	Activity ratio measuring how efficiently a firm uses its assets
5		Payable turnover ratio	Cost of Goods Sold/Average payables	Measures the speed with which a company pays its suppliers.
6		Cash ratio	Cash/current liability	An indicator of a company's liquidity that further refines both the current ratio and the quick ratio by measuring the amount of cash, cash equivalents or invested funds there are in current assets to cover current liabilities
7	Profitability Ratios	Gross Profit Margin	(Sales - COGS) / Sales	Shows revenues minus the cost of goods sold, as a proportion of sales
8		Operating Profit Margin	(Sales COGS-Operating Expenses) / Sales	A margin ratio used to measure a company's pricing strategy and operating efficiency
9		Net Profit Margin	Net income-interest expense-Foreign exchange rate gains (losses)/sales	Calculates the amount of profit after taxes and all expenses have been deducted from net sales
10	Solvency Ratios	Total asset turnover	Sales/Total assets	The value of a company's sales or revenues generated relative to the value of its assets
11		Return on Equity (ROE)	Net Income-Interest expense-Foreign exchange rate gains (losses)/Shareholder's Equity	Shows company profit as a percentage of equity
12		Return on Asset (ROA)	Net profit/total asset	Shows company profits as a percentage of fixed assets and working capital
13	Financial Leverage Ratios	Debt ratio	Total assets-Total equity)/Total assets	Shows the extent to which management is willing to fund operations with debt, rather than equity
14		Times Interest Earned	EBIT/ interest expense	A metric used to measure a company's ability to meet its debt obligations
15		Short-term Debt Ratio	Short term debt/Total asset	Comprised of any debt incurred by a company that is due within one year
16		Long-term Debt Ratio	Long term debt/Total asset	A measurement representing the percentage of a corporation's assets that are financed with loans and financial obligations lasting more than one year

In order to show an industry tendency it's also calculated

- Mean (arithmetic mean are that helps to measures of central tendency)
- Standard deviation (STDEV) (a measure that is used to quantify the amount of variation or dispersion of a set of data values)
- Coefficient variation (CV) (Measure of the dispersion of data points in a data series around the mean)
- Standard error (SE) (standard deviation of the sampling distribution of a statistic)

5.2.1 Manufacturing Companies Financial Performance and Descriptive Analysis

Below table shows each manufacturing companies financial performance analysis. Selected 5 manufacturing companies produce different range of products and depending on the product range and business feature, general performance shows as below: There are general tendency that manufacturing companies have higher inventories and receivables, higher profit abilities and uses financial leverages (both of short and long-term debt sources).

Table 9. Manufacturing companies financial performance and descriptive analysis

		MI	M2	M3	M4	M5	MEAN	STDEV	CV	SE
		RATIO	RATIO	RATIO	RATIO	RATIO				
LIQUIDITY RATIOS										
1	Current ratio	1,42	1,93	0,88	5,47	3,41	2,6	1,85	71	0,83
2	Quick (Acid test) ratio	0,69	1,59	0,50	5,01	0,88	1,7	1,88	109	0,84
WORKING CAPITAL RATIOS										
3	Inventory turnover	3,90	20,82	2,31	16,55	2,20	9,2	8,86	97	3,96
4	Receivable turnover ratio	8,98	26,97	15,37	19,52	0,00	14,2	10,27	72	4,59
5	Payable turnover ratio	12,47	27,67	6,72	0,05	0,00	9,4	11,47	122	5,13
6	Cash ratio	0,12	0,13	0,01	1,84	0,87	0,6	0,78	130	0,35
PROFIT ABILITY RATIOS										
7	Gross Profit Margin	0,18	0,22	0,44	0,18	0,82	0,4	0,28	74	0,12
8	Operating Profit Margin	0,03	0,21	-0,20	0,06	0,28	0,1	0,18	246	0,08
9	Net Profit Margin	-0,02	0,21	0,00	0,06	0,21	0,1	0,11	122	0,05
10	Total asset turnover	2,00	1,70	1,11	0,91	0,74	1,3	0,54	42	0,24
SOLVENCY RATIOS										
11	Return on Equity (ROE)	-0,02	0,43	0,08	0,09	0,37	0,2	0,20	104	0,09
12	Return on Asset (ROA)	-0,02	0,35	0,03	0,06	0,20	0,1	0,15	122	0,07
FINANCIAL LEVERAGE RATIOS										
13	Debt ratio	1,00	0,18	0,71	0,47	0,63	0,6	0,30	50	0,13
14	Times Interest Earned	-0,21	0,00	0,00	0,00	0,25	0,0	0,16	1861	0,07
15	Short-term Debt Ratio	0,57	0,18	0,71	0,10	0,02	0,3	0,30	96	0,14
16	Long-term Debt Ratio	1,28	0,00	0,00	0,37	0,60	0,4	0,53	117	0,24

5.2.2 Trading Companies' Financial Performance Analysis

The table below shows each trading company's financial performance analysis. Trading companies have a tendency that including higher inventory, higher total asset turnover and mainly use short term debt sources.

Table 10. Trading companies' financial performance analysis

		T1	T2	T3	T4	T5	MEAN	STDEV	CV	SE
		RATIO	RATIO	RATIO	RATIO	RATIO				
LIQUIDITY RATIOS										
1	Current ratio	0,83	0,99	2,38	0,55	2,08	1,4	0,81	60	0,36
2	Quick (Acid test) ratio	0,32	0,17	1,21	0,40	1,71	0,8	0,67	88	0,30
WORKING CAPITAL RATIOS										
3	Inventory turnover ratio	3,59	1,99	1,85	2,37	11,93	4,3	4,29	99	1,92
4	Receivable turnover ratio	394,12	601,82	3,09	1,80	9,59	202,1	279,93	139	125,19
5	Payable turnover ratio	3,19	1,72	0,43	1,03	0,06	1,3	1,23	96	0,55
6	Cash ratio	0,19	0,13	0,20	0,02	0,07	0,1	0,08	64	0,04
PROFIT ABILITY RATIOS										
7	Gross Profit Margin	0,34	0,62	0,30	0,15	0,24	0,3	0,18	53	0,08

5.2.3 Service Providing Company's Financial Performance Analysis

The table below shows each service providing company's financial performance analysis and main features that have higher current and quick ratio, lower inventory and receivables and mainly have short-term debt sources.

Table 11. Service providing company's financial performance analysis

	SI	S2	S3	S4	MEAN	STDEV	CV	SE	
	RATIO	RATIO	RATIO	RATIO					
LIQUIDITY RATIOS									
1	Current ratio	1,91	17,55	0,74	10,70	7,7	7,91	102	3,96
2	Quick (Acid test) ratio	1,59	10,32	0,49	8,96	5,3	5,02	94	2,51
WORKING CAPITAL RATIOS									
3	Inventory turnover ratio	11,46	1,95	1,39	0,95	3,9	5,03	128	2,52
4	Receivable turnover ratio	2,97	10,09	4,30	1,30	4,7	3,82	82	1,91
5	Payable turnover ratio	8,14	0,00	0,59	0,42	2,3	3,91	171	1,95
6	Cash ratio	0,02	4,06	0,03	1,45	1,6	2,33	144	1,16
PROFITABILITY RATIOS									
7	Gross Profit Margin	0,17	0,72	0,41	0,82	0,5	0,29	56	0,15
8	Operating Profit Margin	0,06	0,31	-0,73	0,22	0,0	0,48	1315	0,24
9	Net Profit Margin	0,07	0,32	-0,78	0,27	0,0	0,51	1710	0,26
10	Total asset turnover	2,28	1,08	0,26	0,37	1,0	0,93	93	0,47
SOLVENCY RATIOS									
11	Return on Equity (ROE)	0,30	0,31	-2,17	0,09	-0,4	1,21	-329	0,60
12	Return on Asset (ROA)	0,19	0,34	-0,27	0,10	0,1	0,26	289	0,13
FINANCIAL LEVERAGE RATIOS									
Li	Debt ratio	0,52	0,02	0,91	0,04	0,4	0,42	114	0,21
14	Times Interest Earned	14,96	0,00	-0,03	0,00	3,7	7,48	200	3,74
15	Short-term Debt Ratio	0,52	0,02	0,44	0,04	0,3	0,26	102	0,13
16	Long-term Debt Ratio	0,00	0,00	0,47	0,00	0,1	0,23	200	0,12

5.3 Hypothesis-3: Enterprise Capital Structure Varies with Type of Industries

In order to approve, H-3, this paper defined an existing capital structures of the selected 3 industries 14 companies based on the 2014 financial statement data.

Table 12. Manufacturing industry existing capital structures

D/E ratio	M1	M2	M3	M4	M5	Average	Median
Debt							
Equity	1,00	0,18	0,71	0,47	0,63	0,60	0,63
	1,01	0,11	0,64	0,56	0,47	0,56	0,56
	-0,01	0,89	0,36	0,44	0,53	0,44	0,44

Manufacturing industries existing capital structure showed by the mixture of 56% debt and 44% equity from the empirical study.

Table 13. Trading industry existing capital structures

D/E ratio	T1	T2	T3	T4	T5	Average	Median
Debt							
Equity	64%	66%	40%	110%	48%	0,66	0,64
	0,69	0,66	0,42	1,10	0,48	0,67	0,66
	0,31	0,34	0,58	-0,10	0,52	0,33	0,34

Source: Author's empirical study result

Trading industries existing capital structure showed by the mixture of 67% debt and 33% equity from the empirical study.

Table 14. Service providing industry existing capital structures

D/E ratio	S1	S2	S3	S4	Average	Median
Debt						
Equity	52%	2%	91%	4%	0,37	0,28
	0,52	0,02	1,22	0,04	0,45	0,28
	0,48	0,98	-0,22	0,96	0,55	0,72

Service providing industries existing capital structure shown by mixture of 45% debt and 55% equity from this empirical study.

5.4 Hypothesis-4: Capital Structure Varies by Type of Ownership

In order to approve above Hypothesis, this paper obtained 13 industries financial statements and historical prices of securities from 2012-2014 from MSE. Selected 13 companies categorized into manufacturing (5), trading (3) and service providing (5) are classified into I and II classifications by MSE and calculate each industry beta and debt-to-equity ratios. Industry beta is used to calculate cost of equity by Capital Asset Pricing Model (CAPM) model and therefore than can be used for scenario analysis to define an optimal capital structure by industries. Debt-to-equity ratio is used to define an existing capital structure of public listed companies and therefore help to make comparison between Limited Liability Company and public listed companies.

Mongolian Stock Exchange

Mongolian Stock Exchange (MSE) located in Ulaanbaatar, is Mongolia's sole stock exchange. It was established in January 1991 by the decree of the Mongolian Government to privatize state-owned assets. As of 24 April, 2016 there are 235 companies are listed at the MSE and categorized into I classification - 1, II classification - 86, III classification - 148.

Table 15. Mongolian Stock Exchange

I classification	II classification	III classification
Classification have companies who introduced corporate governance principles and market capitalization is more than 10.0 billion MNT and public ownership is more than 25% with high liquidity, prestigious and profit abilities.	Classification mainly consists of small and medium-size enterprises who trade securities constantly at the MSE and market value of is more than 0.5 billion MNT and less than 2 years stable business activities.	Classification includes higher risky small enterprises and 100% state-owned companies or on-hold companies at the securities market by Financial regulatory Committee.
1 company	86 companies	148 companies

In order to see public listed companies existing capital structures this paper selected below 13 companies on manufacturing, trading and service providing industries.

5.5 Hypothesis-5: Optimal Capital Structure Varies by Type of Industries

As stated in the H-3, this paper defined an existing capital structure by 14 enterprises and 3 industries. This Hypothesis is assumed an optimal capital structure for selected manufacturing, trading and service providing industries. So, in order to approve H-5, this paper calculated each industries optimal capital structures by scenario analysis assumption.

Before assuming an optimal capital structure of the industries, this paper defined a range of assumption based on the confidence interval that is a type of interval estimate of a population parameter.

Table 16. Scenario analysis range assumption by confidence interval

MANUFACTURING COMPANIES												
	M1	M2	M3	M4	M5	Mean	SD	SE	/-1,96*SE	1,96*SE	Assumption range	
	1,00	0,18	0,71	0,47	0,63							
D/E ratio	1,01	0,11	0,64	0,56	0,47	0,56	0,33	0,15	0,27	0,84	25,00	85,00
Debt												
Equity	-0,01	0,89	0,36	0,44	0,53	0,44	0,33	0,15	0,16	0,73	15,00	75,00
TRADING COMPANIES												
	T1	T2	T3	T4	T5	Mean	SD	SE	/-1,96*SE	1,96*SE	Assumption range	
	64%	66	40%	110%	48%							
D/E ratio	0,69	0,66	0,42	1,10	0,48	0,67	0,27	0,12	0,44	0,91	40,00	95,00
Debt												
Equity	0,31	0,34	0,58	-0,1	0,52	0,33	0,27	0,12	0,09	0,56	0,05	0,6
SERVICE PROVIDING COMPANIES												
	S1	S2	S3	S4	Mean	SD	SE	/-1,96*SE	1,96*SE	Assumption range		
	52%	2%	91%	4%								
D/E ratio	0,52	0,02	1,22	0,04	0,45	0,56	0,28	-4,55	38,11	0	40	
Debt												
Equity	0,48	0,98	0,22	0,96	0,55	0,56	0,28	54,37	99,02	55	100	

The capital structure analysis will use the cost of capital approach that considers cost of debt and cost of equity. Then the weighted average cost of capital will be calculated which will affect the value of the firm calculation. The optimal capital structure analysis will be done by using scenario analysis. This method provides several possible scenarios in cost of debt and equity calculation.

In order to calculate a cost of equity, this paper calculated industry beta by all of manufacturing, trading and service providing industries. Beta is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), a model that calculates the expected return of an asset based on its beta and expected market returns.

6. Conclusion and Recommendations

6.1 Conclusion

In this analysis, I explored external and internal sources of finance for selected 3 industries 14 companies and defined its existing capital structure and optimal structure. Below are conclusions for each Hypothesis:

6.1.1 Hypothesis-1 Conclusion

Based on H-1 analyses, sources of finance don't vary by industries on an empirical study. However, depending on the certain industry and its features, proportion of sources of finances varies by industries. Based on the empirical study, ordinary shares, overdrafts and retained earnings are listed on the TOP-3 sources of trading, manufacturing and service providing industries.

Table 17. Hypothesis-1 conclusion

		TOP-3 source	Trading	Manufacturing	Service providing
Equity finance	Ordinary shares	TOP-1 source	5	5	4
Short term	Overdrafts	TOP-2 source	5	4	3
Internal sources	Retained earnings	TOP-3 source	4	5	3

Source: Author's empirical study result

6.1.2 Hypothesis-2 Conclusion

After this financial performance analysis and overall ranking, service providing industry is still listed at No-1 who uses equity finance, short-term debt and retained earnings. But, all 3 industries equally use above stated financial sources that doesn't vary by industries.

Table 18. Total ranking scores by type of industries

Manufacturing	Total scores	Ranking	Trading	Total scores	Ranking	Service providing	Total scores	Ranking
M1	152,5	11	T1	124	9	S1	99,5	6
M2	85,5	2	T2	129	10	S2	78	1
M3	153,5	12	T3	115,5	7	S3	176	14
M4	118,5	8	T4	170,5	13	S4	87	4
M5	92	5	T5	86,5	3			
	602	38		625,5	42		440,5	25
	2			3			1	

Source: Author's empirical study result

Well performing enterprises using internal sources of finances including ordinary shares and retained earnings and higher percent of shareholders equity in their capital structures.

6.1.3 Hypothesis-3 Conclusion

Table 19. Existing capital structure varies by type

D/E ratio Debt Equity	Manufacturing industry average		Trading industry average		Servicing industry average	
	Capital Structure		Capital Structure		Capital Structure	
	Average	Median	Average	Median	Average	Median
	0,60	0,63	0,66	0,64	0,37	0,28
	0,56	0,56	0,67	0,66	0,45	0,28
	0,44	0,44	0,33	0,34	0,55	0,72

Source: Author's empirical study result

Based on the above existing capital structures, this paper can approve capital structure varies by industries.

6.1.4 Hypothesis-4 Conclusion

Table 20. Industry average of capital structures

(Limited Liability Company VS public listed company)

	Manufacturing companies	Trading companies	Service companies	Manufacturing companies	Trading companies	Service companies
	Limited liability company			Public listed company		
Debt	56%	67%	45%	74,1 %	30%	16,9%
Equity	44%	33%	55%	25,9 %	70%	83,1 %

Source: Author's empirical study result

In along with the above stated analysis and studies, capital structure varies by type of ownerships. Manufacturing enterprises mainly have higher percentage of debt financing, because of its industry features. Limited liability trading companies mainly using higher percent of debts financings.

6.1.5 Hypothesis-5 Conclusion

Based on the result of scenario analysis assumption, optimal capital structure shows by below matrix (minimum WACC and max company value);

Structure-1: Preferably equity financing

Structure-2: Debt/Equity proportion is (range between 11/89 and 85/15) - WACC is below with expected rate of return

6.2 Recommendations

Based on this paper empirical study, here are some recommendations related to the sources of finances and capital structures.

1. All of Mongolian trading, manufacturing and service providing companies use 6 types of sources (mainly external). So, companies need to learn well about sources of finances and how to increase their financial resources' types
2. Cost of equity is getting lower or equal with cost of equity on the Mongolian case.
3. Most selected companies are using short-term sources of finances and companies need to define their long term financial strategy/planning and investments.
4. Majority of selected industries (manufacturing, trading) have higher amount of working capitals and companies need to improve their working capital management efficiency. Because, WCM initiatives release working capital and increase liquidity that can be used for strategic investments or the reduction of debt. In addition, profitability is enhanced due to an efficiency improvement within the processes and a reduction in cost of capital.
5. Selected companies and industries need to define their optimal capital structure based on the existing capital structure. In that case they can increase their value of the company and profits.

6.3 Significance of the Results of the Study

As for the medium enterprises of Mongolia and its stakeholders, this paper will be one of the handbooks that are available to use on their financial sources and capital structuring, in the case of Mongolia, most of medium enterprises shareholders (based on this observation study) usually invest their equity for further business expansion and funding, so especially those shareholders are available to collect information from this paper proposal. On the other hand, as from the financial professional's perspective, this is a very significant paper because the topic is a revised topic at the financial market of Mongolia. In a same time, this paper analysis were based on the actual actively operating limited liability companies' cases on 3 different industries that means its results and analysis are very significant for the financial market of Mongolia.

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The Mediating Effect of Organizational Commitment on the Relationship between Work-life Balance and Intention to Leave: Evidence from Working Women in Jordan

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Abstract

The aim of this study is to examine the mediating effect of organizational commitment on the relationship between work-life balance and intention to leave. The study population consists of (800) working women in King Abdullah University Hospital (KAUH). To collect the primary data a questionnaire survey was distributed to (200) working women, from them (144) questionnaires were returned. The study used linear regression and path analyses to test hypotheses. The study findings revealed that; there is a significant relationship between work-life balance and intention to leave, there is a significant relationship between work-life balance and (affective, continuance and normative) commitment, but not with continuous commitment, there is a significant relationship between (affective, continuance and normative) commitment and intention to leave. Finally, affective commitment fully mediates the relationship between work-life balance and intention to leave, while normative commitment partially mediates the relation. In light of these findings, the study recommends; adoption of the work-life balance program in Jordanian hospitals to improve the commitment of working women, and encourages Jordanian organizations to enhance the participation of employee in decision making and locus of control to improve organizational commitment.

Keywords: intention to leave, organizational commitment, work-life balance

1. Introduction

Today, women occupy an important position in modern societies and contribute effectively in advancing and developing their countries' economy. Women have become a key partner of success in their organizations. However, they face a big challenge due of their roles at work and home, they should do their best at work and taking care their families when baking home. According to Ramos et al. (2015), work-family issues significantly impacts employees' quality of life and their workplace.

However, the work boundaries are changing rapidly. Nature of business, social structure and pace of globalization have changed the approaches towards the business. Organizations are required in the modern countries to perform their services in 24 × 7 hours. This creates ultimate pressures on employees which came from increasing and extending working hours. This pressure results imbalance in the personal life of the employees. Incompatibility between career responsibilities and the home obligations create stress and pressure, especially among women that take home responsibilities their main priorities. About 40% of women married to partners they don't have adequate earning opportunities (Khatri et al., 1999). So they work for the purpose of improving the financial situation of the family (Hattar-Pollara & Dawani, 2006). Many of the problems began to appear in most of the families in which both husband and wife are working due to the fatigue experienced by women. Most studies have indicated that working mothers are more vulnerable to conflict than non-working mothers (Biller, 1993).

The conflict between work and family life is "a form of conflict between the roles where pressures in work and family life are not compatible with each other in some respects (Lyness & Judiesch, 2008). So, the participation in the work or family role will be more difficult as a result of participating in the role of the family or work (Greenhaus & Beutell, 1985).

Because of this, women made strides to have a more flexible treatment in the workplace in terms of working

hours and the establishment of units for the care of children in the workplace and work-sharing arrangements; but they still face social pressure to comply with standards that force them to be ideal mother and ideal employee and so on a daily basis (Hattar-Pollara & Dawani, 2006). According to Kaur (2004), there is a growing trend for women to leave the work at marriage and the birth of children to take care of their husband and children in Asian countries. Women working in the Middle East are not an exception to the rule, the perfect balance between work and personal life remains the most important challenge faced by women as they are first responsible for the welfare of their families and care for their children (Abu Raddaha et al., 2012).

Hence, this study came to highlight the impact of work-life balance practices on intention to leave through organizational commitment among Jordanian women working in King Abdullah University Hospital (KAUH).

1.1 Research Problem and Research Questions

Labor market in Jordan is described as unfriendly women environment. Jordan was ranked No. 140 out of 142 countries in the global gender gap report as the rate of the gender participating in the Jordanian labor market is 14% women against 66% of men. Most of those working women (95%) concentrated in three economic sectors out of thirteen which are: education and health; social work and public administration (Tamkeen fields for aid, 2015). These figures, logically, can indicate that much attention should be posed to working women, especially in the health sector which seeks to achieve the superior position in the Middle East region, as those unemployed women will become waste potentials.

More specifically, three reasons can be outlined for increasing attention and studying work-life balance: First, technological advances focus on achieving flexibility in workplace and pressures faced by the employees at work (Guest, 2001). Second, due to the great growth of – in particular - female employees who are married and have children there is an increased research attention on how these families balance between work and family roles and how these roles influence each other (Tatman, 2001). Finally, work values and attitude are changing with younger generations putting less importance on their career and more interest to achieving a balance between work-life and personal-life (Sturges & Guest, 2004).

Thus, the study seeks to answer questions that were formulated as follows:

1. Does the work-life balance influence intention to leave among working women in KAUH?
2. Does the work-life balance influence organizational (affective, continuance and normative) commitment among working women in KAUH?
3. Does the organizational (affective, continuance and normative) commitment influence intention to leave for employee among working women in KAUH?
4. Does the organizational (affective, continuance and normative) commitment mediate the relationship between work-life balance and intention to leave among working women in KAUH?

1.2 Significance and Contribution

The significance of this study derived from the importance of the topic “the practice of work-life balance and its impact on intention to leave among working women”. The main factor that leads to success of women in their work is the ability of achieving balance between family obligations and work demands. The failure to achieve this balance will negatively influence their duties towards home and work, which lead them to leave their job.

Moreover, the conflict between work and family is considered as an important issue for organizations and individuals due to its association with negative results for both (Lyness & Judiesch, 2008). For example; increased absenteeism and labor force turnover, low performance in the work place, and poor physical and mental health (Lakshmi & Gopinath, 2013). Add to this, all organizations try to retain their employees, as losing them means losing competent and knowledge or more specifically the competitive advantage that came from the tacit knowledge. Medical field is the most field where tacit knowledge is considered very important for effective service (Aamir et al., 2016).

However, certain female pre-dominant occupations such as; nurses and teachers, does not afford to offer flexible operating rights as part-time or varying time schedule, they are not supported in these positions. Cultural, social norms and perceptions play an important role in the evolution or failure of the flexible working, the reason being the prejudice purpose, which might be solved through the legislative means if already available or can be created.

One important challenge face healthcare services is sustaining workforce, as the increasing trend in the population worldwide increasing the demand for healthcare (Aamir et al., 2016). For this reason, current studies in the health industry are paying attention to how to address the high cost of labor turnover and staff shortage

(Chaaban, 2006). According to (Strachota et al., 2003), the cost of replacing one hospital nurse has been estimated to be around \$42,000 in Canada.

Despite of the significance of work-life balance, little attention is paid to this issue in the Arab world. A limited number of studies have been conducted in Arab countries (include Jordan) to investigate the effect of work-life balance on intention to leave among working women. Therefore the current study is carried out to fill the gap in literature by investigating the impact of work-life balance on intention to leave and investigating the mediating effect of organizational commitment on the relationship between work-life balance and intention to leave in KAUH.

Therefore, the theoretical and practical importance of the study centered on the following points:

1. The study provides some valuable insights on organizational commitment and intention to leave among working women in KAUH.
2. The study seeks to provide some knowledge to enrich the Arabic library and literature, which is a starting point for new studies.
3. The content also may be of an interest to academic studies to fill the gap in the literature by focusing on issues related to working women in Jordan.
4. The study findings can help managers in the reporting and decision making concerning knowledge management practices.

2. The Objectives of This Study

The following specific objectives are set for this study:

1. Identify the influence of work-life balance on intention to leave among working women in KAUH.
2. Identify the influence of work-life balance on organizational (affective, continuance and normative) commitment among working women in KAUH.
3. Identify the influence of organizational (affective, continuance and normative) commitment on intention to leave among working women in KAUH.
4. Identify whether the organizational (affective, continuance and normative) commitment mediates the relationship between work-life balance and intention to leave.

In conclusion, it can be said that a few studies have been conducted, considered all these three terms together. However, they did not focus on female worker separately. In addition, most of the studies were based on western developed countries. Thus, this study, which focused on female workers in Jordan, is different from these studies as it aims to examine the relationship between work-life balance and intention to leave through organizational commitment among working women in KAUH.

3. Literature Review

3.1 Theoretical Framework and Research Hypotheses

3.1.1 Work-life Balance

Work-life balance concept has caught fire in recent years, both in understanding and in public awareness. The media, consultants and employers show a high level of interest in the policies of work-life balance. Moreover, it has observed high growth in academic areas as well as other disciplines, which include; psychology, health, human resource management, industrial relations, sociology, feminism, social policy, and economics (Shankar & Bhatnagar, 2010).

Various researchers defined work-life balance in various ways. For example, Clark (2001) defines work-life balance as a sense of satisfaction and accomplishment, what is required in the workplace and home better without conflict or overlap between roles. According to Felstead et al. (2002) work-life balance is “the relationship between cultural and institutional spaces and times of work and non-work in civilizations where income is primarily created and distributed through labor markets”. Whereas, Voydanoff (2005) defines work-family-balance as “a global assessment that work and family resources are sufficient to meet work and family demands such that participation is effective in both domains”.

Another definition of the work-life balance was introduced by the Rigby and O'Brien-Smith (2010) that work-life balance is a split of time between the work and personal life based on the priorities. In this definition, there are clear indication between the time management for both lives, one is personal life and other is official life. The priorities of the people may be different based on their perceptions, but the main thing is the consideration of both

lives rather just focusing on the single one. Because if the focus is shifted to the single side of the life only, it is likely that balance would go out and effectiveness of the life may be compromised (Owusu-Poku, 2014). The balance between the work and life is essential for health and happy life, because extra time spend on the work leads to work stress and extra time spend at home leads to the unsuccessful life.

3.1.2 Organizational Commitment

The concept of the organizational commitment has taken a considerable importance over years and become an essential feature of the researches that are concerned with employees and organizations.

There are several definitions being introduced about organizational commitment. According to (Allen & Meyer, 1990) organizational commitment is a psychological state that combines an employee to an organization that lead to reduce the turnover of employees. While (Meyer & Herscovitch, 2001) defined the organizational commitment as a multidimensional approach in nature which intends to analyze the attitude of the employee for the achievement of the organizational goals in addition to the membership's willingness. Also, it has been defined as a strong belief and acceptance of organization goals and principles with good performance and a strong desire to stay in the organization (Elizur & Koslowsky, 2001).

As per the analysis of all these definitions presented above, there are several things which are common among these definitions. One important factor, is the commitment of the employee to stay in the organization for a longer period of time by providing a quality work with continuity. The other thing is the goal of the organization and goal congruence. Organizational goals are the aims of the organizations, but the goal congruence is basically the unity of goals, the goal of the employee and of the organization (Vigoda and Cohen, 2003). This means that employees act in such a way that their goals are also attached to the goals of the organizations.

3.1.3 Organizational Commitment Models

3.1.3.1 Affective Commitment

According to Meyer and Allen (1997) affective commitment is "the employee's emotional attachment to identification with and involvement in the organization". Affective commitment has been linked to positive work-related behaviors like organizational citizenship behavior (Meyer et al., 2002). Affective commitment model is linked with the wish of the employee to stay in the organization due to multiple reasons perceived by the employees themselves. It is associated positively with organizational citizenship behaviors and negatively with turnover cognitions. One important thing in this model is the concentration on the employee where the employee is attempting to link his goals with the goals of the organization which is known as goal congruence (Aryee et al., 2005).

3.1.3.2 Continuance Commitment

Continuance commitment occurs when an employee remains in organization because there are largely out of need, as lack of alternatives or costs associated with leaving, such as lost income, or an inability to transfer skills and education to another organization are the primary antecedents of continuance commitment (Meyer et al., 2002). Continuance commitment is more focused on the analysis of the gains and losses that are associated with the turnover, it is logical to assume that this restriction of options facing a choice to stay in organization. An individual perceives the leaving of an organization a very costly, which can deprive him of the relations he or she had in the organization, social costs with the decrease the loyalty of the person and high cost of getting a new job so there is clear that too much costs are associated with the leaving an organization (Amble, 2006).

3.1.3.3 Normative Commitment

Normative commitment is more emotional and sense of liability based model as compared to the other than two models discussed above. The basis of this model is different from the other two models and results in a more positive way for the organization. Meyer and Allen

(1997) explain normative commitment as "a feeling of obligation to continue employment". The employees feeling of moral obligation to stay in the organization because they feel that the organization has spent a lot of the resources in the grooming and the teachings of the employee. Which has put a liability on the employee to work for the organization in the course of achievement of its objectives. The employees perceive themselves as owe the organization to be loyal and work in achievement of the organizational objectives (Batt and Valcour, 2003). So, factors such as; organizational socialization, a feeling of indebtedness, and need for reciprocity force employees to be loyal and committed with the organization (Meyer and Allen, 1991).

3.1.3.4 Intention to leave

The increasing turnover has become the most critical issue in the organizations. Once the intention is created, it

further develops, as long as the circumstances are not changed to favorable situation. This intention is called intention to leave which is a state of mind where the person want to quit current working at a place in the consideration of getting the other one in the near future.

The most important and immediate antecedent of turnover is the intention to quit (Elangovan, 2001). That drives the most researchers to focus on turnover intention rather than actual turnover. The desire to leave the workplace and the intent to quit are considered a strong indicator of labor turnover (Griffeth et al., 2000).

There are several definitions being introduced for intention to leave. According to Barak et al. (2001) intention to leave means that a serious consideration of leaving the job at present. Meyer et al. (2002) justified turnover intention as deliberate intent was already taken to leave the organization to find other alternatives in other organizations. Aiken et al. (2002) defined it as a prediction of the future behavior because the intent is linked with the future action, which is based on the behavior so it is very much integrated definition. It is clear that there have been similarities in the definitions being proposed by the plenty of researchers.

3.1.3.5 Working Women in Jordan

Jordanian women reinforced their presence and participation in the field of economy and labor. The employment statistical data in Jordan indicated that the participation rate of women aged 15 years and over has increased from 12.3% in 2002 to 14.9% in 2009. While

the rate of unemployment among female rose from 19.9% in 2004 to 26% in 2010 despite the high proportion of educated females in Jordan.

Jordan human development report (2011) depicted that the Middle East and North Africa (MENA) territory women make over 28 % of the total labor force which is very less compared to the figure of 43 % in the developing countries on average. Jordanian Workers Observatory believes that the lack of tangible progress in the role of women economically is due mainly to the repellent working conditions afflicting the Jordanian labor market such as; long or irregular or non-elastic working hours, increased workloads, conflicts between people at work, travel for long periods, job movements, presence of uncooperative supervisor or work in a non-supportive organization (Abu Raddaha et al., 2012).

Generally, in the MENA area, the women in the private sector face challenges, such as; social habits the lack of chance to get worthy jobs, lack of training and the money designated for that aim, restriction on movements and discrimination in the workplace. The participation of women in the labor force is much less than men. Besides, the rate of females possessing degrees, but still unemployed is three times more than males. This means wastage of the resources. The advancement of the Jordanian female in academic perspective as compared to the males has been of no use since the wage difference based on gender still prevails. Another matter of regret is the fact that the labor market does not consider that men are paid more than the women, regardless the education level (Jordan human development report, 2011).

In summary, the report displays the fact that men as employee are preferred more in the Jordanian labor market for some reasons such as their ability to work for more and extensively long hours, no household duty is attached to them and they can stay outside home for a longer period. On the other hand, women in Jordan opt for lesser physical and lesser travelling jobs, which keep them closer to their houses. Female prefer to work within the territory closer to their houses so that work and family could be managed.

3.2 Previous Studies

Kim (2014), "Work-Life Balance and Employees' Performance: The Mediating Role of Affective Commitment".

The study examined how work-life balance can affect the affective commitment and in-role performance in Korea. Furthermore it was examined the role of affective commitment in work-life balance and in-role performance. 520 questionnaires were distributed among the industrial workers in Korea, among them 293 contained valid responses. using structural equation modeling (SEM) and regression analysis to reach the objectives. From the analysis, the study concluded that there is a direct relationship between work-life balance with affective commitment but not with in-role performance. However, affective commitment can affect the in-role performance and hence, there is an indirect relationship between work-life balance and in-role performance.

Padma and Reddy (2013), "Work Life Balance: Women Police Constables".

The study examined the relationship between demographic features of women police constables with their work life balance in India. The study also aimed to find out the demographic factors that affect the work life balance of women police in India. 56 police constables were taken as sample for data collection, from whom required data

was collected using a structured questionnaire. To accomplish the study objectives, Percentages, Factor Analysis, One Sample t-test and ANOVA tests were used. The study identified three factors named Family issues, Personal care issues and Work issues that affect work life balance.

Lee et al. (2013), "Predicting Quality of Work Life on Nurses' Intention to Leave".

The research examined the relationship between quality of work life and nurses' intention to leave their organization in Taiwan. The sample of the study was 1283 nurses from seven hospitals, which was selected through purposive sampling. Data on demographic feature, intention to leave organization and others was collected through a questionnaire, to analyze. The study used Descriptive analysis, Pearson's correlations, and the ordinal regression model to reach the findings. The study found that individual related features such as marital status, education level etc. and work related features such as Work unit and teaching hospital are correlated with nurses' intention to leave their organization.

4. The Study's Hypotheses

The study hypotheses were formulated as follows:

- H01:** There is no significant relationship between work-life balance and intention to leave among working women in KAUH.
- H02:** There is no significant relationship between work-life balance and organizational (affective continuance and normative) commitment among working women in KAUH.
- H03:** There is no significant relationship between organizational (affective, continuance, and normative) commitment and intention to leave among working women in KAUH.
- H04:** Organizational (affective, continuance and normative) commitment are not mediating the relationship between work-life balance and intention to leave among working women in KAUH.

4.1 The Study Model

Based on previous literature, the following model is developed to discuss the relationship between work-life balance and intention to leave in KAUH (Figure 1). In this model the independent variable is (work-life balance), the dependent variable is (intention to leave). While the mediating variable is (organizational commitment).

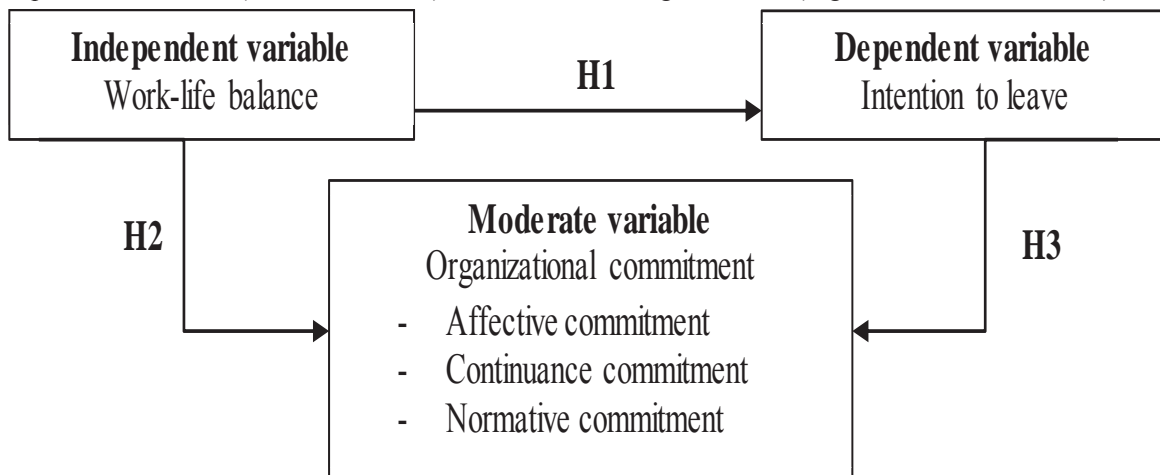


Figure1. Research model based on theoretical framework

4.2 Research Methodology

4.2.1 Sample and Data Source

The target population of this study is the female employees in KAUH, which was approximately (800) working females at the time of the study (according to KAUH human resource department). The sample frame comprised of working women in KAUH at all degree levels, all departments, single and married, with at least one year experience of being employed with KAUH. The sample of the current study consists of 200 employees, which represent 25% of the study population. In this study, working women were chosen as a unit of analysis to achieve the goal of this study.

Out of (200) distributed questionnaires (160) were completed and returned. Then, 16 questionnaires were excluded because of many missing information. Hence, (144) fully answered questionnaires were remained and furthered used for analysis, yielded a response rate of (72%).

4.2.2 Survey Instrument

Based on previous studies and empirical review, a questionnaire was developed to explore the relationship between the work-life balance, organizational commitment and intention to leave using a sample of female employees in KAUH. The questionnaire items were extracted from previous studies as shown in Table 1.

Table 1. The sources of the research variables

Variable	Source
Work-life balance	Hayman (2005)
Organizational commitment	Meyer et al. (1993)
Intention to leave	Miller (2007)

After developing the questionnaire in English language, the questionnaire was translated to Arabic language and then back translated to ensure that the measures were translated correctly. Then, three business academics at Yarmouk University reviewed the questionnaire in both languages. Some changes were done according to the academic recommendations to get more clarity on the questionnaire wording. All constructs were measured using five-point scale (Likert type) that ranged from (5) which refers to the highest degree, to (1) which refers to the lowest degree. The final form of questionnaire was a 4 pages questionnaire in Arabic or English comprised from two sections: The first section: Demographics: The demographic section was used to identify the characteristics of the respondent (age, years of experience, job position, academic level, current marital status, number of children) for descriptive purposes. The second section: Questionnaire main body: This section includes the three variable dimensions: (2) dimensions of work-life balance (11 questions), (3) dimensions of organizational commitment (18 questions), and intention to leave (6 questions).

4.2.3 Statistical Tools

The Statistical Package for Social Science (SPSS) version 20.0 was used to analyze the survey data. Several types of statistical analysis have been performed; simple regression analysis used to test the main variables, and path analysis used to test the effect of moderate variable.

4.2.4 Validity and Reliability

To examine the validity of the survey and to ensure no biases with multiple interpretations or inappropriate and unclear wording, the items of the survey instrument were extracted from previous studies, translated from English to Arabic then back translated and evaluated by three academics in business administration. Their comments and recommendations were taken into consideration to improve some of the questionnaire items in a manner that fits the study.

Reliability of the survey construct was established by calculating Cronbachs' Alpha coefficient. Obtaining ($\alpha \geq 0.60$) considered in practice for management science and Humanities is acceptable in general (Sekaran and Bougie, 2003). Table (2) shows the results of Cronbachs Alpha for each dimension. As illustrates in Table (2), all variables show satisfactory value of reliability. The reliability coefficient for the main content of the questionnaire values ranged between (0.69) and (0.87), hence it is acceptance values.

Table 2. Cronbachs' Alpha coefficient results

Measured Variable	Dimensions	No. of items	Cronbachs' Alpha coefficient
Work-life balance	Work interference with personal life	7	0.87
	Personal life interference with work	4	0.71
Organizational commitment	Affective commitment.	6	0.80
	Continuance commitment.	6	0.78
	Affective commitment.	6	0.79
Intention to leave	Intention to leave	6	0.69

5. Results and Analysis

5.1 Demographic Characteristic of the Sample

Six demographic characteristics were included in this study (age, educational level, marital status, position, years of experience, and the number of children). The descriptions of demographic statistics are shown in Table (3). The majority of the sample (69.5%) is less than 35 years of age. The percentage of bachelor degree respondents was (58.3%) which is more than other respondents who have Diploma, Master and Doctorate (20.8%, 18.1%, and 2.8% respectively). Table 3 also shows that the majority of the sample are married with 74.3%.

Most of the respondents work in nursing, which is normal, because the number of women who work in nursing exceed other positions. More than half of respondents having 5 years' experience and more. Almost half of the

sample doesn't have kids or they have one child only which may indicate that organizations in Jordan favored non mother working women or mothers with more than one child prefer to stay home (Descriptive analysis).

The descriptive statistics are shown in Table (4). The mean of all the variables came moderately (close to three). The level of work-life balance is medium, with a mean scores of work-life balance equals to ($M = 3.40$) and standard deviation ($SD = 0.83$). The mean score of work-life balance two dimensions are ($M = 3.76$) and ($M = 1.87$) which means that the respondents goes with work interference with personal life dimension of work-life balance. The level of organizational commitment is medium ($M = 3.32$) and ($SD = 0.54$), and the level of intention to leave is medium too ($M = 3.32$) and ($SD = 0.78$).

Table 3. Sample descriptive characteristics (n= 144)

Demographic elements	Category	Frequency	Percentage (%)
Age	Less than 25	20	13.9
	25- less than 35	80	55.6
	35- less than 45	34	23.6
	45 years and more	10	6.9
Educational level	Diploma	30	20.8
	Bachelor	84	58.3
	Master	26	18.1
	Professional degree (Doctorate)	4	2.8
Marital status	Single	34	23.6
	Married	107	74.3
	Divorced	1	0.7
	Widowed	2	1.4
Position	Physician	30	20.8
	Nurse	67	46.5
	Managerial employee	31	21.5
	Others	16	11.1
Years of experience	Less than 5	55	38.2
	5- less than 10	36	25.0
	10 years and more	53	36.8
Number of children	None	49	34.0
	One child	17	11.8
	Tow Childs	29	20.1
	Three Childs and more	49	34.0

Table 4. Descriptive Statistics for sample size (n=144)

Measured Variable	n	M	SD
Work-life balance	144	3.40	0.83
Work interference with personal life	144	3.76	0.91
Personal life interference with work	144	1.87	0.47
Organizational commitment	144	3.32	0.54
Affective commitment.	144	3.12	0.71
Continuance commitment.	144	3.55	0.78
Affective commitment.	144	3.28	0.76
Intention to leave	144	3.32	0.78

5.2 Hypotheses Testing

Before conducting regression analysis skewedness and Kurtosis of the data was checked to ensure normality. The results of skewedness and Kurtosis showed that none of the data set deviated from ($Z = \pm 1.96$).

5.2.1 The test of the First Hypothesis

Simple regression was used to test whether work-life balance predicts participant's intention to leave. The result of this test shown in Table (5). According to Table (5), the effect of work-life balance on intention to leave among working women in KAUH is significant at level ($\alpha \leq 0.05$) ($Sig = 0.000$), this means that the work-life balance affects the intention to leave among working women in KAUH. Based on this analyzing H 01 is rejected. The β coefficient (Regression coefficient) equal to ($\beta = 0.355$). The positive sign for β coefficient indicate a positive relationship between the two variables. Which means that; increasing in one unit in work-life balance will increase in the level of intention to leave among working women in KAUH. The results also indicated that work-life balance explained 11.5% of the variance in the intention to leave ($R^2 = 0.115$).

Table 5. Simple regression test for the influence of work-life balance on intention to leave (n= 144)

Independent Variable	β_{constant}	$\beta_{\text{coefficient}}$	R	R ²	Itl	Sig.	F	Sig.
Work-life balance	2.135	0.355	0.339	0.115	4.298	0.000*	18.477	0.000*

Dependent variable: Intention to leave (* significant level ≤ 0.05)

5.2.2 The Test of the Second Hypothesis

Simple regression was used to test whether work-life balance predicts participant's (affective, continuance and normative) commitment, the results of the tests are shown in Table (6). According to Table (6), the effect of work-life balance on (affective and normative) commitment among working women in KAUH is significant at level ($\alpha \leq 0.05$) (Sig. = 0.000) and (Sig. = 0.043) respectively. While the effect of work-life balance on continuance commitment among working women in KAUH is not significant at level ($\alpha \leq 0.05$) (Sig = 0.650). This means that the work-life balance affects the (affective and normative) but does not affect normative commitment among working women in KAUH. Based on this results H02 is rejected for both (affective and normative) commitment and accepted for continuance commitment.

The results showed that β coefficient for both (affective and normative) commitment equal to ($\beta = -0.705$) and ($\beta = -0.194$) respectively. The negative sign for β coefficient indicates a negative relationship between independents and dependent variables. While β coefficient for continuance commitment equal to ($\beta = 0.045$). The positive sign for β coefficient indicates a positive relationship between independent and dependent variables. The results also indicated that work-life balance explained 33.6 % of the variance in affective commitment ($R^2 = 0.336$), whereas it explained 0.1 % of the variance in continuance commitment ($R^2 = 0.001$) and it explained 2 % of the variance in normative commitment ($R^2 = 0.020$)

Table 6. Simple regression test for the influence of work-life balance on organizational commitment (n= 144)

Dependent variable	β_{constant}	$\beta_{\text{coefficient}}$	R	R ²	Itl	Sig.	F	Sig.
Affective commitment	5.297	-0.705	0.579	0.336	8.468	0.000*	71.714	0.000*
Continuance commitment	3.193	0.045	0.038	0.001	0.455	0.650	0.207	0.650
Normative commitment	3.845	-0.194	0.169	0.02	2.044	0.043	4.176	0.043

Independent variable: Intention to leave (* significant level ≤ 0.05)

5.2.3 The Test of the Third Hypothesis

Simple regression was used to test whether participant's (affective, continuance and normative) commitment predicts participant's intention to leave. The results of the tests are shown in Table (7). According to Table (7), the effect of (affective, continuance and normative) commitment on intention to leave among female employees in KAUH is significant at level ($\alpha \leq 0.05$) (Sig. = 0.000), (Sig. = 0.004) and (Sig. = 0.009) respectively. This means that (affective, continuance and normative) commitment affects intention to leave among working women in KAUH. Based on this results H03 is rejected. The results showed that β coefficient for (affective, continuance and normative) commitment equal to ($\beta = -0.334$), ($\beta = -0.211$) and ($\beta = -0.198$). The negative sign for β coefficient indicate a negative relationship between independents and dependent variables.

The results also indicated that affective commitment explained 15.2 % of the intention to leave ($R^2 = 0.152$). While continuance commitment explained 5.8 % of the variance in the intention to leave ($R^2 = 0.058$). Finally, normative commitment explained 4.7 % of the variance in the intention to leave ($R^2 = 0.047$).

Table 7. Simple regression test for the influence of organizational commitment on intention to leave (n= 144)

Independent variable	β_{constant}	$\beta_{\text{coefficient}}$	R	R ²	Itl	Sig.	F	Sig.
Affective commitment	4.31	-0.334	0.389	0.152	5.038	*0.000	25.38	*0.000
Continuance commitment	4.046	-0.211	0.24	0.058	2.944	*0.004	8.664	*0.004
Normative commitment	3.97	-0.198	0.217	0.047	2.654	*0.009	7.042	*0.009

Independent variable: Intention to leave (* significant level ≤ 0.05)

5.2.4 The Test of the Fourth Hypothesis

In order to test the fourth hypothesis, structural analysis (path analysis) has been used. The results are presented in Table (8). As illustrated in the Table (8), the Sig. value, for mediation effects of affective commitment in the relationship between work-life balance and intention to leave, turn out to be insignificant (Sig. = 0.071); this means that affective commitment fully mediates the relation. While the Sig. value, for mediation effects of normative commitment in the relationship between work-life balance and intention to leave, turn out to be significant (Sig. = 0.000); this means that normative commitment partially mediates the relationship between work-life balance and intention to leave. So, Hypothesis 04 is rejected for both affective and normative commitment.

Because the result of regression test for the relationship between work-life balance and continuance commitment was not significant the dimension (continuous commitment) excluded from path analysis.

Table 8. Path analysis for the mediating effect of normative commitment between work-life balance and intention to leave

The mediator	Predictors	Dependent variable	B _{coefficient}	R ²	t	Sig.	F	Sig.
Affective commitment	Work-life balance	Affective commitment	-0.705	0.336	8.468	0.000*	71.714	0.000
	Work-life balance	Intention to leave	0.355	0.115	4.298	0.000*	18.477	0.000
	Work-life balance + Affective commitment	Intention to leave	0.179	0.171	1.82	0.071	14.553	0.000
Normative commitment	Work-life balance	Normative commitment	-0.194	0.029	-2.044	0.043*	4.176	0.043
	Work-life balance	Intention to leave	0.355	0.115	4.298	0.000*	18.477	0.000
	Work-life balance + Normative commitment	Intention to leave	0.325	0.141	3.934	0.000*	11.62	0.000

(*significant level ≤ 0.05)

6. Discussion

The tests of the first hypothesis showed that there is a significant and positive relationship between work-life balance and intention to leave, this means that the working women who have a balance between life and work have intention to leave work, which considered contradictory result. Looking back to our measures of work-life balance and the results of Table (4) can tell that the respondents believe that their work interference with their personal life not the opposite. Which means that this result can be explained by the fact the respondents believe that at any point of time when their work interfere with their personal life their intention to leave the organization will become inevitable. The low value of R² (R² = 11.5%) indicates that there another factors rather than the work-life balance influencing intention to leave. These results are similar to previous studies of (Huang et al., 2007) and Noor (2011).

While the test of the second hypothesis showed that there are significant relationship between work-life balance and (affective and normative) commitment but not with continuance commitment. Also, the results showed a negative relation between work-life balance and (affective and normative) commitment. This result can be explained by the fact that the respondents believe that their work interference with their personal life will decrease their loyalty, and goal congruence Sakthivel and Jayakrishnan (2012). Similar result of the relationship between work-life balance and continuance commitment was achieved by Kinnoin (2005) study. Finally, this study finding of the relationship between work-life balance and normative commitment is consistent with Turnley and Feldman (1999) findings. The results of R² showed that affective commitment has the highest R² compared with the other two commitment models. Which means that work-life balance explained most of the variance in the affective commitment.

Whereas the test of the third hypothesis showed that the relationship between the three models of commitment (affective, normative and continuance) and intention to leave were significant and negative. This result can be explained by the fact that; loyal and more attached employees with a consistent personal and organizational objectives will definitely decrease employee's intention to leave the organization. Add to this, the results showed that affective commitment explains only (15.2%) of the variance in intention to leave, which was the highest R² among other models of commitment. This indicates that other factors affect this relation. The study of Kamel (2013) showed similar results of this study regarding the relationship between affective commitment and intention to leave.

Finally, path analysis that used to test the Forth hypothesis revealed that affective commitment fully mediate the relation between work-life balance and intention to leave while normative commitment partially mediates this relation. This result implies that the care granted from the organizations to their employees to develop them and to help them to reach their personal objectives with regard that their work not interfere with their personal life is not the only things that can guarantee that employees have no intention to leave. But parallel objectives that can be found between employees and their organizations with no interfere of their job with their personal life can guarantee that employees will remain in the organization. The full mediation result of affective commitment was supported by Kamel (2013).

7. Conclusion

As stated earlier, the aim of this research is to investigate the mediating effect of organizational commitment on the relationship between work-life balance and intention to leave among working women in KAUH.

This study raised a number of questions, and developed hypotheses related to the study variables. The study

reached many results that contributed to solve the study problem, answer the study questions and its hypotheses. The main results can be summarized as follows:

1. There was a significant relationship between work-life balance and intention to leave among working women in KAUH.
2. There was a significant relationship between work-life balance and (affective and normative) commitment, but the relationship was not significant with continuance commitment among working women in KAUH.
3. There was a significant relationship between (affective, continuance and normative) commitment and intention to leave among working women in in KAUH.

Affective commitment has fully mediated the relationship between work-life balance and intention to leave, while normative commitment has partially mediated the relationship between work-life balance and intention to leave among working women in KAUH.

8. Recommendations

Based on the study results the researcher suggests the following recommendations:

1. The Jordanian hospitals should adopt work-life balance program, to improve the motivation and commitment of women employees for better organizational performance. The recommended programs as safety, reward, promotion, flexible hour, training, payment, childcare support, and parental leave.
2. Provide work-life balance program is necessary for women in Jordanian hospitals to increase job satisfaction that leads to enhance commitment for organization and reduce intention to leave The Jordanian hospitals can improve the financial support like salary level for employee to reduce the intention to leave.
3. The organizations must enhance the participation of employee in decision making and locus of control to improved organization commitment.
4. Organization should give special attention to commitment its vision and goals in such a way that is consistent with the employee values to enhance affective commitment.
5. Mangers should give special attention to the level of organizational commitment since it has a significant effect on intention to leave. The Jordanian hospitals can improve the financial support like salary level for employee to reduce the intention to leave.
6. The organizations must enhance the participation of employee in decision making and locus of control to improved organization commitment.
7. Organization should give special attention to commitment its vision and goals in such a way that is consistent with the employee values to enhance affective commitment.

Mangers should give special attention to the level of organizational commitment since it has a significant effect on intention to leave.

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Are Cross Border Acquisitions More Profitable, or Do They Make Profit More Persistent, than Domestic Acquisitions? UK Evidence

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Abstract

Cross border acquisitions were relatively more popular than domestic acquisitions in the UK and many other countries during late 1990s and the beginning of this century (Martynova and Renneboog, 2008, among others). Apart from attributing it to the wave of globalisation that occurred at the time, hardly any other reason has been given for this phenomenon in the literature. In this paper, we check whether cross border acquisitions were more profitable than domestic acquisitions to bidders, or whether cross border acquisitions made the profitability of bidders to be more persistent than domestic acquisitions, during the period referred to above. Evidence observed from a sample of 199 cross border, and 174 domestic, acquisitions made by firms in the UK during 1996-2003 shows that the cross border acquisitions were significantly less profitable, and that they did not make the profitability of the bidders significantly more persistent, than the domestic acquisitions. These indications are similar to those of the US evidence reported by Moeller and Schlingemann (2005) and raise questions about why cross border acquisitions were relatively more popular than domestic acquisitions during the period referred to above.

Keywords: profitability, persistence of profitability, domestic acquisitions and cross border acquisitions

JEL Classification: G34

1. Introduction

Evidence reported by previous studies shows that cross border acquisitions were relatively more popular than domestic acquisitions in the UK and other parts of the world during late 1990s and the beginning of this century (Goergen and Renneboog, 2004; Moeller and Schlingemann, 2005 – hereafter, M&S; Conn, et al, 2005; and Martynova and Renneboog, 2008; among others). Whilst the evidence is not surprising, because this was a period of rapid globalisation, it makes one to wonder whether there was any rational economic reason behind this phenomenon. One such reason could be that cross border acquisitions were more profitable than domestic acquisitions to bidders and another could be that cross border acquisitions made the profitability of bidders to be relatively more stable than domestic acquisitions. A way to find out whether cross border acquisitions had either, or both, of these benefits over domestic acquisitions during the period referred to above is to compare the impacts of the two types of acquisitions on the profitability, and stability of the profitability, of bidders during the period. In the context of mergers and acquisitions, the impact of acquisitions on the stability of the profitability of bidders is usually measured by the “persistence” of the profitability of bidders around the time of the acquisitions. “Persistence” of the profitability of bidders is the extent to which the level of profitability of bidders after they make acquisitions is related to their level of profitability before they make the acquisitions (Healy, Palepu and Ruback, 1992).

M&S have compared the impacts of cross border and domestic acquisitions on the profitability, and the persistence of the profitability, of merged firms (that is, acquiring and target firms combined) in the US during 1985-95. They find that the firms were significantly less profitable when they acquired cross border targets than when they acquired domestic targets and that there is no significant difference between the impacts of the two types of acquisitions on the persistence of the profitability of the firms¹.

The study reported in this paper compares the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of firms in the UK which made acquisitions during late 1990s and the early part of this century. There are two reasons for the study. One of them is that since the evidence reported by M&S is about the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of merged firms, it may not apply to bidders or acquirers alone, because previous studies have shown that the impacts of acquisitions on the market returns on the shares of bidders and targets are usually different from each other (Tuch and O'Sullivan, 2007; Ismail, et al, 2011). The results of the studies imply that any statistically significant difference observed between the impacts of cross border and domestic acquisitions on the profitability of merged firms may not apply to bidders, or targets, alone.

There is also empirical evidence that cross border acquisitions improve operating performance of targets (Bertrand and Zitouna, 2005 and Fraser and Zhang, 2009). But there is hardly any rigorous empirical evidence in the literature about the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of bidders alone. This issue is important because many firms that are involved in cross border deals probably just want to make acquisitions rather than be involved in mergers. Information about the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of bidders alone will be useful to them, if they want to choose between acquiring cross border targets and domestic targets.

The other reason for the study reported in this paper is that the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of bidders may vary from sample to sample. Consequently, any view about the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of bidders in the UK should be based on UK evidence, because the evidence reported by M&S, referred to above, may not apply to the UK.

We do not know any other study in the literature which has rigorously compared the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of either merged firms, or bidders alone, than that of M&S. So, there is a gap in the literature. The contribution of this paper is that it reports the UK evidence on this issue and, hence, bridges part of the gap. We focus on the UK because the country was the hub for mergers and acquisitions, outside the US, during our study period. The number, and value, of cross border mergers and acquisitions made by UK firms during the period exceeded those of the cross border mergers and acquisitions made by firms in any other country in Europe and were next only to those made by firms in the US (Sudarsanam, 2010 and Ayoush, 2011).

The sample used to generate the evidence contains 373 acquisitions made by firms listed on the London Stock Exchange during 1996-2003. All bidders, and 174 (or approximately 46.6%) of the targets, were from the UK. The other targets (199, or approximately 53.4% of the targets) were cross border acquisitions made by the UK bidders from the US, other European countries than the UK and the rest of the world (Ayoush, 2011). The evidence gives similar indications to the one reported by M&S. Among other things, the evidence shows that the profitability of the bidders in the UK was significantly lower when they acquired cross border targets, than when they acquired domestic targets, and that there is no significant difference between the impacts of the two types of acquisitions on the persistence of the profitability of the bidders. These indications of the evidence are robust to different definition and measurement of the profitability of the bidders. Therefore, it appears that the greater popularity of cross border acquisitions over domestic acquisitions in the UK during late 1990s and the beginning of this century was not because cross border acquisitions were more profitable, or made the profitability of bidders to be more stable, than domestic acquisitions.

The rest of the paper is organised as follows: the reasons why the impacts of cross border acquisitions on the profitability, and persistence of the profitability, of bidders may be different from those of domestic acquisitions, and why the difference between the impacts of the two types of acquisitions may vary from sample to sample, are explained in the next section. This is followed by the description of the methodology used in the study. The results obtained are presented in the penultimate section and the paper is concluded in the final section.

2. Why the Impacts of Cross Border and Domestic Acquisitions may be Different from Each Other and Why the Difference between the Two may Vary from Sample to Sample

There are various market imperfections that can make the prices of finished products and raw materials, as well as labour costs, tax charges, other operating expenses and financing costs, to be unequal across countries (Eitemann, Stonehill and Moffett, 2016). The imperfections can cause differences between the profitability of cross border and domestic acquisitions to bidders. A-priori, it is difficult to tell how the imperfections will make the profitability of cross border and domestic acquisitions to differ because their impacts will depend on the

types of imperfections that they are, the amount of each of them and how each of them will affect the profits that bidders will realise on a particular set of cross border and domestic acquisitions. Consequently, the difference between the impacts of cross border and domestic acquisitions on the profitability of bidders may vary from sample to sample.

Also, international diversification theory suggests that international diversification (such as a cross border acquisition) may reduce the volatility of the profitability of firms (Hughes, Logue and Sweeney, 1975) for two reasons. One of them is that the economic cycles of the countries that bidders are may be opposite to those of the countries that their cross border targets are. Whenever that is so, the profitability of each bidder and its cross border target combined will be more stable (that is, be more persistent) than the profitability of the same bidder combined with a domestic target that is similar to the cross border target. The other reason is that the cross border targets may be in countries which are financially less risky than those of their bidders. Again, whenever that is so, the profitability of each bidder and its cross border target combined will be more stable than that of the same bidder combined with a domestic target that is similar to the cross border target.

The explanations stated above are based on portfolio theory. The theory suggests that if:

σ_{BT} = standard deviation of the profitability of a bidder and a target combined after an acquisition;

σ_B = standard deviation of the profitability of the bidder before the acquisition;

σ_T = standard deviation of the profitability of the target before the acquisition;

ρ_{BT} = correlation between the profitability of the bidder and the target;

w_B = weight of the contribution of the bidder to the profitability of the bidder and the target combined after the acquisition; and

w_T = weight of the contribution of the target to the profitability of the bidder and the target combined after the acquisition;

then,

$$\sigma_{BT} = \sqrt{W_B^2 \sigma_B^2 + W_T^2 \sigma_T^2 + 2W_B W_T \rho_{BT} \sigma_B \sigma_T} \quad (1)$$

Therefore, if the economic cycles of the countries of the bidders are opposite to those of the countries of their targets, then ρ_{BT} in equation (1) will be negative. Since the values of all other variables in the equation will be positive, the negative value of ρ_{BT} will make the whole of $2W_B W_T \rho_{BT} \sigma_B \sigma_T$ to be negative and reduce the value of σ_{BT} . Similarly, if $\sigma_B > \sigma_T$ and part of the fund previously invested in the bidder is transferred to a target located in a country which is financially less risky than the country where the bidder is, the value of σ_{BT} will reduce, all things being equal².

However, very little is known about whether firms usually acquire cross border targets that are in countries which have opposite economic cycles to their own, or in countries which are financially less risky than their own, because there is hardly any direct empirical evidence on this issue in the literature. The empirical evidence that is in the literature is about the impacts of foreign direct investment (FDI) made by firms on their total risk and market beta values, among others. The evidence indicates that firms make FDI in countries which are financially less risky, as well as in countries which are financially more risky, than their own, and that when firms make FDI in countries which are financially less risky than their own, their total risk and market beta values decrease. But when firms make FDI in countries which are financially more risky than their own, their total risk and market beta values increase (Kwok and Reeb, 2000). Even though the evidence is about FDI, its indication is consistent with the explanation stated above about why the impacts of cross border and domestic acquisitions on the persistence of the profitability of acquirers may differ. So, the evidence appears to be relevant to cross border acquisitions as well.

From the point of view of our study, the most important indication of the evidence referred to above is that firms may acquire cross border targets from various countries, regardless of market imperfections and the nature of the relationships between the economic cycles of their own countries and the countries of their targets, and regardless of whether the countries of their targets are financially less, or more, risky than their own. This implies that the difference between the impacts of cross border and domestic acquisitions on the profitability, and persistence of the profitability, of bidders may vary from sample to sample. Whether this variation occurs or not depends on the relationships between the economic cycles and the levels of financial risk in the countries of the bidders and the cross border targets in a study sample.

Since there is no direct empirical information on this issue in the literature, it will be useful to know whether there are significant differences between the impacts of cross border and domestic acquisitions on the

profitability, and persistence of the profitability, of bidders in different countries. As stated earlier, it appears that only the US evidence reported by M&S is in the literature before this paper. It will be useful to have evidence from other countries for information and comparison.

3. Methodology

We measure the profitability of a bidder in a year by the ratio of its 'pure' operating cash flow to its total assets in the year (that is, $(EBITDA - \Delta WC) / \text{Total Assets}$), where EBITDA is earnings before interest, tax, depreciation and amortisation and ΔWC is change in working capital. This measure is used in order to control the potential bias that accounting policies of bidders may cause to their profitability in the year of acquisition or some other years (Lawson, 1985 and Powell and Stark, 2005). As in Healy, et al (1992) and M&S, we adjust the value of the measure for industry median in each year in order to control the potential effect of industry on it. We also control the potential joint effects of industry, pre-acquisition size and performance of bidders on their post-acquisition level of profitability by deducting the median value of the level of profitability of a firm that is comparable with each bidder in industry, size and pre-acquisition level of profitability from the value of the variable for the bidder in each year after the acquisition.

In order to be able to assess the effect of industry alone, and the joint effects of industry, size and pre-acquisition performance together, on the post-acquisition level of profitability of the bidders, we create two variables. One of them is called industry-adjusted level of profitability ($PR_{ind-adj,i,t}$) and the other is called industry-size-and-pre-acquisition-adjusted level of profitability ($PR_{ind,size,perf-adj,i,t}$). The values of the variables are calculated as follows:

$$PR_{ind-adj,i,t} = PR_{Bidderi,t} - PR_{ind-median \text{ in year } t} \quad (2)$$

$$PR_{ind,size,perf-adj,i,t} = PR_{Bidderi,t} - PR_{benchmark \text{ firm in year } t} \quad (3)$$

where,

$PR_{ind-adj,i,t}$ = industry-adjusted level of profitability of bidder *i* in year *t*;

$PR_{Bidderi,t}$ = raw level of profitability of bidder *i* in year *t*;

$PR_{ind,size,perf-adj,i,t}$ = industry-size-and-pre-acquisition-performance-adjusted level of profitability of bidder *i* in year *t*;

$PR_{ind-median \text{ in year } t}$ = industry median level of profitability in year *t*; and

$PR_{benchmark \text{ firm in year } t}$ = level of profitability of the benchmark firm (that is, a firm in the same industry, and with a similar size to the bidder, in the pre-acquisition year which is not involved in any acquisition) in year *t*.

Following previous studies (e.g., Healy, et al, 1992; Kumar and Rajib, 2007), we calculate the value of each of the variables described in equations (2) and (3) above for 1, 2 and 3 years before, and after, each acquisition - that is, for $t = -3, -2, -1, 1, 2$ and 3 respectively. Year 0 (that is, the year of acquisition) is excluded in order to avoid the noise that may be in the data of that year as a result of accounting differences between the bidders and targets and one-time acquisition costs incurred in the year which may distort the result of the comparison of the level of profitability of the bidders in that year with their level(s) of profitability in the other years. Then, the median value of each of the variables for the three years before each acquisition (that is, for $t = -3, -2$ and -1) is determined and called pre-acquisition level of profitability, PR_{pre} . Also, for each acquisition, the median value of each of the variables for the three years after the acquisition (that is, for $t = 1, 2$ and 3) is determined and called post-acquisition level of profitability, PR_{post} .

In order to avoid survival bias, bidders which existed for less than three years before they acquired their targets, and those which ceased to exist in less than three years after they acquired their targets, are included in our study sample. However, when data are available for only two years, the average value of each of the variables over the two years before, or after, the acquisition concerned is used as the PR_{pre} , or PR_{post} , as appropriate. Also, when data are available for only a year before, or after, an acquisition, the value of each of the variables for the year before, or after, the acquisition is used as the PR_{pre} or PR_{post} . Then, we use ordinary least squares regression technique to estimate the following equations:

$$POCFIND = \alpha_0 + \alpha_1 PRCFIND + \alpha_2 CB + \alpha_3 * CB * PRCFIND + \alpha_4 CP + \alpha_5 INDR + \alpha_6 RELSIZE + \varepsilon \quad (4)$$

$$POCFISP = \beta_0 + \beta_1 PRCFISP + \beta_2 CB + \beta_3 * CB * PRCFISP + \beta_4 CP + \beta_5 INDR + \beta_6 RELSIZE + \Phi \quad (5)$$

where,

POCFIND = industry-adjusted post-acquisition cash flow measure of the level of profitability of a bidder;

POCFISP = industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of a bidder, after the acquisition;

PRCFIND = industry-adjusted pre-acquisition cash flow measure of the level of profitability of a bidder;

PRCFISP = industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of a bidder, before the acquisition;

CB = a dummy variable allocated a value of 1 for cross border acquisitions and 0 for domestic acquisitions;

CP = a dummy variable allocated a value of 1 for acquisitions paid for entirely in cash and 0 for all others;

INDR = a dummy variable allocated a value of 1 for acquisitions of targets that are in the same industry with their bidders and 0 for others;

RELSIZE = relative size of a target to its bidder, represented by the ratio of the deal value to the market value of the equity of a bidder; and

ε and Φ are error terms.

α_1 and β_1 in equations (4) and (5) are measures of the impact of the domestic acquisitions on the persistence of the profitability of the bidders (hereafter, domestic persistence) in our sample. Similarly, the sum of α_1 and α_3 in equation (4), and the sum of β_1 and β_3 in equation (5), are measures of the impact of the cross border acquisitions on the persistence of the profitability of the bidders in our sample (hereafter, cross border persistence). So, if α_3 is positive and statistically significant in the estimate of equation (4), and β_3 is positive and statistically significant in the estimate of equation (5), then the cross border persistence of the profitability of the bidders in our sample is significantly higher than the domestic persistence of their profitability, and vice versa.

We include some dummy variables in equations (4) and (5) to control the potential impacts of certain deal characteristics on the profitability of the bidders, which may affect the difference between the cross border and domestic persistence of their profitability. The deal characteristics that the dummy variables are used to control their potential impacts are method of payment (specifically, cash payment, CP), industrial relatedness of each target to its acquirer (INDR) and the relative size of each target to its bidder's (RELSIZE).

Acquisitions which are paid for entirely in cash may be more profitable than those which are paid for entirely with shares, or with a mixture of cash, shares and other types of securities. That's because bidders usually pay for acquisitions entirely in cash when they are sure of realising a profit on them, and often pay entirely with shares, or with a mixture of cash, shares and other types of securities, for acquisitions which they are not sure of realising a profit on (Linn and Switzer, 2001 and Tuch and O'Sullivan, 2007). If the acquisitions in our sample were paid for in this way, then variable CP should have a significant positive coefficient in the estimates of equations (4) and (5). Similarly, acquisitions of targets that are in the same industry, or line of business, with their bidders are more likely to generate synergies and profit to the bidders than acquisitions of targets that are not (Singh and Montgomery, 1987; Tuch and O'Sullivan, 2007). If our sample supports this suggestion, then dummy variable INDR should have a significant positive coefficient in the estimates of equations (4) and (5). Also, acquisitions of larger targets may be more profitable than acquisitions of smaller targets because competition for larger targets is usually less intense than competition for smaller ones. Hence, acquirers usually pay relatively less for larger targets, and consequently realise relatively more profit on them, than on smaller targets (Bruner, 2002 and Tuch and O'Sullivan, 2007). If this suggestion applies to our sample, then the coefficient of the RELSIZE variable should be positive and statistically significant in the estimates of equations (4) and (5).

α_0 and β_0 (that is, the constants) measure the impacts of the cross border and domestic acquisitions on the profitability of the bidders, after controlling the effects of the other factors. Therefore, a negative and statistically

significant value of each of them will mean that industry-adjusted (or industry-size-pre-acquisition-performance-adjusted) profitability of the bidders reduced significantly after acquisitions, and vice versa. If the profitability of the bidders is significantly persistent over the acquisition period, then the estimates of α_1 and β_1 should be positive and statistically significant. The more persistent the profitability is over the period, the greater will be the estimated values of α_1 and β_1 . Also, α_2 and β_2 measure the difference between the impacts of the cross border and domestic acquisitions on the profitability of the bidders. If each of them is positive and statistically significant, then the impact of the cross border acquisitions on the profitability of the bidders is significantly more than that of the domestic acquisitions, and vice versa. The estimates of α_2 , β_2 and their statistical significance, are one of the two issues that the study reported in this paper is about.

α_3 and β_3 measure the difference between the cross border and domestic persistence of the profitability of the bidders. If there was no volatility in the profitability of a bidder from the period before, to the period after, it acquired a target, then its POCFIND and PRCFIND in equation (4), and POCFISP and PRCFISP in equation (5), should be the same. If this was so for all acquisitions in our sample, then the estimates of α_3 and β_3 should be 1 each, and those of α_0 and β_0 should be 0 each. But profitability of firms usually varies over time, mainly because of the volatility of their revenues. Therefore, if the profitability of the bidders in our sample was relatively more stable when they acquired cross border targets than when they acquired domestic targets, then the difference between their POCFIND and PRCFIND in equation (4), and POCFISP and PRCFISP in equation (5), should be smaller when they acquired cross border targets than when they acquired domestic targets. Consequently, estimates of α_3 and β_3 should be positive and statistically significant. Negative estimates of α_3 and β_3 imply the opposite. That is, they imply that the profitability of the bidders was more volatile when they acquired cross border targets than when they acquired domestic targets. The sign and statistical significance of the estimates of α_3 and β_3 are the other issue that the study reported in this paper is about. Finally, α_4 - α_6 in equation (4), and β_4 - β_6 in equation (5), represent the impacts of the deal characteristics that they are associated with on the profitability of the bidders³.

The data used for the study are obtained from two sources. Names of firms in the UK which acquired other firms in the UK and overseas are identified and collected manually from *Acquisitions Monthly*, a magazine published by Thomson Financial Limited. We were able to get the magazine from only January 1996 to December 2003. That is why our sample consists of only cross border and domestic acquisitions that were made by firms listed on the London Stock Exchange during this period. All the other data that we use are obtained from Datastream. Only firms that have all the data required for the study for at least one year before, and one year after, they were involved in an acquisition deal are included in the sample. Application of this selection criterion gives us 199 cross border acquisitions and 174 domestic acquisitions, making a total of 373 acquisitions. Table 1 below provides further information about the composition of the sample.

Among other things, the statistics in Panel A of the Table show that the sample contains almost equal numbers of cross border and domestic acquisitions and that most of the acquisitions were made during 1996-2000. Also, the statistics in Panel B show that about 38% of the acquisitions were paid for entirely in cash. More than half of the acquisitions were horizontal (that is, the bidders and targets were in the same industry or line of business) and over two-thirds of the targets were less than 10% of their bidders' sizes. Further, the summary statistics of the sample in Table 2 show that the mean and median values of POCFIND and POCFISP are small, relative to those of PRCFIND and PRCFISP, respectively, and that there is a large variation in the values of the four variables (POCFIND, POCFISP, PRCFIND and PRCFISP). The statistics also show that, in terms of relative size (RELSIZE), the majority of the targets are less than 3% of their bidders, even though some of the targets are over three times larger than their bidders.

Table 1. Sample Composition

Description	Cross-border acquisitions		Domestic acquisitions		Total	
	Number	%	Number	%	Number	%
Panel A: Distribution by year of acquisition						
1996	18	9.05	21	12.07	39	10.46
1997	22	11.06	26	14.94	48	12.87
1998	45	22.61	50	28.74	95	25.47
1999	40	20.10	36	20.69	76	20.38
2000	34	17.09	18	10.34	52	13.94
2001	11	5.53	8	4.60	19	5.09
2002	12	6.03	5	2.87	17	4.56
2003	17	8.54	10	5.75	27	7.24
Total	199	100.00	174	100.00	373	100.00
Panel B: Distribution by deal characteristics						
(i) Payment Method						
All cash	71	35.68	69	39.66	140	37.53
Mixture of cash, shares, etc.	128	64.32	105	60.34	233	62.47
Total	199	100.00	174	100.00	373	100.00
(ii) Industry Relatedness						
Same industry	92	46.23	107	61.49	199	53.35
Different industries	107	53.77	67	38.51	174	46.65
Total	199	100.00	174	100.00	373	100.00
(iii) Relative size of target						
Target size < 10% of acquirer's	144	72.36	117	67.24	261	69.97
Target size 10% - 50%	44	22.11	48	27.59	92	24.67
Target size > 50%	11	5.53	9	5.17	20	5.36
Total	199	100.00	174	100.00	373	100.00

4. Results

We first estimate equation (4) above. In the results obtained, which are summarised in Table 3, α_0 is not statistically significant, but α_1 is positive and generally statistically significant, except when the difference between cross border and domestic persistence is controlled (as in estimate (4) in the Table). Also, α_2 is negative and statistically significant, α_3 is positive but not statistically significant, α_4 is positive and statistically significant in estimate (3) but not in estimate (4), while α_5 and α_6 are not statistically significant in any of the estimates.

Table 2. Sample summary statistics

Variables	Mean	Median	Std. dev	Minimum	Maximum
POCFIND	0.0001	0.0084	0.1475	-0.7726	0.4430
POCFISP	0.0095	-0.0004	0.2559	-0.6483	3.9570
PRCFIND	0.0224	0.0221	0.1517	-1.1390	0.7382
PRCFISP	0.0664	-0.0026	1.4089	-1.1390	26.9594
CB	0.5335	1.0000	0.4995	0.0000	1.0000
CP	0.3753	0.0000	0.4849	0.0000	1.0000
INDR	0.5335	1.0000	0.4995	0.0000	1.0000
RELSIZE	0.1616	0.0296	0.3914	0.0002	3.1748

Notes. This table contains the summary statistics of the sample. POCFIND is industry-adjusted post-acquisition cash flow measure of the level of profitability of the bidders; POCFISP is industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of the bidders after the acquisitions; PRCFIND is industry-adjusted pre-acquisition cash flow measure of the level of profitability of the bidders; PRCFISP is industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of the bidders before the acquisitions; CB is a dummy variable allocated a value of 1 for cross border acquisitions and 0 for domestic acquisitions; CP is a dummy variable allocated a value of 1 for acquisitions paid for entirely in cash and 0 for all others; INDR is a dummy variable allocated a value of 1 for acquisitions of targets that are in the same industry with their bidders and 0 for others; and RELSIZE is the relative size of a target to its bidder, represented by the ratio of the deal value to the market value of the equity of the bidder.

Therefore, the results show that the cross border acquisitions were less profitable than the domestic acquisitions. The difference was about 3.8% of the total assets of the bidders ex-post acquisitions – see estimate (4) in Table 3. The results also show that there is no significant difference between the cross border and domestic persistence of the profitability of the bidders in our sample.

Table 3. Estimates of equation (4)

Independent variables	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)
Constant (α_0)	-0.0055 (0.4865)	0.0125 (0.2233)	-0.0197 (0.1650)	0.0062 (0.6941)
PRCFIND (α_1)	0.2532a (0.0016)	0.2455a (0.0020)	0.2368a (0.0047)	0.1013 (0.2068)
CB (α_2)		-0.0335b (0.0217)		-0.0378b (0.0130)
CB*PRCFIND (α_3)				0.2163 (0.1068)
CP (α_4)			0.0253c (0.0975)	0.0240 (0.1155)
INDR (α_5)			0.0083 (0.5864)	0.0032 (0.8301)
RELSIZE (α_6)			0.0037 (0.7423)	-0.0018 (0.8849)
Adj. R ²	0.0653	0.0756	0.0648	0.0834
F-statistic	26.9928a	16.2218	7.4449	6.6392
(p-value)	(0.0000)	(0.000)	(0.0000)	(0.0000)

Notes. This table contains estimates of equation (4) obtained when POCFIND is used as the dependent variable of the equation. POCFIND is industry-adjusted post-acquisition cash flow measure of the level of profitability of the bidders; PRCFIND is industry-adjusted pre-acquisition cash flow measure of the level of profitability of the bidders; CB is a dummy variable allocated a value of 1 for cross border acquisitions and 0 for domestic acquisitions; CP is a dummy variable allocated a value of 1 for acquisitions paid for entirely in cash and 0 for all others; INDR is a dummy variable allocated a value of 1 for acquisitions of targets that are in the same industry with their bidders and 0 for others; and RELSIZE is the relative size of a target to its bidder, represented by the ratio of the deal value to the market value of the equity of the bidder. a, b and c indicate that the estimates are statistically significant at the 1%, 5% and 10% levels respectively.

4.1 Is the Result in Table 3 Affected by the Size and Pre-acquisition Performance of the Bidders Represented in Our Sample?

The potential effects of the size and pre-acquisition performance of the bidders on the measure of post-acquisition profitability that is used to obtain the results reported in Table 3 are not controlled. This could have affected the results if the bidders in our sample were larger, or more profitable, than the median firms in their industries when they acquired their targets. We check whether the results would be different if the potential effects of size, pre-acquisition performance and industry on the post-acquisition profitability of the bidders are controlled. This is done by estimating equation (5). The new set of results obtained, summarised in Table 4, is quite similar to the one in Table 3. Therefore, the difference between the impacts of the cross border and domestic acquisitions on the profitability of the bidders shown by the results in Table 3 is not sensitive to whether only the effect of industry on the profitability of the bidders is controlled or whether the effects of size and pre-acquisition performance of the bidders are controlled as well. It is also evident that the lack of a statistically significant difference between the cross border and domestic persistence of the profitability of the bidders shown by the results in Table 3 is not sensitive to control for the effects of size and pre-acquisition performance of the acquirers.

4.2 Sensitivity Analyses

Most of the previous studies that assess the impact of acquisitions on the level of profitability of firms employ accrual based measure of profitability (e.g. Healy, et al, 1992 and M&S) rather than the cash flow based measure of profitability that we use. Powell and Stark (2005) observe that the impact of acquisitions on the profitability of firms is greater when the accrual based measure of profitability is used than when the cash flow based measure is used.

Table 4. Estimates of equation (5)

Independent variables	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)
Constant (β_0)	-0.0004 (0.9535)	0.01347 (1.1654)	-0.0156 (0.3308)	0.0029 (0.8722)
PRCFISP (β_1)	0.1495a (0.0000)	0.1489a (0.0000)	0.1499a (0.0000)	0.1490a (0.0000)
CB (β_2)		-0.0260c (0.0815)		-0.0265c (-0.0880)
CB*PRCFISP (β_3)				0.0931 (0.4066)
CP (β_4)			0.0428a (0.0058)	0.0381b (0.0213)
INDR (β_5)			0.0011 (0.9438)	-0.0039 (0.8021)
RELSIZE (β_6)			-0.0096 (-0.6630)	-0.0125 (0.4118)
Adj. R ²	0.6762	0.6779	0.6806	0.6830
F-statistic	777.99a	392.54a	199.16a	134.57a
(p-value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Notes. This table contains estimates of equation (5) obtained when POCFISP is used as the dependent variable of the equation. POCFISP is industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of the bidders after the acquisitions; PRCFISP is industry-size-pre-acquisition-performance-adjusted cash flow measure of the level of profitability of the bidders before the acquisitions; CB is a dummy variable allocated a value of 1 for cross border acquisitions and 0 for domestic acquisitions; CP is a dummy variable allocated a value of 1 for acquisitions paid for entirely in cash and 0 for all others; INDR is a dummy variable allocated a value of 1 for acquisitions of targets that are in the same industry with their bidders and 0 for others; and RELSIZE is the relative size of a target to its bidder, represented by the ratio of the deal value to the market value of the equity of the bidder. a, b and c indicate that the estimates are statistically significant at the 1%, 5% and 10% levels respectively.

Consequently, we assess the sensitivity of the results reported in Tables 3 and 4 above to the use of the accrual based measure of profitability by measuring profitability as EBITDA/Total Assets and using the value obtained to calculate the $PR_{ind-adj,t}$ and $PR_{ind,size,perf-adj,t}$ in equations (2) and (3) respectively. Subsequently, the new values of $PR_{ind-adj,t}$ and $PR_{ind,size,perf-adj,t}$ obtained are used to calculate the accrual based post- and pre-acquisition measures of profitability that correspond to the cash flow measures stated in equations (4) and (5), which are then employed to estimate the equations. The results obtained are quite similar to those in Tables (3) and (4) above. The results are not reported here in order to save space. Readers who are interested in them can obtain them from the corresponding author by request.

Finally, we perform variance inflation tests to check whether the lack of statistical significance of the estimates of the coefficients of some of the variables in equations (4) and (5) (such as CP, INDR and RELSIZE) is caused by multicollinearity. None of the tests results is statistically significant.

5. Conclusions

Therefore, we conclude that the greater popularity of cross border acquisitions than domestic acquisitions in the UK during the 1990s and the beginning of this century was not because cross border acquisitions were more profitable, or made the profitability of bidders significantly more stable, than domestic acquisitions. We also conclude that the difference between the impacts of the cross border and domestic acquisitions on the profitability of the bidders in our sample, as well as the similarity of the impacts of the two types of acquisitions on the persistence of the profitability of the bidders in our sample, are robust to control for the effects of industry, size and pre-acquisition performance of the bidders. Further, we conclude that they are robust to the use of cash flow based, and accrual based, measures of profitability too.

The conclusions stated above are similar to those of M&S, even though the focus of their study is on the difference between the impacts of cross border and domestic acquisitions on the profitability of merged firms. However, our evidence, which shows that cross border acquisitions did not make the profitability of bidders to be significantly more persistent than domestic acquisitions during late 1990s and the beginning of this century, is new in the literature. Even though M&S state on page 559 of their paper that the impact of cross border acquisitions is not significantly different from that of domestic acquisitions on the persistence of the profitability

of the merged firms in their sample, they did not report their evidence.

The new evidence reported in this paper is interesting for a number of reasons. First, it is relevant to the international diversification theory which suggests that international diversification may reduce the volatility of the profitability of firms (Hughes, Logue and Sweeney, 1975). The evidence does not support the theory, but it supports the upstream-downstream hypothesis (Kwok and Reeb, 2000). The main implication of the hypothesis for our study is that there is no guarantee that the impact of the cross border acquisitions on the persistence of the profitability of the bidders in our sample will be significantly higher than that of the domestic acquisitions in the sample. Our results are consistent with this implication of the hypothesis.

Finally, from the point of view of finance theory, if the bidders in our sample had behaved rationally, then the cross border acquisitions that they made should have significantly enhanced either their profitability, or the persistence of their profitability, or both. Neither of these is evident from our results. This, therefore, raises the question of whether the bidders gained anything from their cross border acquisitions. Further studies should be undertaken to find out directly from bidders the benefits that they get from cross border acquisitions which justify making them rather than acquiring domestic targets. There is no such direct evidence in the literature at this moment.

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Notes

1. See the result on page 559 of their paper and footnote number 29 on the same page.
2. It is very unlikely that the reduction in σ_{BT} attributed to cross border acquisitions above can be generated by domestic acquisitions because the acquirer and the target will be in the same country and be affected by the same economic cycle. So, the fluctuation in the profitability of one will not be offset by the fluctuation in the profitability of the other in the opposite direction. Another reason why domestic acquisitions are unlikely to generate the reduction in σ_{BT} referred to above is that firms usually acquire other firms that are either in the same industry with themselves, or in industries that are related to their own – in order to realise synergies and economies of scale. Therefore, when one domestic firm acquires another, σ_B and σ_T will be similar, because the acquirer and the target will be either in the same industry, or in related industries. Consequently, the values of σ_{BT} for such acquisitions are likely to be higher than the corresponding values for the types of cross border acquisitions described above.
3. There are other factors than those that we have explicitly considered above that can cause disparities between the impacts of cross border and domestic acquisitions on the performances of bidders. Some examples of the factors are differences between the macroeconomic, political, cultural, tax and regulatory systems in the countries of the bidders and targets (see Boateng, Naraidoo and Uddin, 2011 and Reddy, Nangia and Agrawal, 2014, among others). These factors are not explicitly considered in this paper because we do not have the data for them for our study period.

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Identifying and Prioritizing the Contributory Factors to the Early Internationalization of International New Ventures in Halal Food Industry

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Abstract

This study seeks to identify and prioritize the determining factors in the early internationalization of international new ventures in Halal food industry. In terms of nature and objective, this is an applied research employing quantitative methods. The process consists of two steps. First, the most important factors in the early internationalization of new ventures were identified through an inquiry into previous literature. Then, a questionnaire was devised and distributed among 80 managers and experts working in new Halal food ventures. Subsequently, the collected data were analyzed by PLS and SPSS software. Results indicate that factors such as the managerial characteristics, the company features, the network, the industry features, technology, company resources, country features, advertisement and the knowledge as well as Halal brands (from the participants' perspective) have respectively contributed to the early internationalization of international new ventures in Halal food industry in Iran.

Keywords: contributory factor, early internationalization, Halal food industry, international new venture, prioritization

1. Introduction

Time was when international markets were monopolized by competing large corporations while the small and new ventures were operating on a mere local or regional scale. But in recent decades, the business world has undergone significant changes due to internationalization and globalization of commercial activities. For instance, small and new ventures can now enjoy access to international clients, suppliers and partners all over the world and agencies face a new competitive environment (Johnson and Sandberg, 2008).

Considering the highly competitive current circumstances, many new small and medium ventures focus on the development of international commercial activities as an important growth strategy. Thus, unless they can prove successful in foreign markets, these ventures cannot survive in small and saturated markets (Rezvani and Hajifathi, 2013). It must be noted that ample evidence point toward the increasing role of international new ventures in world economy (Hessels, 2008), innovation and creation of employment opportunities (De clerq et al., 2008). Since joining the World Trade Organization, creating employment, etc. are among the main challenges our country must deal with, the internationalization of new enterprises can be of significant economic, social and even political significance. In addition, despite numerous empirical studies on the identification of contributing factors to the internationalization of ventures, especially in developing countries, sufficient knowledge about the internationalization of small and new firms is still lacking (Hohenthal et al., 2003). Compensating this deficiency has been one of the principle motives behind selecting this research topic. Accordingly, identifying the contributing factors to the early internationalization of new ventures is the first step to help other ventures become international.

This study concentrates on Halal food industry. Halal is a global standard, a universal criterion for food hygiene and a stimulus towards the development of food trading between Muslim and non-Muslim countries. Halal food industry refers to a method of production, supply and service which is in accordance with Islamic rules and, therefore, avoids procedures and products that are deemed haram in Islam. Nowadays, in addition to the 57 Islamic countries, the citizens from other counties have also showed interest in consuming Halal food. Moreover, with the

30 percent increase in the Muslim population of the world, which is due by 2025, Halal production will be unprecedentedly brought into attention. It is said that Halal food will comprise 20 percent of the total international food trade in the future (Yang et al., 2016).

The most prominent prospect for the Iranian Halal food industry is to surpass other countries of the region by achieving first place in Halal food trading by 2025 and to earn a position among the first five member states of the Organization of Islamic Cooperation. Furthermore, Vision 2025 also envisions an annual export share up to 10 percent of Halal food trade deficit of the member states of the Organization of Islamic Cooperation (according to 2013 statistics, a sum of 7.8 billion dollars by 2025). However, Iran's share of Halal brand is now equal only to 0.25 percent of the world's while other Arabic and Islamic states of the region have gained a billion dollar profit in this market. Therefore, as a country whose entire food production is Halal, Iran has good potential and occasion in the domain of food production. In addition, Halal brand and the tendency of Islamic and non-Islamic countries to consume Halal food products, has provided Iran with a perfect opportunity to plan carefully and enter this international market faster.

Thus, this study seeks to answer the following questions:

1. What are the factors contributing to the early internationalization of new Halal food companies?
2. How should the factors contributing to the early internationalization of new Halal food companies be prioritized?

1.1 Literature Review

Exploring the ways in which ventures approach the issue of internationalization has been a major concern for international enterprise researchers since 1960's and various theories have offered insights into the ways and the reasons why ventures pursue participation in international markets. According to Incremental theory (Uppsala-model) of internationalization developed by Johanson and Wiedersheim-Paul in 1977 (Kunday & Senguler, 2015) the following factors determine the early internationalization of ventures; 1) the small psychological difference between the targeted market and the original market where the company operates, 2) knowledge and understanding of the market, and 3) the reduction of perceived risk due to the increase in empirical knowledge and understanding. Network theory suggests the network results in the early internationalization of ventures in the following ways; 1) Networks facilitate the access to the market knowledge, identifying key clients, financial resources and supporting R&D activities. 2) Networks provide the founders of new ventures with new opportunities for enterprise and contribute to their entry into foreign markets. 3) Making use of networks to overcome the company's limited chance to benefit from foreign markets. 4) Networks are valuable sources of market information, without which acquiring such knowledge would be costly and time-consuming. Ultimately, according to the theory of international entrepreneurship which, as Mtigwe (2006) points out, is located in the middle of the spectrum whose opposing extremes include the incremental theory of internationalization and the network theory, the role and characteristics of the entrepreneur plays a vital part in the early internationalization of ventures.

1.1.1 The Early Internationalization of New Ventures and the Factors that Contribute to It

According to Zhou & Wu (2014), early internationalization is "a result of entrepreneurial spirit and entrepreneurial capability" and must be considered as an index of international entrepreneurial behavior (Teixeira & Coimbra, 2014). It must be noted that concepts such as speed, pace, rapid, and accelerated are used by international enterprise researchers to explain the phenomenon of early and rapid internationalization. In general, the notion of speed refers to the amount or total of time required for an organization to achieve its goals (Casillas & Acedo, 2013).

Examining the literature on early internationalization of ventures revealed that most of the studies focused on developing and testing the hypotheses concerning the role of speed and their principal purpose has been to find out the motive behind the *rapid* internationalization of ventures. One of the first issues introduced with regard to international entrepreneurship was the emphasis on Born Globals and international new ventures which undergo internationalization rapidly and in an early stage (Richard & Saiyed, 2015). The notion of international new ventures is a combination of international enterprise and entrepreneurship (Matusinaite & Sekliuckiene, 2015). Rennie (1993) and Oviatt & McDougall (1994) were the first to study international new ventures 20 years ago. With the increase in the number of the ventures which became international immediately after their emergence, the literature on this subject had developed as well (Richard & Saiyed, 2015). Various scholars have used different definitions and terms to explore the international new ventures. For instance, the studies by Oviatt & McDougall (1994) carried out throughout the world's six continents, covering both developed and developing economies,

referred to such firms as “international new enterprises”, “Born Globals”, “the rapid internationals” and “international entrepreneurship”. In his book, Hessels (2008) introduces “the rapid internationals” as an umbrella term encompassing various notions such as “instant exporter”, “international new firm”, “instant international”, “Born Global” and “Born Global start-up”.

Jones et al. (2011) believe that a Born Global is a kind of firm set up through a reliance on good network connections and the capability to compete internationally and coordinate the existing resources beyond borders. Gulko’s (2013) definition of international new firms includes young enterprises targeting foreign markets immediately or a few years after their formation. In addition, Matusinaite & Sekliuckiene (2015) define international new ventures as small and medium-sized ventures that develop strategies in accordance with foreign markets right from the beginning and their income is mainly dependent on those markets. Further examination reveals that despite the fascination with international new ventures as unique organizations, few researchers have studied the course of their development (Jones, 2011).

Some writers such as Casillas et al. (2013), Jones et al. (2005) and Rialpet et al. (2005) believe that since the studies by Rennie (1993) and Oviatt (1994), the literature on factors contributing to early internationalization has become rather meager. The subject is of great contemporary significance and the studies on international enterprise has not explored it adequately (Richard & Saiyed, 2015). In fact, there is no consensus with regard to the most important factors that determine the early internationalization of ventures (Matusinaite & Sekliuckiene, 2015). Having examined the relevant articles, we identified the factors offered in table 1.

Table 1. the contributory factors to the early and rapid internationalization of new ventures

factors	Authors
Company Size	Zahra,Ireland & Hitt (2000)
international orientation,Global vision,previous experience	Ibeh & Young (2001)
technology resource,industry Competition	Zahra,Mathern & Carleton (2003)
transportation technology,communication technology,social networks,tie strength,network size,network density,foreign market knowledge	Oviatt & McDougall (2005)
technology resource,Customer orientation	Freeman, Edwards & Schroder (2006)
Proactivity,tolerance for ambiguity,risk perception,manager mindset, international orientation	Acedo & Jones (2007)
business networks,social networks, foreign market knowledge,education abroad, international orientation, previous experience,international experience, born abroad,foreign language	Zucchella, Palamara & Denicolai (2007).
social networks,the level of institutional development ofcountry	Kiss & Danis (2008)
business networks, social networks,human capital, financial resource, technology resource,recognition and exploitation of international market opportunities	Chandra,Styles & Wilkinson (2009)
social networks, buying-in knowledge,exploit technology motivation, risk perception, Entrepreneurial Orientation,previous experience, planning	Crick (2009)
domestic growth rate, global market growth rate, R&D investment	Chang (2011)
transportation technology, communication technology, business networks tie strength,network size, foreign market knowledge, human capital, financial resource, technology resource, industry Competition, recognition and exploitation of international market opportunities,company’s competitive advantage, government regulation	Kotosaka (2011)
human capital, financial resource, resource technolog ,previous experience	De Clercq,Sapienza, Yavuz & Zhou (2012)
business networks, social networks, foreign market knowledge, international experience	Kalinic & Forza (2012)
business networks, tie strength , network siz	Gulko (2013)
social networks, human capital,financial resource, industry Competition, Education abroad, global vision, international experience company age, International alliances and Joint ventures	Casillas & Acedo (2013)
institutional bridging and capacity for cross-cultural collaboration, risk perception, networking capabilities	Rezvani & Musavinejad (2014)

In general, these factors fall into 8 main categories including “technology”, “network”, “company resources”, “country features”, “industry features”, “company features”, “managerial characteristics” and “knowledge”.

Therefore research framework would present like this:

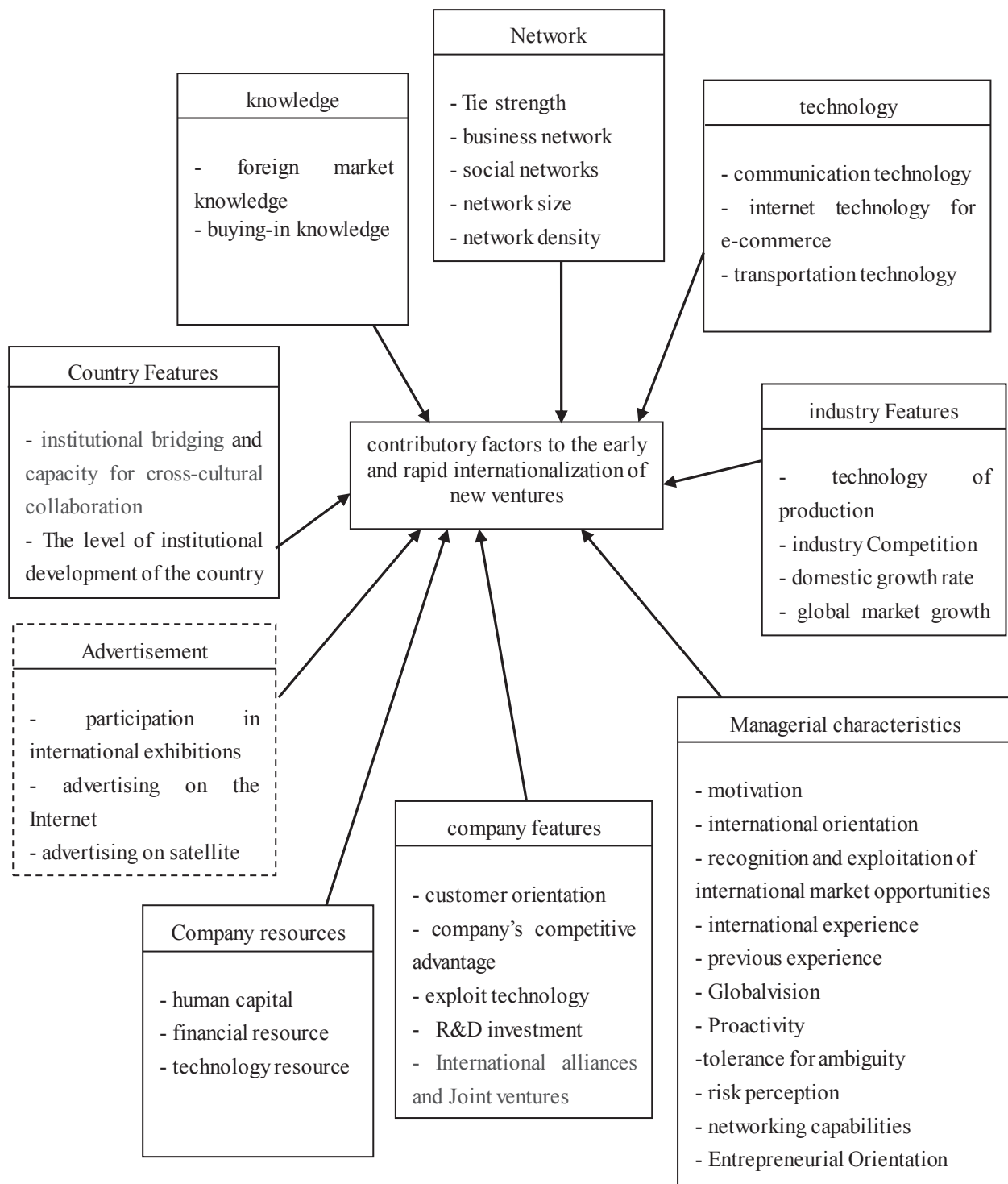


Figure 1. Research framework according to systematic review of literature

2. Methodology

Methodologically, this is a quantitative survey study, a practical research relying on data collection based on the objective. Following the survey method, questionnaires are employed for collecting data.

The statistical population consists of chief officers (CEO, CMO, CPO, CSO, etc.) and the experts working in each of the aforementioned fields in international new Halal food companies in Iran. Therefore, first, a list of companies holding Halal certification – including 1000 firms, active in various industries – has been collected from the Halal Institute database. Examining the final list revealed that only 12 % (100 companies) of the total 800 firms operating in food industry have seized the opportunity for turning into an international new venture. Therefore, the statistical population of the study consists of chief officers and the experts spread across these 100 Halal food international new ventures and the sample size is equal to 80 based on the Cochran formula.

In order to examine the theoretical background and the existing literature on the subject, this study has employed secondary research methods. And also, we have done our best to consider all of the authors from 1996 to 2016 and have made sure that their theories about early internationalization are collected. This step has two advantages: 1- Reaching a comprehensive list of contributing factors of early and quick internationalization and when these factors are noticed and considered, the possibility of finding more contributing factors that are not already presented in the collected list is very low. 2- Having studied the identified contributing factors, we can find out which contributing factor has been emphasized the most amongst authors. After finishing the theoretical framework, validating the list of contributing factors is necessary so having determined the theoretical framework, we devised a questionnaire including 46 questions in three areas: 1) demography, 2) main questions, and 3) open questions. The two later categories used Likert scale ranging from 5 representing very much to 1 representing very little.

Table 2. the Cronbachs alpha coefficients, the construct Composite reliability of the study

factors	Number of questions	AVE	Cronbachs Alpha	Composite Reliability
technology	3	0.749	0.882	0.897
network	5	0.787	0.944	0.948
company features	7	0.711	0.932	0.945
Company resources	3	0.923	0.958	0.973
country features	3	0.882	0.933	0.957
Industry Features	4	0.885	0.956	0.968
managerial characteristics	16	0.574	0.948	0.954
knowledge	2	0.931	0.931	0.964
advertisement	3	0.915	0.961	0.969

The devised questionnaire was examined by some scholars for the purpose of evaluating content validity. Consequently, “advertisement” was added to the list of factors contributing to early internationalization of Halal food international new ventures. Next, the convergent validity of the questionnaire was examined by PLS software which, as it is indicated in table 2, revealed that AVE for all factors is higher than the 0.5 critical value. For an evaluation of the reliability of the questionnaire, the study has made use of Cronbach’s alpha and combinatorial reliability. Once these methods ensured reliability, the questionnaires were distributed among the statistical population. Since the Alpha coefficients for each contributing factors is higher than 0.7, so the questionnaire has enough reliability.

SPSS was used to analyze the data. First, the descriptive statistics including mean (a measure of central tendency) and the three standard deviations (index of dispersion), variance and variation range were measured. Afterwards, inferential statistics were considered; for instance, one-sample T was used to test the significance and the utility of variables and the one-sample T test is used for the average perimeter assumption test for a society. In majority of the studies that are done using the Likert scale, in order to study and analyze the questions based on the article, this test is used and finally Friedman test made it possible to rank and prioritize variables and research index.

3. Findings

The analysis of the questionnaire showed that sales experts comprised 20 percent of the participants, 42.5 percent had 11 to 15 years work experience, and 28.8 percent worked in “production and packaging of red meat products”.

As table 3 shows, the highest means belongs to “manager traits” and “company features”, respectively, while “knowledge” and “advertisement” make for the lowest mean.

Table 3. Descriptive statistics of factors contributing to the early internationalization of new ventures

Factors	Descriptive statistics	dispersion			central tendency
		Range	Variance	standard Deviation	Mean
technology		9.33	7.83	2.79	8.21
network		15.80	21.11	4.59	15.95
Company resources		9.33	10	3.16	7.76
country features		9.33	9.14	3.02	7.12
Industry Features		13	18.09	4.25	10.65
company features		22.43	36.33	6.02	21.64
managerial characteristics		51.19	169.19	13	54.71
knowledge		9.33	9.13	3.02	6.87
advertisement		6	3.25	1.80	5.34

Table 4 indicates that the values derived from one-sample T test stand for the presence of utility for each of the factors that determine the early internationalization of Halal food international new ventures.

Table 4. One-sample T test for the contributing factors to the early internationalization of Halal food international new ventures

factors	Test Value = 3						
	t	Degree of freedom	significance level	d (Error)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
technology	16.65	79	0.00	0.05	5.21	4.58	5.83
network	25.20	79	0.00	0.05	13.97	11.92	13.97
Company resources	13.46	79	0.00	0.05	5.46	4.05	5.46
country features	12.18	79	0.00	0.05	4.79	3.44	4.79
Industry Features	16.09	79	0.00	0.05	8.60	6.70	8.60
company features	27.66	79	0.00	0.05	19.98	17.30	19.98
managerial characteristics	35.55	79	0.00	0.05	54.60	48.81	54.60
knowledge	11.45	79	0.00	0.05	4.54	3.19	4.54
advertisement	11.61	79	0.00	0.05	2.74	1.94	2.74

According to table 5 which examines the degree of importance for factors in the early internationalization of Halal food international new ventures, “managerial characteristics” and “company features” are the top priorities while “knowledge” and “advertisement”, respectively, have the least contribution to the early internationalization of Halal food international new ventures.

Table 5. Ranking contributing factors to the early internationalization of Halal food international new ventures

Ranks	Mean Rank	contributing factors to the early internationalization of international new ventures in Halal food industry
1	8.95	managerial characteristics
2	7.55	company features
3	6.63	network
4	4.99	industry features
5	4.04	technology
6	3.83	company resources
7	3.39	country features
8	3.20	advertisement
9	2.43	knowledge

4. Conclusion

The study set out to introduce the contributing factors to the early internationalization of international new ventures working in Iranian Halal food industry and also prioritize the identified factors. Foreign studies have approached the identification of these factors from various perspectives, but this study has not limited its focus on a specific factor or a series of similar ones; rather, it offers a comprehensive framework for the contributing factors to the early internationalization of international new ventures as well as prioritizing the factors based on their importance for the early internationalization of Halal food international new ventures in Iran. This could be considered the original contribution of this study. To answer the two questions posed in the beginning of the study, a series of contributing factors to the early internationalization of new ventures were identified through an exploration of the theoretical context and after integrating the scholars' outlook another factor was added to the list of the identified factors, viz. advertisement. In order to see whether they contribute to the early

internationalization of Halal food international new ventures in Iran or not, and evaluate the possible outcome, data were collected through questionnaires. Table 6 contains the results derived from data analysis.

Table 6. Ranking the indicators and factors that determine the early nationalization of Halal food international new ventures

contributing indicators to the early internationalization of international new ventures in Halal food industry	Ranking indicators	contributing factors to the early internationalization of international new ventures in Halal food industry	Ranking Factors
motivation	1		
international orientation	2		
recognition and exploitation of international market opportunities	3	managerial characteristics	1
Customer orientation	1		
company's competitive advantage	2	company features	2
exploit technology	3		
Tie strength	1		
business network	2	network	3
social networks	3		
technology of production	1		
industry Competition	2	industry Features	4
domestic growth rate	3		
global market growth rate	4		
communication technology	1		
internet technology for e-commerce	2	technology	5
transportation technology	3		
human capital	1		
financial resource	2	Company resources	6
technology resource	3		
institutional bridging and capacity for cross-cultural collaboration	1		
The level of institutional development of the country	2	Country Features	7
government regulation	3		
participation in international exhibitions	1		
advertising on the Internet	2	advertisement	8
advertising on satellite	3		
foreign market knowledge	1		
buying-in knowledge	2	knowledge	9

According to the findings of this study, “managerial characteristics” has been the most important factor in the early nationalization of Iranian Halal food international new ventures. In this regard, we can refer to studies by some researchers such as Matiusinaite & Sekliuckiene (2015) and Danik et al. (2016) which consider an integral part for management in the early internationalization of new ventures. Friedman et al. (2006) emphasizes the significance of “company features” and suggests that the tendency of new ventures towards customer orientation wins them new foreign customers, which increases their reputation across foreign networks. Consequently, the company will receive more customers, a fact that reflects the rapid development of its international activities. Moreover, in order to achieve a stable export, the examined ventures have counted on customers as permanent allies and considered the understanding of customer, personalization and the adaptation of services and products with customer demands as the prime condition of a product’s repute. The study’s findings concerning “network” indicates that, as Tang (2011) has pointed out, the greater the power (knowledge, financial resources, etc.) of people and enterprises in the network, the more information is granted them about new business opportunities, potential markets, etc. and the more possibilities for them to make use of such information. As a result, new ventures can become internationalized in an early stage. Regarding the significance of “industry features”, it can be said that Iranian food industry is in a better shape than the country’s other industries which have often lagged behind world technology. As Matiusinaite & Sekliuckiene (2015) have noted in their study, the process of the internationalization of new international ventures is much influenced by the industry and technological aspects of the original industry of the ventures. Findings with regard to the role of technology confirms the studies by Knight & Cavusgil in 1996 and those by Oviatt & McDougall in 1999, which revealed that the technological developments in transportation, communication and computer allow the new ventures to become internationalized more rapidly (Oviatt & McDougall 2005). The results concerning the significance of “company resources” and particularly “human capital” reinforce suggestions offered by De clerq et al. (2012) as well as those presented by Rezvani and Musavinejad (2014) according to which, compared to some features of the

company such as its size and age, the social resources (human capital) of the management team is more important in its internationalization. Considering the fact that the examined ventures usually export to the neighboring countries which resemble them more in terms of institutional distance, the findings about the significance of “country features” (institutional bridging and capacity for cross-cultural collaboration) are in line with position taken by Casillas & Acedo (2013). The literature shows that in his study, Evers (2010) refers to “trade fairs” as one of the factors that contribute to the early internationalization of ventures, which confirms the findings of this study. The importance of “access to knowledge about the international market” in the early internationalization of the examined ventures confirms the findings of Kotosaka (2011), Kalinic & Forza (2012) about this factor. Furthermore, regarding the open question posed in the questionnaire, “Halal brand” has proved to be one of the contributing factors to the early internationalization of Halal food international new ventures in Iran.

And to conclude, if international new ventures in halal food industry consider the contributing factors in this study in the same order and have a plan based on these factors, these companies can undoubtedly succeed in the highly competitive circumstances of foreign markets and according to the halal food approach, Iran will be able to reach first place for halal food trading, find a place amongst the top 5 countries who are members of the Organization of Islamic Cooperation and reaching 10% of the annual exports in halal food trading in Organization of Islamic Cooperation countries.

5. Suggestions

This study has provided managers and policy makers with several discoveries including the fact that policy makers must concentrate on a series of secondary programs that accelerates international learning. Such programs will subsequently facilitate international commitment and function. An instance includes holding seminars where managers share their international experiences and learn from one another, rather than waiting for a personal experience to equip them with such knowledge. The following are the practical suggestions of this study: 1) the increasing presence of international new ventures in international exhibitions to introduce themselves to customers and expand their enterprise networks, 2) Zahra et al. (2003) believes that the internationalization of ventures is expensive; therefore, the prioritization of the identified factors allow the managers to focus on factors with higher priorities so that they can internationalize their ventures at a lower cost.

Based on the exploration of theoretical context and the findings of previous literature as well as the results of this study, the following suggestions regarding further research are offered: 1) a careful examination of the role of Halal brand in the early internationalization of Halal food international new ventures, 2) the identification of factors which hinder the early internationalization of new ventures, and 3) carrying out this study through mixed method. Thus, new findings can be achieved in this field through interviews with scholars, and data coding and analysis by relevant software.

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The Relationship between Accounting Information Systems and Making Investment Decisions in the Industrial Companies Listed in the Saudi Stock Market

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Abstract

The study aimed to measure the relationship between the investment decision-making in the industrial companies listed in the Saudi Stock Market with the (IVs) characteristics of the accounting information systems (appropriateness and reliability, comparability and understanding), and renovation and maintenance of the hardware and software. The problem in the Kingdom of Saudi Arabia is that the government depends on oil revenues more than on attracting investments, therefore, the importance of this study is constituted by the provision of critical recommendations to policy makers in the Kingdom of Saudi Arabia in order to overcome this issue and improve the investments. In order to achieve the objectives of this study, questionnaires were administered to 194 people representing the study population; a multiple regression (standard regression) was also used to test the study hypotheses. In general, all variables were positively significantly related with the investment decision-making.

The findings of this study also showed that the independent variables explained more than 65% of the variance in investment decision-making. The Saudi government and policy makers should issue new regulations to increase the interest in accounting information systems in order to attract the investment. In relation to the practical and theoretical contribution, this study used new variables in the new model, such as renovation and maintenance of the hardware and software. Furthermore, practical contribution will help policy makers and the Saudi government to advance in this area and implement new policies for investors in order to protect the economy and the society stability due to the war in Yemen and Syria.

Keywords: accounting information systems, investment decision-making, capital markets

1. Introduction

The Saudi economy depends primarily on oil revenue; this has become inadequate because during the Arab Spring, we know the Saudi economy has been suffering from some financial difficulties because of the financial support to the war in Yemen and Syria. Therefore, the Saudi government have encouraged and invited investors to come to Saudi Arabia to overcome those financial distresses. To address this problem, the government has instated an initiative in order to attract investments.

The Saudi government has recommended and requested from all investment stakeholders, companies, and researchers to seek for consideration and study the act. It is known that the literature related to financial issues plays a significant role in both the academic world and in the popular press. Furthermore, attracting new investments has become an important political economic issue since the increase in the public awareness in Saudi Arabia due to the Arab Spring. Since the Arab Spring and up until today, there have been little concrete achievements. Regarding this issue, numerous meetings have been held but the attempt to attract investments has been limited, and the financial problems remain unsolved.

The question why the government does not articulate the method to attract new investments remains an issue. Regarding the empirical studies, the information about attracting new investments in the industrial companies listed in the Saudi stock market is still lacking among foreign investors. It is normal that the accountant in the industrial companies listed in the Saudi stock market gives the necessary information to external parties in order

to attract their investments. Accounting information is of great interest because of its strategic and vital role in supporting all entity activities. It has become a basic requirement in the era of globalization and technological advances and urges most companies to adopt high-quality information technology and lower the costs through advanced technologies in order to help the beneficiaries make different decisions in various economic fields, especially in making investment decisions in an era of severe competition among companies globally and locally, attracting new investments, and preserving existing investments so we can have reliable, accurate, and fair accounting information that meets the stakeholders' needs in various economic fields, especially with regard to investment operations.

Given the importance of information and the development of the traditional accounting systems into information systems, most companies had the tendency to shift from traditional systems to computerized accounting information systems in order to keep pace with the era of speed in communications and information technology so as to obtain information in a timely manner to effectively manage the various activities and communicate the information to beneficiaries through the disclosure of accounting and financial information.

Based on that assumption, this study aims to measure the relationship between the characteristics of accounting information and investment decision-making in the industrial companies listed in the Saudi Stock Exchange in order to help in the investment decision-making process. Finally, the findings of this study contribute to the empirical knowledge towards increasing the responsibility of the Saudi government and policy makers in consolidating the attempt to attract new investments to overcome the financial distress. Also, the study is oriented towards the building of theory and knowledge enhancement in the role of the AIS in attracting new investments.

1.1 Problem Statement

The problem is the study of the characteristics of accounting information in order to demonstrate the effectiveness and the quality of the investment decision-making and the responses of the beneficiaries of this information in order to use it in the investment decision-making process in the industrial companies listed in the Saudi Stock Exchange. The problem also lies in knowing the results pertaining to the use of the software of the computerized accounting systems by the investment decision-makers and the access to the real problems faced by the users of the software. To date, and according to the knowledge of the authors, there are no studies that examined the relationship between the investment decision-making processes in the industrial companies listed in the Saudi Stock Market and the renovation and maintenance of the hardware and software. Consequently, the following questions will be raised in order to work out the problem of this study:

1. What is the relationship between the investment decision-making processes in the industrial companies listed in the Saudi Stock Market and the characteristics of the accounting information systems (appropriateness and reliability)?
2. What is the relationship between the investment decision-making processes in the industrial companies listed in the Saudi Stock Market and the characteristics of the accounting information systems (comparability and understanding)?
3. What is the relationship between the investment decision-making processes in the industrial companies listed in the Saudi Stock Market and the renovation and maintenance of the hardware and software?

1.2 Objectives of the Study

The research objectives of this study are as follows:

1. To examine the relationship between the characteristics of the accounting information systems (appropriateness and reliability) and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.
2. To examine the relationship between the characteristics of the accounting information systems (comparability and understanding) and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.
3. To examine the relationship between the renovation and the maintenance of the hardware and software and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.

1.3 Significance of the Study

The importance of the study lies in its many practical and theoretical aspects and significance for decision-makers. Its practical importance lies in the identification of the computerized accounting information systems and the importance of the characteristics of the investment decision-making process. The theoretical

aspect took into account the new variable within the awareness of the researchers, such as the update and the maintenance of the hardware and software used in the accounting information system and its importance and effectiveness in the decision-making process. The study is also of great importance for owners and investment decision-makers, such as managers, heads of departments, auditors, accountants, and investors that rely on the output of the computerized accounting system characteristics in making their investment decisions.

2. Theoretical Framework and Hypothesis Development

The importance of the accounting information systems lies in providing the appropriate data for the administration to make the right decisions and formulate an appropriate alternative that fits the company in terms of the investment operations in the stock market. The purpose is thus to carry out the company's functions and activities effectively (Romney & Steinbart, 2016).

The financial accounting data is mostly considered historical on the basis of the statements of the previous events that have occurred in the entity. This information shall be objective, consistent, and periodically audited due to its importance and reliability in the decision-making process (Nihad, Maher & Hussein, 2011). Mattar (2014) considered the financial analysis as one of the basic pillars of comparability, which is one of the characteristics of the accounting information systems relied upon when comparing the financial statements of the company with previous years or with other companies in the same industry in order to make efficient and quality investment decisions.

Financial ratios are considered as indicators of the strength or weakness of the financial position of the industrial company on which decision-makers can rely when making their investment decisions (Al Johmani, 2010; Al-Rawi, Hekmat & Hussein, 2005). Based on that assumption, the comparability process shall be based on the evaluation of the corporate performance and financial conditions, which constitutes one of the priorities of the investment decision-making process. Consequently, the main goal of using this feature is to give a clear and fair picture about the credibility and fairness of the financial statements, so that decision-makers can rely on these findings in order to make their investment decisions with regard to this study. Rawi and Najy (2005) showed that there was a serious weakness in the performance of the industrial companies in developing countries due to the lack of the use of appropriate scientific methods in implementing the accounting information systems and upgrading the hardware and software necessary for making investment decisions. Nevertheless, the status of the financial analysis and of the financial ratios as two of the most important accounting information systems in the decision-making process has been confirmed (Tashman, 2004; Munir, 2014). Nader et al. (2006) also confirmed that the reliance on the comparability property as one of the characteristics of the accounting information systems helps the financial manager in the financial decision-making and investment processes, which is considered to be a barometer for the measurement of the performance of the company compared with other companies. In addition to that assumption, Bryan (1997) sought to test the effect of accounting disclosure in accordance with the requirements of the US capital market initialized in the relationship between the accounting information and the investment decisions in the US capital markets.

This study is based on the analysis of the mandatory accounting variables disclosed, such as prices, revenues, costs, future liquidity, capital spending, and future operations. It has been applied on a sample of 250 companies registered in the New York Stock Exchange in 1990. The study also used the multiple regression analysis method and concluded that the disclosure of future operations may assist in the evaluation of the success of the economic units' indicators in the near future. Based on that, the study used the multiple regression method in order to measure the relationship between the independent and dependent variables (making investment decisions in the industrial companies listed in the Saudi Stock Market).

2.1 The Accounting Information Systems: Definition and Importance

Turner, Leslie and Andrea (2009) showed that the accounting information system is a set of financial and human resources data in organizations responsible for the preparation and processing of financial information in addition to the information collected from data processing in order to provide them to all administrative levels for the purpose of controlling and planning the various activities of the company and any third party that has common interests with the company. As for the significance of the accounting information system, it revolves around the existence of ready-made programs in accounting applications in companies and how the company chooses the system that substantially corresponds to its various activities. A previous study conducted by Date (2000) showed that the system consists of many different elements strongly correlated with each other in order to carry out the functions required, either in terms of computerized systems or traditional systems. Abdul Razzaq (2003) confirmed that the main objective of the information system is to provide decision-makers with useful information to help them perform their job efficiently. Donald and Wwygandt (2001) stated that the information

system has three basic components in the production of information that can be relied upon when making decisions. The first is that all economic events and activities should be filled up in the system, known as the input, in order to process this data; the second component involves processing all the input data and making calculations, whereas the third component is known as the output, which is the information needed by the decision-makers in order to reach win-win investments and other beneficial economic processes for the users of financial statements (Marshall, Stainbart, 2012, 239; COBIT 4.1, 2007, 10).

2.2 The General Concept of the Study Variables

The accounting information characteristics can be illustrated as independent variables in this study as follows (IFAC, 2008):

Comprehensibility: this property requires the ability to understand the accounting information by users who are supposed to have a reasonable level of knowledge in business, economic activities, and accounting. They should also provide clear and understandable financial information which does not entail complexity and difficulty.

Appropriateness: in order to be convenient, the accounting information should be relevant and affect the economic decisions of users by helping them in the evaluation of past events, present and future, or modifying the previous evaluation process. The financial information should predict the performance of an entity in the future and the ability of the entity to cope with any events and unanticipated changes since the users of the accounting information are interested in predicting the future financial performance. The appropriateness of the information is associated with the nature of this information and its relative importance, such as the disclosure of the work sector or of a new geographic sector. The information is considered a material (relative importance) if the omission or misstatement of the information could affect the economic decisions taken by users based on the financial statements (Turner, Leslie & Andrea, 2009).

Reliability: information must be reliable in order to be useful. It should be free of significant neutral mistakes and relied upon by users, as this refers to transactions and other events, or the rationality of future events. In order to be reliable, the financial information must accurately reflect the financial transactions and other events that have occurred in the entity. The financial information must be in accordance with the economic reality and not with the legal form only. It must be neither biased nor provided in order to inflate assets, revenues, income or to reduce the obligations and expenses. Furthermore, caution must be at a reasonable limit and free of exaggeration. The financial information should also be complete, since any deletion renders it wrong and unreliable, which decreases its suitability.

Comparability: this means that the financial statements are compared with other financial periods for the same company or with the financial statements of another entity for the same period. The users of the accounting information use the comparison in order to make decisions related to investments, finance, follow up the entity's periodical performance and financial position, and compare them with other companies (Hendriksen, Michael & Eldon, 1992).

2.3 Study Variables

The independent variables of this study are represented in the characteristics of the accounting information systems and the update and maintenance of the hardware and software. The dependent variable is represented by making investment decisions in the industrial companies listed in the Saudi Stock Market. In reference to previous studies, this study has shown how the measurement is used in these variables in addition to its most important findings and recommendations.

2.3.1 Independent Variables

The independent variables include the characteristics of the accounting information systems (appropriateness and reliability, comparability and understanding). These characteristics are useful for the decision-maker regardless of whether a traditional or a computerized accounting system is used. Furthermore, in order for information to be useful for decision-makers, it must be compatible with the nature of the decisions, the decision model, and the nature and sources of information needed by the investment decision-makers, who must have the ability to analyze and understand this information (Richard, 2001). Shirazi (1990) showed that the efficient decision-making process is based on the useful information through the characteristics of the accounting information. Bodnar, George and William (1995) confirmed that the accounting information characteristics are necessary in order to make investment decisions. Decision-makers face major limitations when using the characteristics of the accounting information systems in order to test the level of importance and conduct the cost-benefit tests. These limitations differ among decision-makers based on their intrinsic characteristics, such as the demographic factors including the education level, awareness, and the size of information available to the

decision-makers, so that the comprehensibility information is considered as a liaison between the information characteristics and characteristics of its users. Therefore, this study intends to determine whether the independent variables have a significant impact on the investment decision-making.

In light of the questions raised in the problem of the study, the hypotheses are derived from studying the literature. Therefore, many researchers studied the relationship between the accounting information systems and other factors, such as Ogan Yigitbasioglu, (2016), who showed that there is a significant and positive relation between the information system flexibility and the management accounting adaptability and a positive and significant relation with the effectiveness of management accounting. There was also a moderation effect of the ISF on the relation between the IS integration and the adaptability of management accounting. In line with that, Moqbel, Al-Rjoub and Al-Shwiyat (2015) showed that there is a positive effect of the adoption and implementation of the accounting information systems on the improvement of the production costs. In relation to that, Uyar, Haydar and Kuzey (2017) found that the accounting information system (bookkeeping, financial reporting, and the budgeting system) has a positive impact on the corporate governance level. In another body of literature, Ceran, Gungor and Konya (2016) studied the importance of the accounting information system in preventing the crises that were or will be experienced by businesses, the study revealed that the financial information obtained from the accounting information system is very important for the decision-making process of the businesses, and the accounting information system is protected against the financial crises. Additionally, Brandas, Stirbu and Didraga (2013) aimed to develop and test an integrated approach model of risk, control and auditing of the AIS on three cycles of business processes: purchases, sales and cash in order to improve the efficiency of the IT governance. The study confirmed that there is a medium level of risk for each cycle, and the correlation between risk, control and audit in the management information systems, offers the perception of a stable IT environment for the entity. Furthermore, Choe (1996) investigated the direct relationships between the influence factors (user involvement, top management support, user training and education, and context of the IS group) and the performance of the accounting information systems. The significant information reveals that there are significant positive correlations between the performance of an AIS and the influence factors, such as user involvement, capability of the IS personnel and organization size. Moreover, Tan (2016) used a questionnaire in order to examine the impact of the AIS on internal auditors in Turkey. He found that the AIS contributes positively to the work of internal auditors. Therefore, the related hypotheses are proposed:

HP1: There is a positive relationship between the characteristics of the accounting information systems (appropriateness and reliability) and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.

HP2: There is a positive relationship between the characteristics of the accounting information systems (comparability and understanding) and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.

2.3.2 Renovation and Maintenance of the Hardware and Software

This variable is (IV): Programs used in the accounting applications: Juma (2016) showed that the ready-made programs in accounting applications are dramatically progressing in terms of quantity and quality. Many of these programs are of different qualities, which have led to a difficulty in making a choice between them and their significance. Juma (2016) confirmed that the cost of the program is the sole determinant for the selection of ready-made programs. When choosing a ready-made program in accounting applications, it must meet the needs of the company, be protected, and viable for development, modification, and maintenance of the services methods. Ready-made programs in accounting applications have many characteristics, such as simplicity of use by the administration, customer service in the input cycle, the number of inputs required for each action, and ease of modification and development of the program in terms of consistency with the company reports, business services, dealing with other programs, in addition to the services provided by the software suppliers. In relation to that, Sha, Wang, Zhuge, Zhang and Liu (2015) aimed to solve hardware/software partitioning problem, such as minimizing the system time, power consumption, or hardware area. Their study shows "the relationship between the qualities of the solution with the number of nodes when the input benchmarks are in tree structure. Since the objective is to minimize the system power consumption, the smaller values represent the better solutions". In addition, Wohleb, Skinner and White (2013) studied the information that may be used to improve the integration of the hardware, software, and technology tools in business/marketing education programs. The result showed there is a significant difference in the use of hardware and technology tools based on the years of teaching experience. Hence, the following hypothesis is proposed:

HP3: There is a relationship between the renovation and maintenance of the hardware and software used in the

computerized accounting information systems and the investment decision-making process in the industrial companies listed in the Saudi Stock Market.

2.3.3 Dependent Variable

The dependent variable in this study is the investment decision-making process in the industrial companies listed in the Saudi Stock Exchange. Previous studies showed a variety of decisions that included the strategic decisions taken by the senior management in several organizations. The dependent variable is related to determining the goals, policies and strategies of the organization, and control of the overall performance of the organization including long-term planning. The tactical decisions are those made by the medium administrative levels, such as the distribution of workers on the organization's departments, and setting of prices. The operational decisions are those made by the lower administrative levels including the conduct of daily operations (buying, selling, and the production process) of a company (Razak, 2015). Many studies (Saleh, 2010; Houari, 2012) confirmed the importance of the information related to the stock market and the accounting information in the economic units, such as trading decisions. Despite the relative advantages achieved by the industrial companies listed in the Saudi stock market in the field of the rationalization of investment decisions, they suffered some shortcomings that impeded their progress. Hossair and Rahman (1997) said that there were many negative determinants facing the securities markets in the developing countries, such as a poor quality of the financial and accounting information in relation to the needs and behavior of the investors and a limited investment awareness in the stock market.

Wright and Ken (1996) studied the impact of accounting information and its importance when making decisions in the stock and capital markets in the United Kingdom. The study relied on the questionnaires sent to a group of executives in order to evaluate the accounting information about increasing the awareness of investors. The study highlighted the importance of accounting information in assisting the investor when making investment decisions in the financial markets.

3. Research Frame Work and Methodology

3.1 Research Framework

The independent variables of this study are appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software. The dependent variable is represented by the investment decision-making in the industrial companies listed in the Saudi Stock Exchange. Figure 1 below shows the research framework of the study.

Figure 1. Research Model

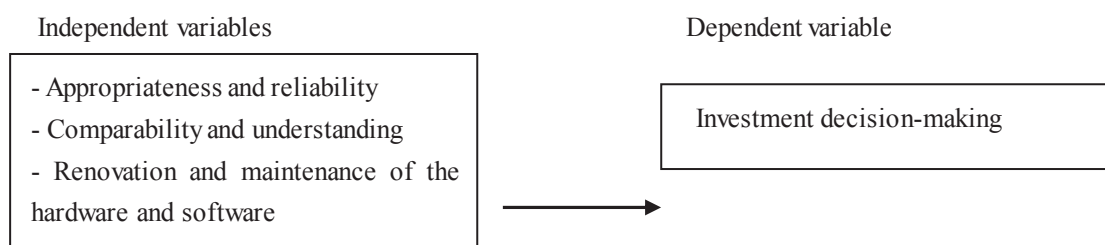


Figure 1. Theoretical Framework

3.2 Research Design

The basic research design utilized for this study is a survey design. There is one set of data used for collection purposes, namely primary data. The collection of primary data is accomplished using a personal survey instrument. Data is collected from the personal survey instrument (questionnaire) in order to measure the relationship between accounting information systems and making investment decisions in the industrial companies listed in the Saudi Stock Market. This study is strictly designed for correlation rather than causal analyses.

3.3 Society and the Study Sample

The study population consisted of investors, managers, heads of departments, accountants, and external auditors in the industrial companies listed in the Saudi Stock Market and number (77) Industrial Co., which was chosen as a random sample, consisted of 300 people representing the study population.

Table 1 shows the ratio of the questionnaires sent to respondents and the percentage of those that returned them back.

Table 1. Summary of the Response Rates

Questionnaires administrated	300
Undelivered	62
Subjects contacted	238
No. of Responses	194
Response rates (194 / 238)	81.5%

Table 1. Shows the information on the population and the return rates of the questionnaire sent to the sample in the Saudi kingdom. Out of the 300 questionnaires administered, 238 subjects were eventually delivered but only 194 from the sample were received, resulting in a response rate of 81.5%.

3.4 Data Analysis

The multiple regression method is used in the hypothesis testing because there are more than two IVS and one DV. Moreover, all variables have used the interval scale.

3.5 Instrument Reliability

The researchers relied on previous studies and questionnaires in the instrument development (5 Likert scale used). The instrument experienced several tests, such as **instrument reliability and validity**. The results of reliability were statistically acceptable as follows:

Table 2. Cronbach's Alpha Test

Variables	Cronbach's alpha
Appropriateness and reliability	72.6%
Comparability and understanding	83.5%
Renovation and maintenance of hardware and software	82.7%
Investment decision-making	79.7%

The Cronbach's Alpha values range from 72.6% to 83.5%. Therefore all factors fulfilled the minimum requirement level of reliability.

3.6 Linearity, Normality and Homoscedasticity Status

The results confirmed that the distribution of the sample answers was normal and there was a linear relationship between the independent and the dependent variables which was confirmed by the following tests: (scatter plot diagrams and Q-Q plot). This confirms that the sample study was homogeneous with the population study. As for the normal distribution, the researchers relied on the test (Stem & Leaf), which is apparently a homogeneous form; this shows that the normal distribution of data makes it possible to use the multiple regression method.

3.7 Criterion Validity

This type of test examines the relationship between all variables with each other. Hair, Anderson, Tatham, Black and Babin (2007) confirmed that the high correlation of 90% and above is considered an indicator of a strong internal correlation between the independent variables with each other. A high correlation among the independent variables indicates that the measurement of one variable leads to the deletion of one of them.

Table 3 the relationship between variables (Pearson correlation)

	Appropriateness and reliability	Comparability and understanding	Renovation and maintenance of hardware and software	Investment Decisions
Appropriateness reliability	1	0.579	0.469	0.354
Comparability understanding		1	0.453	0.254
Renovation and maintenance of hardware and software			1	0.294
Investment Decisions				1

Table (3) indicates that the statistical results (Pearson correlation) of this study confirm that there is no high correlation among IVs. This test is necessary before the multiple regression procedure (Hair, J. E., Anderson, R. E., Tatham, R.L., Black, W. C. & Babin, B, J., 2007).

4. Results

4.1 Analysis of the Relationship between the Variables of the Study

The study used the bivariate analysis in order to test the relationship between two variables; in light of that, the researchers used the Pearson correlation coefficient to measure the linear relationship between the variables; the "0" value indicates the absence of a relationship between the variables but the "1" value indicates a strong

positive correlation; and the “-1” value indicates a strong negative correlation between the variables. Therefore, Cohen (1988) confirmed that the interpretation of the strength of the relationship between two variables is as follows:

Table 4. Strength of the relationship between variables

Correlation	Strength of the correlation
R = 10.0 to 29.0 or r = -0.1 to -0.29	Low
R = 30.0 to 49.0 or r = -0.3 to -0.49	Medium
R = 50 to 100 or r = -0.5 to -1	High

Table 5. The level of relationship between the independent variables and the dependent variable

Variables	Strength of the relationship
Appropriateness and reliability	High
Comparability and understanding	High
Renovation and maintenance of hardware and software	Medium

The results of the correlation analysis showed the level of the relationship between the independent variables and the dependent variable as they appear in Table 5. We note that there are two independent variables (appropriateness and reliability & comparability and understanding), which have a high correlation with the dependent variable (investment decision-making) but the renovation and maintenance of hardware and software has a medium correlation with Dv.

4.2 Multiple Regression Coefficient

The findings of the regression analysis have revealed that comparability and understanding significantly ($p=0.000$) influenced the investment decision-making in the industrial companies listed in the Saudi Stock Market. Furthermore, there is a statistically significant ($p=0.000$) impact of appropriateness and reliability on investment decision-making in the Industrial Companies Listed in the Saudi Stock Market. In addition, the renovation and maintenance of hardware and software ($p=0.003$) is statistically significant on the dependent variable. MRA techniques have shown the results clearly by presenting the impact of multiple independent variables as shown in the following results.

Table 6. Coefficients of independent variables

Model	Unstandardized Coefficients			Standardized Coefficients		
	B	Std. Error	Beta	T	Sig	
Constant	0.269	.212		4.995	0.463	
Appropriateness and reliability	0.361	.041	0.502	6.817	0.000	
Comparability and understanding	0.380	.030	0.528	5.488	0.000	
Renovation and maintenance of Hardware and software	0.312	.017	0.427	2.517	0.003	

The regression coefficient (β) indicates the effect of the independent variables on the dependent variable. Specifically, for each unit change of the independent variable X, there is an expected change equal to the size of β in the dependent variable, Y. Hence, the regression model is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where

Y = investment decision-making

a = constant

X1 = appropriateness and reliability

X2 = comparability and understanding

X3 = renovation and maintenance of the hardware and software

ε = random disturbance term (error).

Table 7. Relationship between the investment decision-making and the appropriateness and reliability

Model	B	Std. Error	Beta	t	sig
Appropriateness and reliability	0.361	.212	0.502	6.817	0.000

The value of the (appropriateness and reliability) coefficient in the table above was (0.361). This is a positive sign indicating the existence of a positive relationship between the investment decision-making, as an increase

in the appropriateness and reliability leads to the increase of the investment decision-making and vice versa. Moreover, the value of possible significance reached (0.000) in Table (7) and it is lower than the level of significance (0.05). Thus, it is accepted that there is a statistically significant relation between the dependent variable pertaining to investment decision-making and the independent variable concerning appropriateness and reliability.

Table 8. Relationship between the investment decisions making and comparability and understanding

Model	B	Std. Error	Beta	t	sig
Comparability and understanding	0.380	.030	0.528	5.488	0.000

The value of the coefficient of the (comparability and understanding) reached (0.380) and the positive sign is indicative of the existence of a direct relation between the investment decision-making and the comparability and understanding factor, as an increase in comparability and understanding leads to the increase of the investment decision-making and vice versa. Moreover, the value of the possible significance reached (0.000) in Table (8) and it is lower than the level of significance (0.05). Thus, it is accepted that there is a statistically significant relation between the dependent variable pertaining to investment decision-making and the independent variable comparability and understanding.

Table 9. Relationship between the investment decision-making and renovation and maintenance of the hardware and software

Model	B	Std. Error	Beta	t	sig
Renovation and maintenance of the hardware and software	0.312	.017	0,427	2.517	0.003

The value of the coefficient of the (renovation and maintenance of the hardware and software) reached 0.312 and a positive sign is indicative of the existence of a positive relation between the investment decision-making and the renovation and maintenance of the hardware and software, as an increase in the renovation and maintenance of the hardware and software leads to the increase in the investment decision-making and vice versa. Furthermore, the value of the possible significance reached (0.003) in Table (9) and it is lower than the level of significance (0.05). Thus, it is accepted that there is a statistically significant relation between the dependent variable pertaining to the investment decision-making and the independent variable concerning the renovation and maintenance of the hardware and software.

It is observed from the results that the data was in conformity with the study assumptions, therefore, it is also confirmed that there is a positive relationship between all the independent variables (appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software) with the dependent variable (investment decision-making in the industrial companies listed in the Saudi Stock Market). This is due to the strength of the sufficiently available data because of the long time available. Therefore, the longer the time required for collecting data, the more reliable and accurate are the results.

Table 10. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R square change	F change	Df1	Df2	sig f change
1	0.816	0.658	0.587	0.22760	0.658	55.855	3	190	.000

a. Predictors: (constant), appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software

b. Dependent Variable: investment decision-making

It is clear that the value of the overall correlation coefficient is R= 81.6%. The correlation coefficient is revealed for the independent variables (appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software) and the dependent variable (investment decision-making). It is indicated that the existence of a direct and strong correlation between the dependent and independent variables is closer to one (81.6%). It is noted that the value of the determination coefficient R square is equal to 65.8%; and the value of the adjusted determination coefficient is 58.7%. The coefficient of determination is referred to as the amount of the explained variance by the regression model, which makes it beneficial as a measure of predicting success (Nagelkerke, 1991).

Table 11. Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14,482	3	4.827	55.855	000(a)
Residual	9.825	190	0.052		
Total	24.307	193			

a. Predictors: (constant), appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software

b. Dependent variable: investment decision-making

The value of the possible significance reached (0.000) and it is lower than the value of significance (0.05). Thus, the relation is significant, which explains a significant percentage in the dependent variable (investment decision-making).

5. Discussion

The relationship between accounting information systems and making investment decisions as applied in the industrial companies listed in the Saudi Stock Market for the year 2016 and 2017 is revealed through the multiple regression. The relationship played by the characteristics of the accounting information system and renovation and maintenance of the hardware and software are emerged in the economies internationally. Therefore, these IVs have proved their ability to achieve a number of economic objectives, and they will also provide investment opportunities that will support the Saudi economy. Governments have focused on encouraging young people to establish small businesses and encourage foreign investments to secure solutions to support the Saudi economy. The data of the variables concerning this study were obtained from investors, managers, heads of departments, accountants, and external auditors. The variety of regression data provides appropriate results in accordance to the hypothesis. All study results were important because of the presence of a strong direct correlation between the dependent variable (investment decision-making) and the independent variables (appropriateness and reliability, comparability and understanding, and renovation and maintenance of the hardware and software). Therefore, the value of the correlation coefficient R and the value of the determination coefficient R Square indicated that the independent variables affect the dependent variable by 65.8%. There is a direct relationship between the IVs and DV.

Over the past few years, Saudi Arabia has worked hard in order to embark effective strategies that support the initiation of small businesses that would help to meet the needs for the economy growth of the country. For starting up a successful investment, the knowledge of the characteristics of the accounting information system and the renovation and maintenance of the hardware and software will help to attract good investments. Saudi Arabia needs for efficient investment policies for the economic improvements in order to cope up with the financial distress because of the war in Yemen and Syria. In line with that, Elimam (2017) indicates that in 2010 Saudi Arabia started new investments related to the entrepreneurship. The characteristics of AIS and renovation and maintenance of the hardware and software are supporting the existence of foreign markets and foreign sources for investments in the industrial companies listed in the Saudi Stock Market, which will contribute to the success and growth of the Saudi economy. Saudi Arabia has built an integrated mining town on the Arabian Gulf coast with investments of \$130 billion and equipped industrial cities in various regions of Saudi Arabia. Furthermore, and in a second phase, Saudi Arabia was interested in assigning a greater role to the private sector in leading the economy and directing production. This is because the country's economic policy seeks to reduce the dependence on the government sector in terms of creating jobs and creating an economy based on efficiency, if oil prices remain at around \$50 a barrel or less (Middle East Arabe Newspaper, 2017). Nevertheless, Rahman (2017) examined the determinants of foreign direct investments in the Kingdom of Saudi Arabia. The study used empirical methods and conventional regression models, and the results show the Gross Domestic Product (GDP) levels effect on Foreign Direct Investment (FDI) in a strong, positive and significant way. Also, exports had a significant negative impact on the KSA's FDI, while the socio-political risk variables were mostly significant, and negative in their impacts on the FDI inflows.

Supporting the economy in the Saudi kingdom is largely associated with investments through the existence of big and small business. The major cause for this assertion is that large and small businesses are the basis of revenues, budgets and the extent of the workforce (Elimam, 2017). The contribution of the characteristics of the accounting information system and the renovation and maintenance of the hardware and software towards attracting investments is observed through the existence of a strong statistical relationship between them. Therefore, the results also revealed the existence of an awareness towards the importance of the accounting information systems and renovation and maintenance of the hardware and software by the investment

decision-makers, which was confirmed by previous studies (Bryan, 1997; Bodnar, George & William, 1995; Ceran, Gungor & Konya, 2016; Juma, 2016; Abdul Razak, 2015; Wright & Ken, 1996).

Moreover, the results showed that the use of comparability and the understanding characteristic has a positive impact on the investment decision-making. This characteristic has a statistically significant effect at $\alpha \geq 0.000$, which means that it is considered one of the most influential independent variables on the dependent variable. The more this characteristic of comparability and understanding is used, the better the quality of the investment decisions to be made, which means that the non-use of this characteristic leads to lower quality and inefficiency of the investment decision-making in the industrial companies listed in the Saudi Stock Market.

Obviously, this study also found that there is a statistically significant positive relationship between appropriateness and reliability between an independent variable and the dependent variable (investment decision-making). The more this independent variable is used when making investment decisions, the stronger and more efficient these decisions will be, which means that the non-use of this IV leads to lower quality and inefficiency of the investment decision-making in the industrial companies listed in the Saudi Stock Market.

In line with that, the results of this study showed that the renovation and maintenance of the hardware and software have a positive impact on the investment decision-making process in the industrial companies listed in the Saudi stock market; this impact has a statistically significant relationship at level $\alpha > 0.12$. This variable is one of the most influential variables on the dependent variable, which facilitates a frequent update and maintenance of the hardware and software and makes it possible to keep abreast of the technological developments related to accounting information systems. Thus, the investment decision-making process in the industrial companies listed in the Saudi Stock Market will be more efficient.

Finally, the use of all independent variables together will contribute to a useful and efficient investment decision-making process.

6. Recommendations

The need to take all the characteristics of the accounting information systems into account when making investment decisions since these characteristics entail an effective contribution towards ensuring efficient investment decision-making. Indeed, these characteristics contributed to a 65.8% rate in improving the quality of decisions.

Conducting specialized courses for decision-makers to identify the nature and importance of the accounting information systems necessary for making high-quality investment decisions.

Urging the industrial companies listed in the Saudi Stock Market to use flexible software for the development and changes in the surrounding environment of the company.

Publishing the accounting information and making it available for investors in the Saudi Stock Market by urging the industrial companies to publish summaries about their financial statements including the significant accounting information affecting the investment decision-making.

The researchers recommend future studies to consider other variables because this study contributed to about 65.8% and left 34.2 % of the rates for other variables that have an impact on the dependent variable (investment decision-making).

The necessity to activate the role of the Saudi Government to attract the investments by spreading awareness through the use of the characteristics of accounting information systems.

The necessity to find a way to implement the regulations, which state that the government encourages and attracts investments.

7. Limitations

The sample of the study was initially constituted of 300 respondents and only 196 respondents were received. Therefore, future research should attempt to incorporate a larger sample size in order to increase the generalizability of the results. Additionally, this study assumed that respondents do not consciously or unconsciously represent the truth. This limitation may have affected the findings, since it is based on survey data and may be subject to investments desirability bias. In addition to the investments desirability bias (consciously or unconsciously the respondent wishes to create a favorable impression), the agreement bias (the respondent tends to agree with all questions and deliberate falsification are common types of respondent error in survey studies) should also be taken into consideration (Zikmund, 2000). Even if the study has selected the samples according to a random probability sampling, a random probability error is still unavoidable (Zikmund, 2000). Hence, the samples may have been biased because the particular groups surveyed may have been from the same

policy-makers, thus it would be expected that they would have similar responses. The second limitation relates to the quantitative approach adopted in this study and does not depend on the other approach, such as the qualitative approach.

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Measuring the Degree of Internationalization for Taiwanese Banking Industry: Scoring Measurement by Principal Component Analysis

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Abstract

This paper mainly focuses on researching and measuring the effects concerning the degree of internationalization (DOI) within the Taiwanese banking industry, with particular application of the scoring measurement by principal component analysis (PCA). The empirical results indicate that there exists an increasing trend for the DOI of Taiwanese banking industry as measured by FATA (each bank's overseas assets over its own total assets), FETE (each bank's overseas equities over its own total equities), FSTS (each bank's overseas sales over its own total sales) and FBTB (each bank's overseas facilities and operating units over its own total operating units). Under the Box-cox transformation, the DOI scoring index as percentage level (%) from 0 to 100 shows that the relevance of the variables are mostly above 50, indicating that the DOI of the observed Taiwanese banks are quite strong. Thus, the results support the existence and importance of the DOI for current Taiwanese financial institutions, while presenting complimentary and more realistic information regarding the degree of internationalization for Taiwanese banks. At the same time, providing substantial groundwork and adding value to future international management research and investigations that could help representatives of government and management decision makers to achieve better investment decision-making for business strategies and prompt international expansion.

Keywords: banking industry, country-institution factors, Degree of Internationalization (DOI), principal component analysis

1. Introduction

As an island nation, Taiwan is very much dependent on internationalization situations, and thus, has also been subsequently affected by the recent overall world turmoil and past financial global situations. However, despite recent downturns, the overall global economy still seems to be set for a moderate recovery, and Taiwan is strong to follow on global economic trends (Chen, 2012). In this regard, hopefully Taiwan's financial institutions would further lead on and not be substantially impacted, continuing to expand their business horizons globally and work towards developing their international presence. Under these circumstances, this research aims to better understand the situations regarding the degree of internationalization of Taiwanese banks. So far, little interest has been expressed in determining the degree of internationalization for the Taiwanese banking industry, and to do so, it thus requires the necessary groundwork research. This article focuses on measuring the degree of internationalization (DOI) within the Taiwanese banking industry, where the phenomenon can be most clearly identified, whilst also considering the particular application of the scoring measurement by principal component analysis (PCA).

When Taiwanese banks seek to enhance internationalization, not only do they need to take into account factors benefiting the firm, but they might also need to consider factors that interact with the foreign country. In theory, internationalization is the process of increasing involvement of enterprises in international markets. There are several internationalization theories which try to explain the drivers behind international activities. International trade by definition is the exchange of capital, goods, and services across international borders or territories, which could involve the activities of governments and individuals. As of which, in Taiwan, internationalization not only involves the manufacturing and trading of products and goods, but it also involves the transaction of

services such as banking, insurance and other financial services like foreign direct (portfolio) investments. According to De Bonis, Ferri, and Rotondi (2015), when a non-financial enterprise (especially manufacturing sector) enjoys a strong relationship with its main bank, internationalization is more likely. Moreover, the positive impact of relationship banking is greatest when the firm's main bank is itself internationalized. By better understanding and measuring the degree of internationalization of Taiwanese Banks, it would be possible to more accurately understand the necessary implications regarding the internationalization of Taiwanese financial institutions and how it could potentially influence the country's global expansion across industries and also as a whole, as financial service companies often play a crucial role and have a close relationship with other firms that invest overseas (Seth, Nolle & Mohanty, 1998).

The internationalization of Taiwanese banks could be said with certainty tied closely to the internationalization of other firms, as financial institutions provide the necessary pathway for international business and overseas investment. In this regard, while the Taiwanese banking industry seeks effort to extend their scope abroad, the exploration on the degree of internationalization and its measurements thus become substantial issues for Taiwanese and global operators to address within domestic and likewise also on the worldwide spectrum. Hopefully, banking management and policy makers could use the results from this research to analyze the country's global expansion issues while considering more realistic information regarding the degree of internationalization for Taiwanese banks, and at the same time provide substantial groundwork and adding value to future international management research and investigations. Meanwhile, it could also help achieve better investment decision-making for business strategies purposes and government policies.

The reminders of this study are organized as follows. Section 2 describes the general trends of internationalization for Taiwanese banking industry. Section 3 discusses the related theories and a review of the relevant literature. Section 4 presents the methodology of principal component analysis. Section 5 depicts the empirical measurement of DOI for Taiwanese banking industry and implications. Section 6 provides the concluding remarks.

2. General Trends of Internationalization for Taiwanese Banking Industry

In this section, we will analyze the general trends of internationalization for the Taiwanese banking industry, where Section 2.1 will briefly describe the actual internationalization regions and locations of Taiwanese banks up to 2015 and Section 2.2 will briefly discuss a general view related to actual internationalization for Taiwanese banks.

2.1 Internationalization Regions and Locations of Taiwanese Banks up to 2015

In the broad sense, internationalization refers to the expansion of an enterprise's products or activities into overseas markets. The term can thus be applied to exports, licensing, agency operations, export processing, etc., where it does not necessarily involve foreign direct investment (FDI). In a narrower sense, as according to the definition used by the United Nations Conference on Trade and Development (UNCTAD), for an enterprise to be classed as a transnational corporation it must have established an entity overseas, and that entity must operate within the same decision-making system as the parent company. As such, under this situation, for the purposes of this research we thus focus on the Taiwanese banking institutions that have already established subsidiaries overseas.

The overall financial institutions in Taiwan are mostly involved in indirect financing and money market activities; they include commercial banks, industrial banks, the Postal Remittances, financial holding companies, local branches of foreign banks, credit cooperatives, and bills finance companies. In this regard, the total number of operating branches in Taiwan has surpassed 5,098 as of 2015. Of all, commercial banks are relatively larger in terms of their net worth, assets, and network of branches. In fact, 16 Taiwanese banks rank among the top 500 banks in the world in terms of tier one capital, according to the July 2014 issue of the *Banker*. As provided by data from the Taiwanese Financial Supervisory Commission, by the end of September 2015 Taiwan was home to 39 Taiwanese commercial banks, out of which we select 18 that already operate overseas as having established numerous branches, representative offices and other affiliates in different regions and locations.

As we can see from the Table 1, Taiwanese banks have overall expanded overseas into 6 regions, namely: Asia-Pacific (Mainland China, Japan, Indonesia, India, Cambodia, Hong Kong, Thailand, Malaysia, Philippines, Vietnam, Singapore, Lao PDR, Myanmar, Australia and Macau) Asia-Middle East (Bahrain and United Arab Emirates), Europe (Belgium, France, United Kingdom and Netherlands), North America (Canada, US), Central-South America (Panama) and Africa (South Africa). The 18 Taiwanese domestic banks together have in total 433 branches, representative offices and other.

Table 1. Branches, Representative Offices and Other Affiliates in Different Regions and Locations (2015)

Countries	Institutions	Total	Branches	Representative Offices	Other Affiliates
	Grand Total	433	127	31	275
	Subtotal	343	93	28	222
Asia-Pacific	Mainland China	56	24	3	29
	Japan	42	6	—	36
	Indonesia	13	—	1	12
	India	4	2	2	—
	Cambodia	34	3	1	30
	Hong Kong	68	20	3	45
	Thailand	9	—	4	5
	Malaysia	4	2	—	2
	Philippines	31	2	1	28
	Vietnam	55	11	9	35
	Singapore	10	10	—	—
	Lao PDR	2	2	—	—
	Myanmar	4	—	4	—
	Australia	8	8	—	—
	Macau	3	3	—	—
	Subtotal	2	—	2	—
West-Asia	Bahrain	1	—	1	—
	United Arab Emirates	1	—	1	—
	Subtotal	9	7	—	2
Europe	Belgium	1	—	—	1
	French	1	1	—	—
	United Kingdom	6	5	—	1
	Netherlands	1	1	—	—
	Subtotal	76	24	1	51
North America	Canada	11	2	—	9
	U.S.A.	65	22	1	42
	Subtotal	2	2	—	—
Central-South America	Panama	2	2	—	—
	Subtotal	1	1	—	—
Africa	South Africa	1	1	—	—

Source: Financial Supervisory Commission

affiliates overseas, how they are spread across each region is shown in Figure 1, where, 79% belongs to the Asia-Pacific region, 18% is located in the North America Region and 2% is situated in the Europe area. Overseas branches and representative offices established across nations indicate that Taiwanese banks have indeed already experienced a certain degree of internationalization.

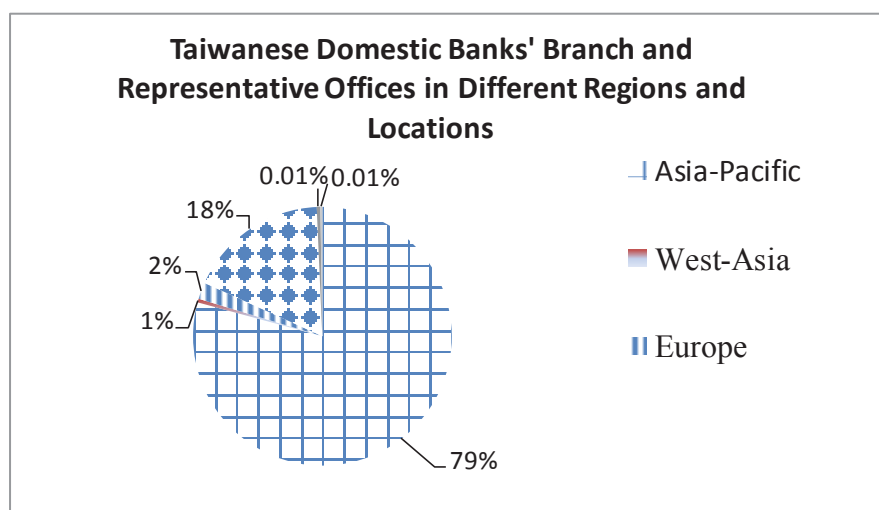


Figure 1. Taiwanese Domestic Banks' Branches, Representative Offices and Other Affiliates

Source: Financial Supervisory Commission

2.2 General View of Actual Internationalization for Taiwanese Banks in Different Regions and Locations

Here we separately examine the degree of internationalization for Taiwanese banks by looking at the four different index ratios that could be applied to measure the DOI of each bank.

FATA: each bank's overseas assets over its own total assets

FETE: each bank's overseas equities over its own total equities

FSTS: each bank's overseas sales over its own total sales

FBTB: each bank's overseas facilities and operating units over its own total operating units

We selected these categories based on internationalization components as indicated in previous literatures (Sullivan, 1994) and also taking into consideration of the real business activity of Taiwanese banks operating overseas. Based on data collected from the Central Bank of the Republic of China (Taiwan), Financial Supervisory Commission (Banking Bureau) and Taiwan Economic Journal (TEJ), we could then construct the estimated values to detect each of the four different ratios for each bank. Table 2 shows the average of each of the indexes for each selected Taiwanese bank during the study period 2000-2015. These measurements of DOI in general can thus show the reality of internationalization of the banking industry in Taiwan.

Regarding FATA as each bank's overseas assets over its own total assets, the average value of DOI of Taiwanese banks estimated by FATA is 0.001, ranking in the first five are:

1. Mega Bank
2. CTBC Bank
3. Bank SinoPac
4. Shanghai CSB
5. First Bank

Regarding FETE as each bank's overseas equities over its own total equities, the average value of DOI of Taiwanese banks estimated by FETE is 0.0003, ranking in the first five are:

1. First Bank
2. Mega Bank
3. Hua Nan CB
4. E.Sun Bank
5. Cathay United Bank

Regarding FSTS as each bank's overseas sales over its own total sales, the average value of DOI of Taiwanese banks estimated by FSTS is 0.001, ranking in the first five are:

1. Land Bank
2. Ta Chong bank
3. Mega Bank
4. Bank SinoPac
5. TaipeiFubon Bank

Regarding FBTB as each bank's overseas facilities and operating units over its own total operating units, the average value of DOI of Taiwanese banks estimated by FBTB is 0.022, ranking in the first five are:

1. CTBC Bank
2. Mega Bank
3. Bank SinoPac
4. Cathay United Bank
5. First Bank

As such, based on Table 2 regarding the four different index measurement ratios for the degree of internationalization for Taiwanese banks in general each index can actually show that Taiwanese banks in fact already have a substantial amount of internationalization. As criticized by Sullivan (1994), by using only single index measurement, it may lead to undervaluation of the DOI. Each measurement from the different single index

yield different partial results for the DOI measurement of Taiwanese banks, as such it cannot completely justify the actual DOI for Taiwanese banks. Therefore, this study will consider an integrated/Composite index as proposed by Sullivan (1994) by using principal component analysis to combine and integrate the different aspects regarding the degree of internationalization of Taiwanese banks as shown in the conceptual model in Figure 2.

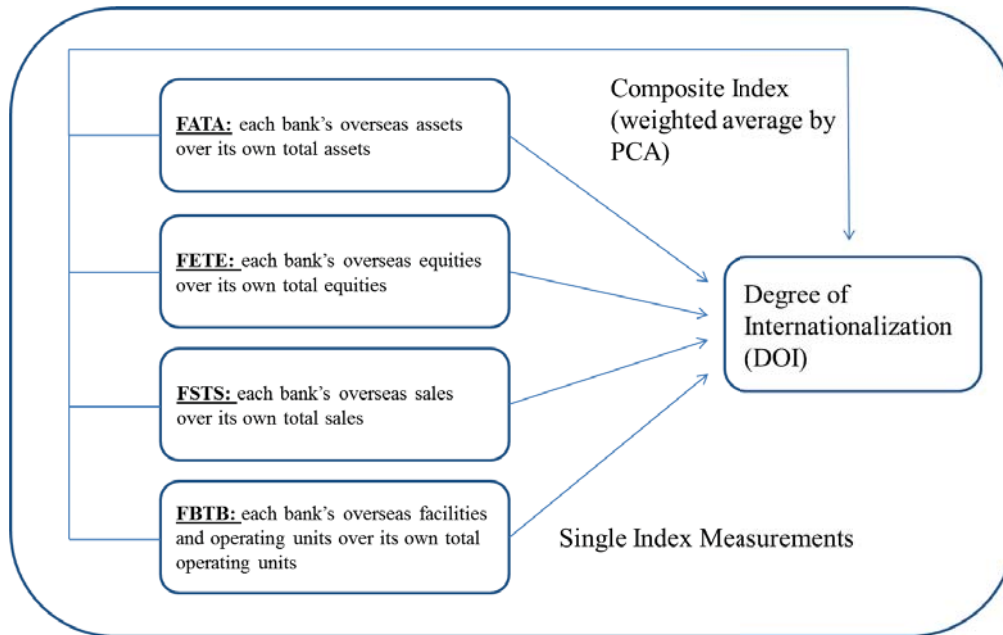


Figure 2. Conceptual Framework

Source: This Study

3. Related Theories and Literature Review

3.1 Concepts, Measurements and Related Theories of Internationalization

In this study we will investigate the DOI of Taiwanese banking industry, as such, this section will discuss the definition of internationalization, process of internationalization, motivation and drivers of internationalization, contents of internationalization, benefits of internationalization and finally, the relevant measurements regarding internationalization.

3.1.1 Definition of Internationalization

The general definition of internationalization is the process of designing and executing of a product or a service so that it will meet the needs of users in many countries or can be easily adapted to the local culture.

Table 2. Four Different Index Ratios of DOI

DOI	Bank																Average		
	Mega Bank	Of Taiwan	CTBC Bank	First Bank	TCB Bank	TapeiFubon Bank	Hua Nan CB	Cathay United Bank	Chang Hwa Bank	Land Bank	E.Sun Bank	Shanghai CSB	Bank SinoPac	Taishin Int B	Taiwan Business Bank	Shin Kong Bank		Far Eastern Bank	Ta Chong bank
FATA	4E-04	8E-05	2E-04	2E-04	5E-05	1E-04	1E-04	1E-04	1E-04	4E-05	1E-04	2E-04	2E-04	1E-04	8E-05	5E-05	9E-05	1E-04	1E-04
FETE	9E-05	4E-05	5E-05	2E-04	4E-05	5E-05	7E-05	6E-05	5E-05	4E-05	6E-05	2E-05	2E-05	2E-05	5E-05	2E-05	1E-05	3E-05	5E-05
FSTS	6E-04	3E-04	4E-04	3E-04	2E-04	5E-04	3E-04	1E-04	3E-04	0.002	4E-04	3E-04	6E-04	2E-04	-1E-04	2E-04	1E-04	0.001	4E-04
FBTB	0.24	0.052	0.356	0.106	0.026	0.054	0.045	0.179	0.042	0.032	0.046	0.052	0.209	0.024	0.0289	0.012	0.025	0.01	0.086
Average	0.06	0.013	0.089	0.027	0.006	0.014	0.011	0.045	0.011	0.009	0.012	0.013	0.052	0.006	0.0072	0.003	0.006	0.003	0.022

Source: This Study

3.1.2 Process of Internationalization

Johanson and Vahlne (1977) indicated that internationalization of firms is a process in which the firms progressively increase their international involvement. Particularly on the gradual acquisition, integration, and use of knowledge about foreign markets and operations, and on the successively increasing commitment to

foreign markets. Johanson and Vahlne (1977) further examine the steps that are taken to constitute the internationalization process of a firm. First are process-decisions that start the initial export to a country, then it is to establish export channels, in order to start sales branches and subsidiaries, and finally to achieve overseas direct investments as the final step in the process of firm internationalization. More specifically the process of internationalization can be described as: exporting, international licensing and franchising, strategic alliances, joint ventures, mergers and acquisitions; each of them with increased level of involvement and control, finally achieving a wholly owned entity.

On another note, Nilsson, Olofsson and Sennevik (2005) suggested that the process of internationalization has its theoretical foundation in the behavioral theory of the firm and in the growth of the firm itself. The process between these two theories creates an interaction between the knowledge development about foreign markets, operations and the increasing commitment of resources to the market abroad. They also believe that internationalization has its base in state aspects and change aspects, where state aspects consist of market commitment and market knowledge, and the change aspect refers to current business activities and commitment decisions.

3.1.3 Motivation and Drivers of Internationalization

There are many motivations and drives that firms choose to internationalize and expand abroad. Dunning (1980) mainly distinguished the four general types of overseas investment motivations: 1) market-seeking, which purpose is to serve local and regional markets, so the size of market or the market's growth is important determinants in this type, 2) efficiency-seeking, it will occur when outward investors seek lower-cost locations for operations, in particular in the search for lower cost labor, 3) resource-seeking occurs when firms invest abroad to acquire resources that are not available in home country, 4) strategic assets-seeking which is not just exploiting an existing ownership-specific advantage of an investing firm, but more protecting or augmenting that advantage by the acquiring new assets, or by a partnering arrangement with a foreign firm, 5) oligopoly interaction, when in an oligopolistic market competitors often do not let the other party move first into a new market, they will try to enter first and achieve first mover advantage and 6) follow the customer, firms may expand internationally in order to follow customers that have already established overseas. Following the above sense of foreign investment motivations, this information provides us the necessary means to determine the major reasons and drivers which affect the degree of internationalization of a firm.

Following on the above discussions, there are also two main forces, push and pull, that might lead firms to internationalize. Push forces are those such as rising labor cost in host country, or powerful competitors in home country that inevitably pushes the firm out (Manjón-Antolín & Arauzo-Carod, 2011; Wright, 2002) when the overall situation is no longer inside the spatial margins to profitability. Pull forces can include the factors which attract firms and pull them out of their present location to internationalize into a new place, such as market potential, lower labor cost, political stability and trade agreements between home and host country (Brouwer, Mariotti & Van Ommeren, 2004).

For the banking industry, the internationalization of financial instruments can diversify the risk and also expand their business to overseas markets offering diversified services. Lin and Huang (2013) also mentioned that when facing a shrinking market, enterprise will have to resort to internationalization. Internationalization is the procedure of organizing and utilizing global economic resources, such as capital, raw material, labor, information, market and management. By strengthening the global presence, firms can make up for the lack of domestic resources and gain a better performance.

3.1.4 Contents of Internationalization

Annarajula and Beldona (2000) reported that Internationalization of a firm refers to the extent to which firms operate internationally by investing in assets and/or controlling activities outside their home country (Sanna-Randaccio, 1996). There are several ways in which an organization can be defined as an international firm. These can be broadly classified as ownership, operations, and orientation.

3.1.4.1 Ownership

Ownership refers to the extent to which a company owns value-generating assets abroad, as well as the extent to which it is owned by individuals and institutions abroad. A MNC might own assets abroad, such as land or real estate, or hold stock in another company that may result in a controlling interest in that foreign company. For example, Shell Oil Company owns oil refineries in Sudan, gas stations in Brazil, and restaurants in France. These businesses are run by Shell's personnel and generate economic rents to Shell. On the other hand, foreign individual or institutional investors could own an MNC; its stocks may be traded in multiple stock exchanges

both at home and abroad. It may also be that individuals or institutions from more than one country may own a domestic company.

3.1.4.2 Operations

A firm may source its physical and intellectual inputs overseas, it could also base its production activities overseas, or it could locate its sales/service activities (Dunning, 1980). Porter (1990) calls these "value activities". Accordingly, conceptualizations of MNCs can be made in terms of the "content" of these value-adding activities. For example, the proportion of overseas sales to total sales, overseas subsidiaries to total subsidiaries, overseas employees to total employees, etc.--the overall assumption being that the larger the total number of foreign countries involved or the higher the overall level of overseas operations, the more the firm is "multinationalized."

Thus, while consumer goods conglomerate Procter and Gamble is a multinational that has significant foreign production capabilities, petroleum giant Royal Dutch-Shell is a multinational with significant foreign sales generated by its numerous foreign subsidiaries. Pharmaceutical firms like Merck and Hoechst are multinationals that conduct significant overseas research and development (R&D) activities in addition to overseas sales. Automobile giants Honda, Toyota, and Mitsubishi are multinationals known for their significant foreign assets in addition to their manufacturing and sales activities abroad.

3.1.4.3 Orientation

Orientation indicates the attitudinal posturing or "intent" of the multinational company and its management in terms of its vision, strategy, and structure. Perlmutter (1969) classified such posturing as ethnocentric, polycentric, regiocentric, or geocentric depending on the relative importance that a MNC attaches to its strategy. This, in turn, sets the tone for the decision making of the firm. For example, an ethnocentric orientation suggests that the firm is more likely to extend the strategies and decisions that have originated in the home country into the host country, based on the assumption that these are globally applicable. A geocentric approach is quite the opposite in that it is more situation and contingency driven.

3.1.5 Measurements of Internationalization

Hitt, Tihanyi, Miller and Connelly (2006) mentioned that there are more than twenty indexes of internationalization used by scholars. By using different measurements, it might cause inconsistencies between empirical results and internationalization. Hence, before discussing the relation of internationalization and a company's performance, understanding the differences of the indexes is important. We split them into two parts to make further discussion:

3.1.5.1 Single Index

Early studies concentrated on the a number indexes to measure the degree of internationalization, including the following: The ratio of foreign sales to total sales (FSTS), foreign assets to total assets (FAITA), or foreign employees to total employees (FETE) (Capar & Kotabe, 2003; Kwok & Reeb, 2000).

3.1.5.2 Composite Index

Sullivan (1994), states that the degree of internationalization can be expressed as the sum of FSTS, FFTP, RDI, AI, ESTS, FATA, OSTTS, TIME and PDIO. Sullivan tried to measure the internationalization of an enterprise by the above nine indexes, and separated it into three dimensions: performance attributes (what goes on overseas), structural attributes (what resources are overseas), and attitudinal attributes (what is top management's international orientation). Integrative works emphasize that DOI is not an absolute state but a continuous choice that managers make relative to domestic circumstances; therefore, all measures of the degree of internationalization are ratios. As stated by Sullivan, there is no shortage of potential measures. However, our rule of only using archival data restricted including and, if need be, designing measures that we could estimate objectively. Sullivan (1994) noted the following nine measures to operationalize the performance, structural and attitudinal attributes of internationalization.

Performance Attributes

- (i) FSTS, foreign sales as a percentage of total sales.
- (ii) FFTP, foreign profits percentage of total profit.
- (iii) RDI, research and development intensity, which could be described as the principal means of gaining market share in global competition.
- (iv) AI, advertising intensity represents an international firm's marketing function, and could help explain a

firm's international involvement.

- (v) ESTS, export sales as a percentage of total sales.

Structural Attributes

- (i) FATA, foreign assets as a percentage of total assets to estimate the material international character of a firm.
- (ii) OSTs, overseas subsidiaries as a percentage of total subsidiaries, corresponding to the number of foreign subsidiaries relative to the company's total number of distinct operating units

Attitudinal Attributes

- (i) TMIE, top managers' international experience, measured by the cumulative duration of top managers' international assignments
- (ii) PDIO, psychic dispersion of international operation, measured by estimating the geographical dispersion of the overseas subsidiaries of a firm.

However, Sullivan (1994) asserts that single measures could be biased, as single items do not permit one to take measurement error into account in analyses. The impossibility of determining the reliability of a single measure could thus increase the probability of mismeasurement. Sullivan then applies factor analysis by using principal component measurement to obtain the optimum factor loading in order to eliminate the ambiguity through weighted average. As noted "item-total analysis for constructing homogenous measures" is used to obtain the common component which can indicate a consistent measurement method to estimate the internal consistency of a combination of single measures of DOI.

3.2 Literature Review

In this section we mainly depict the relevant literature reviews regarding internationalization. There are extensive literatures regarding internationalization as it has become an indispensable topic in the past decades and as globalization has exponentially increased and more cross-national activities are taking place, the study of internationalization across countries has not diminished but rather has become more and more vital. For the purposes of this study, only literatures that are more relevant to the present research are taken into account.

Johanson and Vahlne (1977) indicated that internationalization of firms is a process in which the firms progressively increase their international involvement. They argued that a firm may prefer to choose a closer proximity target market for internationalization and further examined the steps that are taken to constitute the internationalization process of a firm. Their research results indicated that, first are the process-decisions that start the initial export to a country, then it is to establish export channels, in order to start sales branches and subsidiaries, and finally to achieve overseas direct investments as the final step in the process of firm internationalization.

Since past literatures argued that a firm may prefer to choose a closer proximity target market for internationalization and further examined the steps that are taken to constitute the internationalization process of a firm. Dunning (1980) looked at the construction of the eclectic theory of international production, examining the determinants affecting the international production of firms. Their results compare the following features surrounding U.S. manufacturing industries: ownership advantages, location advantages, and lastly, internalization advantages. Sullivan (1994) proceeded to examine combined indexes as a method that could be applied in order to measure the degree of internationalization (DOI) of firms. He proposed that the degree of internationalization is not an absolute state but a continuous choice that managers make relative to domestic circumstances; therefore, all measures of the degree of internationalization could be established as ratios. His results indicated that the integration of several component variables is shown to perform better than the single-item measures. Ramaswamy, Kroeck, and Renforth (1996) further supported and confirmed Sullivan's (1994) research that single variable indexes could be intrinsically unreliable and has, at best, only speculative validity. As such, the construction of a multi-item aggregate index to measure the degree of internationalization is indeed noteworthy and of great utility to understand the nature of the degree of internationalization of firms.

Looking into the determinants of internationalization of firms, Thirkell and Dau (1998) examined the determinants for New Zealand firm's export performance. They noted that foreign language skills are often intertwined with an appreciation of the associated culture, suggesting that higher levels of language and cultural skill may translate into a more effective communications programme. Their final results indicate that firm size, degree of market competition, and R&D expenditure were found to significantly and positively correlate with marketing orientation. Majocchi and Zucchella (2003) examined the internationalization and performance of a

set of Italian SMEs. They proposed that target markets with higher affinity or closeness are easier to understand and serve, because they are similar or represent a common market segment. Thus, they are both coherent with an organization that aims to reduce the complexities of foreign market commitment. In other words, they could be more compatible with the typical financial and organizational constraints of the firm. Hsu and Boggs (2003) mainly looked at the relationship of MNEs' performance to the degree of internationalization (linear or curvilinear). Their results shows that there is no immediate evidence of a curvilinear relationship between the degree of internationalization (measured as FSTS) and performance (ROA) and confirms that there is a curvilinear relationship between country scope and performance.

Cunha and Boehe (2008) studied the internationalization of Brazilian retail banks, drawing on strategic management approaches and case research to develop an argument explaining the internationalization of South American retail banks. Their findings claim that Brazilian retail banks may internationalize in order to differentiate themselves vis-à-vis their home country competitors, offering their clients, in a proactive manner, a portfolio of products and services which would not have been available otherwise. Considering the process of internationalisation in retail banking, Spanish Banco Santander developed a competitive advantage by introducing new strategies and systems, acting as a firstmover focused on its core business. Parada, Alemany and Planellas (2009) then further examined the internationalisation behaviour of Banco Santander towards globalisation, expanding towards the Euro-zone and Latin America. They identified Banco Santander's internationalization process based on three steps. The first step is to develop necessary capabilities in the home market. The second step is to create options for leveraging capabilities in new international markets. The third step consists of acquiring a leading local competitor and a quick international roll-out followed by an implementation of integrated capabilities. Their analysis showed that overall market selection is mostly based on cultural and/or economic proximity, geographic focus and deregulation or increased competition.

Further looking at more recent internationalization of firms, Banalieva and Sarathy (2011) looked at the contingency theory of internationalization performance (IP) for emerging market multinational enterprises (EM MNEs). They looked at the factors concerning foreign sales, firm age, firm size, market inflation, market growth and market GDP potential together with International performance. Their final results suggests that the IP link is inverted-U shaped for electronics EM MNEs and linear for non-electronics EM MNEs and that these relationships are further enhanced with higher trade liberalization. Polat and Mutlu (2013) examined the degree of internationalization (DOI), market orientation and entrepreneurship orientation within Turkish logistics sector. Their empirical results further showed that there was no relationship between entrepreneurial orientation and the degree of internationalization, and that sector experience, firm age, market orientation and firm size have a significant effect on the degree of internationalization regarding firms within the Turkish logistics sector. Gaur, Kumar, and Singh (2014) investigated emerging economy (EE) firms expanding into international markets according to institutions, resources, and internationalization. They integrated resource- and institution-based views to look at firm R&D expense, marketing expense, import intensity, export intensity and foreign affiliation, suggesting that firms that can use unique institutional advantages are more likely to advance in the international process of a firm. They found that firms that are affiliated with a business group, have more firm- and group-level international experience, have more technological and marketing resources, and that operate in service industries, are more likely to successfully make their international transition. Azar and Drogendijk (2014) suggested that internationalization improves a firm's ability to innovate and draw into the effect of internationalizing into specific target markets or destinations. Their study also examined whether the psychic distance (measured by Hofstede's cultural dimensions) between target market and home market affects firms' propensity to innovate.

Banking institutions often demonstrate the phenomena of "customer following" and "market seeking", indicating that financial service companies often have a close relationship with other firms that have already invested overseas, De Bonis, Ferri and Rotondi (2015) investigated whether firm-bank relationships affect firms' internationalization. They found that in fact many manufacturing firms seeking to expand abroad often have a close relationship with financial institutions, where, in some cases, banking firms also follow their customers in cross-border businesses. Their finding indicate that international firms could benefit from a strong relationship with their main bank and vice versa. Bronzini and D'Ignazio (2016) looked at the relationship between bank internationalization and firm exports. Their findings further confirms that there is a positive effect for firm-bank relationships, and that there might be a stronger effect for closer firm-bank relationships more so when banks have established their branches abroad over a certain period of time. Looking at recent global financial crisis and also important factors affecting firm internationalization, Saona (2016) determined that the success of Latin American financial institutions is not just determined by the factors of asset diversification, revenue

diversification, market concentration and legal/regulatory systems, but also and substantially by the state of the different regions and markets (such as financial crisis). These might lead to market instability, higher operating costs and higher loan risks in those region's banking systems.

4. Methodology-Approach of Principal Component Analysis

The Principal Component Analysis (PCA) procedure, as it name states, finds the principal components of the data. Often, in order to analyze the combination effect of data from different sources, it is necessary to concoct a combined variable. As such, the PCA procedure can find the factor loading of each of the different variables and then we can apply the weights together in order to produce a new combined variable. Principal component analysis was first introduced by Pearson (1901) and then further improved by Hotelling (1933).

Suppose that we have k explanatory variables x_i . Then we can consider linear functions of these variables:

$$\begin{aligned} z_1 &= a_1x_1 + a_2x_2 + \dots + a_kx_k \\ z_2 &= b_1x_1 + b_2x_2 + \dots + b_kx_k \\ z_3 &= c_1x_1 + c_2x_2 + \dots + c_kx_k \\ &\vdots \\ &\vdots \\ &\vdots \end{aligned}$$

And so on... (1)

Suppose we choose the a's so that the variance of z_1 is maximized subject to the condition that

$$a_1^2 + a_2^2 + \dots + a_k^2 = 1 \tag{2}$$

This is called the normalization condition. (It is required or else the variance of z_1 can be increased indefinitely.) z_1 is then said to be the first principal component. It represents the linear function of the x 's that has the highest variance (subject to the normalization rule). The obtained z 's are the principal components given any set of variables $x_1, x_2 \dots x_k$.

The process of maximizing the variance of the linear function z subject to the condition that the sum of squares of the coefficients of the x 's is equal to 1, produces k solutions. Corresponding to these we construct k linear functions $z_1, z_2 \dots z_k$. These are called the principal components of the x 's. They can be ordered so that

$$var(z_1) > var(z_2) > \dots > var(z_k) \tag{3}$$

z_1 the one with the highest variance is called the first principal component, z_2 with the next highest variance is called the second principal component, and so on. These principal components have the following properties:

1. $var(z_1) + var(z_2) + \dots + var(z_k) = var(x_1) + var(x_2) + \dots + var(x_k)$, for each components
2. Under the above situation 1, $var(x_i) = \lambda_i$, as such λ_i is the characteristic value for the variance-covariance matrix of the x_i and we obtain the principal loading C_i for each x_i and principal component loading can be obtained by the following equation $C_i = \sqrt{\lambda_i} * a_i$
3. For first component z_1 , $\sum_{i=1}^n a_{1i}^2=1$ and $\sum_{i=1}^n a_{1i}^2=\lambda_i$ is satisfied, then C_{1i} ,

$C_{11}, C_{12}, C_{13} \dots C_{1k}$ are the principal components loading of each z_1

Based on the obtained first components loadings (C_{1i}) of each z_1 , we can then multiply them to each corresponding x_i and obtained a new combined variable whilst taking the different weights from the different set of variables x 's into consideration, i.e., The new obtained value can be estimated as follows:

$$X = C_{11} * x_1 + C_{12} * x_2 + C_{13} * x_3 \dots + C_{1k} * x_k \tag{4}$$

Considering Equation 4, we can construct our degree of internationalization DOI variable for each bank (ie., X is principal weighted score value of DOI).

In order to show the values in a more intuitive way, it is possible to perform a Box-cox transformation, where it is possible to better observe the relevance of the size of the variables. Before we do the transformation for X (principal component score value), we need to normalize the X variables as such it is divided by the variance of X ($Var X$) as follows:

$$Z = \frac{X - E(X)}{\sqrt{Var(X)}} \quad (5)$$

After obtaining the normalized Z from X , the specific Box-cox conversion formula can be applied to show a new scoring index as percentage level (%) from 0 to 100, the transformation process is as follows:

$$\text{Score} = \frac{100}{1 + \frac{1}{\exp(Z)}} \quad (6)$$

Where, Z : normalized principal component weighted score value.

After the Box-cox transformation by Equation 5, a new scoring index from 0 to 100 is obtained. This conversion facilitates observations to more intuitively interpret and understand the perceptual orientation of the results.

5. Empirical Results of Principal Component Analysis for DOI

Based on the method of principal component analysis as indicated in Equation 4 presented in Section 4, we can obtain the estimated values to detect the degree of internationalization DOI for each selected bank, by using the integrated index (namely composite index as mentioned in Section 3) during the study period of 2000-2015. In this study we then apply the principal component analysis (PCA) by Equation 7 to obtain our estimated DOI value.

$$DOI = C_{11} * FATA + C_{12} * FETE + C_{13} * FSTS \dots + C_{14} * FBTB \quad (7)$$

Where:

FATA: each bank's overseas assets over its own total assets

FETE: each bank's overseas equities over its own total equities

FSTS: each bank's overseas sales over its own total sales

FBTB: each bank's overseas facilities and operating units over its own total operating units

The DOI categories were considered based on internationalization components as indicated in previous literatures (Sullivan, 1994) and also taking into consideration of the real business activity of Taiwanese banks operating overseas. Based on Equation 7, we obtain the estimated values to detect the degree of internationalization DOI for each selected bank during the study period of 2000-2015.

As can be seen from Table 3, based on a cross-sectional analysis in the overall period 2000-2015, the average of DOI for each bank, there is an increasing trend for the degree of internationalization of Taiwanese banks as the years go by. The overall average of DOI for each bank across 2000-2015 is 0.061. The first three highest average DOI under this period ranks as follows: CTBC (0.253), Mega Bank (0.171) and Bank SinoPac (0.149), with the rest mostly ranging between 0.007 and 0.076. For the period 2000-2007 the average DOI is 0.058 and the first three highest average DOI under this period ranks as follows: CTBC (0.025), Bank SinoPac (0.202) and Mega Bank (0.173), with the rest mostly ranging between 0.002 and 0.093. Within the years 2008-2015 the average DOI is 0.064 and the first three highest average DOI under this period ranks as follows: CTBC (0.256), Mega Bank (0.169) and Cathay United Bank (0.162), with the rest mostly ranging between 0.011 and 0.096. Based on the time-series analysis, during our study period, the overall highest average DOI belong to the years 2000 (0.065), 2014 (0.073) and 2015 (0.095). The average value of the rest of the DOI ranges between 0.053 and 0.062, as can be seen, the overall values are quite even. As shown in Table 3, the average DOI value of the full period (2000-2015) is 5.91, while the average DOI value (0.064) of the second period (2008-2015) is greater than the average DOI value (0.058) of the first period (2000-2007), it seems to indicate that even after the global financial crisis event, the average degree of internationalization of Taiwanese banks still continues to rise.

Furthermore, utilizing Equation 5 and 6, we then perform the Box-cox transformation for the normalized principal component weighted score value, where a new DOI scoring index as percentage level (%) from 0 to 100 is obtained in order to better observe the relevance of the variables. This conversion facilitates the observation to more intuitively interpret and understand the perceptual orientation scale of the results (Table 4).

As can be seen from Table 4, after performing a Box-cox transformation of the normalized principal component weighted values, based on a cross-sectional analysis in the overall period 2000-2015. The overall average of DOI for each bank across 2000-2015 is 50.76. The first three highest average DOI under this period ranks as follows: CTBC (53.159), Mega Bank (52.13) and Bank SinoPac (51.86), with the rest mostly ranging between 50.09 and 50.94. For the period 2000-2007 the average DOI is 50.72 and the first three highest average DOI under this period ranks as follows: CTBC (53.123), Bank SinoPac (52.52) and Mega Bank (52.16), with the rest mostly ranging between 50.03 and 51.16. Within the years 2008-2015 the average DOI is 50.80 and the first three highest average DOI under this period ranks as follows: CTBC (53.196), Mega Bank (52.11) and Cathay United Bank (52.02), with the rest mostly ranging between 50.14 and 51.20. Based on the time-series analysis, during our study period, the overall highest average DOI belong to the years 2000 (50.81), 2014 (50.91) and 2015 (51.19). The average value of the rest of the DOI ranges between 50.66 and 50.78, as can be seen, the overall values are quite even. As shown from Table 4, the average DOI value of the full period (2000-2015) is 50.76, while the average DOI value (50.80) of the second period (2008-2015) is greater than the average DOI value (50.72) of the first period (2000-2007), it seems to indicate that even after the global financial crisis event, the average degree of internationalization of Taiwanese banks still continues to rise. Generally speaking, based on the observed score, the DOI of Taiwanese banks are all above the 50%.

6. Concluding Remarks

This study mainly focuses on measuring the degree of internationalization (DOI) within the Taiwanese banking industry by principal component analysis (PCA), where the phenomenon can be most clearly identified. Our empirical results reinforce the fact that by using only a single index measurement it may lead to undervaluation of the DOI. Each measurement from the different single

Table 3. Degree of Internationalization of Taiwanese Banks During the Period 2000-2015

DOI	Mega Bank	Bank of Taiwan	CTBC Bank	First Bank	TCB Bank	TaipeiFubon Bank	Hua Nan CB	Cathay United Bank	Chang Hwa Bank	Land Bank	E.Sun Bank	Shanghai CSB	Bank SinoPac	Taishin Int B	Taiwan Business Bank	Shin Kong Bank	Far Eastern Bank	Ta Chong bank	Average For Each Year
2000	0.217	0.053	0.240	0.085	0.015	0.045	0.039	0.068	0.04	0.013	0.051	1E-04	0.237	0.017	0.023	1E-05	0.0240	2E-04	0.065
2001	0.180	0.046	0.119	0.068	0.014	0.035	0.034	0.243	0.029	0.012	0.042	1E-04	0.221	0.015	0.017	1E-05	0.020	1E-04	0.061
2002	0.178	0.046	0.346	0.063	0.016	0.034	0.026	0.065	0.033	0.018	0.028	1E-04	0.222	0.008	0.017	4E-06	0.020	9E-05	0.062
2003	0.162	0.037	0.264	0.068	0.016	0.034	0.023	0.050	0.033	0.021	0.027	1E-04	0.215	0.016	0.017	1E-04	0.020	9E-05	0.056
2004	0.167	0.032	0.249	0.068	0.016	0.034	0.027	0.050	0.032	0.021	0.016	1E-04	0.244	0.014	0.017	4E-05	0.020	3E-04	0.056
2005	0.178	0.032	0.261	0.071	0.016	0.023	0.027	0.066	0.028	0.025	0.015	2E-04	0.237	0.021	0.017	-9E-06	0.020	1E-04	0.058
2006	0.150	0.032	0.277	0.069	0.014	0.017	0.030	0.107	0.028	0.026	0.014	0.013	0.116	0.021	0.017	0.007	0.020	0.014	0.054
2007	0.151	0.034	0.247	0.075	0.014	0.017	0.030	0.092	0.028	0.025	0.019	0.013	0.120	0.021	0.017	0.013	0.020	0.013	0.053
2008	0.154	0.033	0.265	0.074	0.014	0.022	0.030	0.099	0.027	0.024	0.018	0.024	0.116	0.021	0.016	0.013	0.020	0.014	0.055
2009	0.157	0.030	0.257	0.080	0.014	0.022	0.030	0.121	0.027	0.023	0.017	0.023	0.096	0.015	0.017	0.013	0.020	0.012	0.054
2010	0.160	0.034	0.241	0.080	0.016	0.033	0.026	0.155	0.027	0.023	0.023	0.023	0.092	0.015	0.022	0.013	0.014	0.011	0.056
2011	0.168	0.033	0.231	0.080	0.019	0.033	0.030	0.158	0.027	0.028	0.022	0.033	0.096	0.015	0.022	0.020	0.013	0.011	0.058
2012	0.172	0.033	0.226	0.078	0.019	0.033	0.037	0.160	0.026	0.028	0.031	0.041	0.092	0.015	0.022	0.014	0.013	0.011	0.058
2013	0.172	0.033	0.226	0.081	0.024	0.033	0.040	0.191	0.03	0.023	0.054	0.049	0.092	0.015	0.022	0.014	0.013	0.011	0.062
2014	0.179	0.037	0.298	0.083	0.027	0.093	0.040	0.202	0.033	0.027	0.067	0.049	0.092	0.022	0.028	0.013	0.013	0.011	0.073
2015	0.19	0.049	0.305	0.089	0.038	0.112	0.047	0.206	0.037	0.032	0.088	0.321	0.092	0.021	0.038	0.020	0.013	0.011	0.095
2000-2007	0.173	0.039	0.250	0.071	0.015	0.03	0.029	0.093	0.031	0.02	0.026	0.003	0.202	0.016	0.018	0.002	0.02	0.003	0.058
2008-2015	0.169	0.035	0.256	0.081	0.021	0.048	0.035	0.162	0.029	0.026	0.04	0.07	0.096	0.017	0.024	0.015	0.015	0.011	0.064
2000-2015	0.171	0.037	0.253	0.076	0.018	0.039	0.032	0.127	0.03	0.023	0.033	0.037	0.149	0.017	0.021	0.009	0.018	0.007	0.061

Source: This Study

Table 4. DOI of Taiwanese Banks After Box-cox Transformation for the Period 2000-2015

DOI	Mega Bank	Bank of Taiwan	CTBC Bank	First Bank	TCB Bank	TaipeiFubon Bank	Hua Nan CB	Cathay United Bank	Chang Hwa Bank	Land Bank	E Sun Bank	Shanghai CSB	Bank SinoPac	Taishin Int B	Taiwan Business Bank	Shim Kong Bank	Far Eastern Bank	Ta Chong bank	Average For Each Year
2000	52.71	50.67	53.00	51.06	50.18	50.56	50.48	50.85	50.50	50.16	50.64	50.00	52.96	50.21	50.29	50.00	50.30	50.00	50.81
2001	52.25	50.58	51.48	50.84	50.18	50.43	50.43	53.04	50.37	50.15	50.53	50.00	52.76	50.18	50.21	50.00	50.25	50.00	50.76
2002	52.23	50.58	54.31	50.79	50.20	50.43	50.32	50.82	50.41	50.22	50.35	50.00	52.77	50.10	50.21	50.00	50.25	50.00	50.78
2003	52.02	50.46	53.29	50.85	50.20	50.42	50.29	50.62	50.41	50.26	50.34	50.00	52.68	50.20	50.21	50.00	50.25	50.00	50.69
2004	52.09	50.40	53.10	50.86	50.20	50.42	50.33	50.62	50.41	50.26	50.20	50.00	53.05	50.18	50.21	50.00	50.25	50.00	50.70
2005	52.22	50.41	53.25	50.89	50.20	50.29	50.33	50.83	50.35	50.32	50.19	50.00	52.96	50.26	50.21	50.00	50.25	50.00	50.72
2006	51.87	50.40	53.45	50.86	50.18	50.22	50.38	51.34	50.35	50.32	50.17	50.20	51.45	50.26	50.21	50.08	50.25	50.17	50.67
2007	51.89	50.42	53.08	50.94	50.18	50.21	50.38	51.16	50.35	50.31	50.23	50.20	51.50	50.26	50.21	50.16	50.25	50.17	50.66
2008	51.93	50.42	53.31	50.93	50.18	50.28	50.38	51.24	50.34	50.30	50.23	50.30	51.45	50.26	50.20	50.16	50.25	50.17	50.69
2009	51.96	50.37	53.20	51.00	50.18	50.28	50.38	51.51	50.34	50.29	50.22	50.30	51.20	50.19	50.21	50.17	50.25	50.16	50.68
2010	51.99	50.42	53.00	51.00	50.20	50.41	50.33	51.94	50.33	50.29	50.29	50.30	51.15	50.18	50.28	50.17	50.17	50.14	50.70
2011	52.10	50.42	52.89	51.00	50.24	50.41	50.37	51.98	50.33	50.35	50.27	50.40	51.20	50.18	50.28	50.25	50.17	50.13	50.72
2012	52.15	50.42	52.82	50.97	50.24	50.41	50.46	52.00	50.33	50.35	50.39	50.50	51.15	50.19	50.28	50.17	50.17	50.14	50.73
2013	52.15	50.42	52.82	51.01	50.30	50.41	50.50	52.38	50.37	50.29	50.67	50.60	51.15	50.18	50.28	50.17	50.16	50.13	50.78
2014	52.24	50.47	53.71	51.04	50.34	51.17	50.50	52.52	50.42	50.34	50.84	50.60	51.15	50.27	50.35	50.17	50.16	50.14	50.91
2015	52.38	50.61	53.80	51.12	50.47	51.39	50.59	52.58	50.46	50.40	51.10	54.00	51.15	50.27	50.48	50.25	50.16	50.14	51.19
2000-2007	52.16	50.49	53.123	50.88	50.19	50.37	50.37	51.16	50.39	50.25	50.33	50.04	52.52	50.21	50.22	50.03	50.25	50.04	50.72
2008-2015	52.11	50.44	53.196	51.01	50.27	50.59	50.44	52.02	50.37	50.33	50.50	50.88	51.20	50.22	50.29	50.19	50.19	50.14	50.80
2000-2015	52.13	50.47	53.159	50.94	50.23	50.48	50.40	51.59	50.38	50.29	50.42	50.46	51.86	50.21	50.26	50.11	50.22	50.09	50.76

Source: This Study

Index yield different partial results for the DOI measurement of Taiwanese banks, as such it cannot completely justify the actual DOI for Taiwanese banks. Integrative works emphasize that DOI is not an absolute state but a continuous choice that managers make relative to domestic circumstances; therefore, all measures of the degree of internationalization are ratios. Under the PCA weighted average, the results show an increasing trend for the DOI of Taiwanese banking industry as measured by the combination of FATA (each bank's overseas assets over its own total assets), FETE (each bank's overseas equities over its own total equities), FSTS (each bank's overseas sales over its own total sales) and FBTB (each bank's overseas facilities and operating units over its own total operating units). We can thus conclude that despite recent economic downturns, the degree of internationalization of Taiwanese banks indicate that Taiwanese financial institutions still maintain their global presence, as such, bolstering Taiwanese financial firms and enhancing its internationalization core might be a necessary pathway to strengthen and reinforce the internationalization of other firms across industries. Under the Box-cox transformation, the DOI scoring index as percentage level (%) from 0 to 100 shows that the relevance of the variables are mostly above 50, again indicating that the DOI of the observed Taiwanese banks are quite strong. These results thus support the existence and importance of the DOI of Taiwanese banks and further point out the necessity to continue perusing and understanding the nature of the relationship. Hopefully, the empirical results of this study may contribute additional facts to support or enhance the relative theories of internationalization of Taiwanese banking firms. In addition, present complimentary and more realistic information regarding the degree of internationalization for Taiwanese financial institutions. At the same time, provide substantial groundwork and adding value to future international management research and investigations. Meanwhile, it could also help to achieve better investment decision-making for business strategies purposes and government policies.

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Identifying the Impact of Strategic Alliances on the Performance of SMEs (Case Study: The Industry of Automotive Parts Manufacturers in Iran)

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Abstract

This study has investigated the effects of strategic alliances on the performance of small and medium sized enterprises (SMEs) of the industry of automotive parts manufacturers. Questionnaires have been distributed among 400 senior managers of SMEs of the industry of auto parts manufacturers based on stratified random sampling. The data has been analyzed using structural equation modeling software and PLS2 software in two segments of measurement model and structural model. In the first segment, technical features of the questionnaire were tested in terms of reliability and validity. Moreover, in the second segment, t-test was used to test research hypotheses. The results show that there is a significant and positive relationship between the dimensions of strategic alliances, including new opportunities, entrepreneurial and innovative capabilities, social capital, and internationalization of business, and competitive advantage with the performance of SMEs.

Keywords: strategic alliance, performance of SMEs, automotive parts manufacturers

1. Introduction

By the end of the 20th century, there was a competition between businesses. The rapid growth of different kinds of alliances was an important feature of this competition and increasing uncertainty (Koza and Lewin, 2000). Enterprises started to share their competitive environment once competition increased, so that an independent function in this space has become very difficult. As a result, forming alliance with large companies is the strategic solution for companies, and in particular SMEs, so they can survive in such competitive environment (Etemad et al., 2001). Also, investigations have shown that alliances allow companies to develop their capabilities and minimize the competitive uncertainties resulting from competition and environmental changes through the acquisition and utilization of new knowledge (Rothaermel and Deeds, 2004). Furthermore, strategic alliances provide a platform for exchanging important resources as well as strategic advantages such as skills and competence, market access and promotion of legitimacy. In addition, enterprises make use of strategic alliance as a means to achieve their goals and increase their competitive power (Genç et al., 2012).

As is known, SMEs form an alliance with other enterprises due to the lack of financial, physical and managerial resources, and eventually this alliance allows the contribution of major financial and non-financial resources among these businesses (Hyder and Abraha, 2004; Joshi and Dixit, 2014). In general, strategic alliances provide a wide range of tangible and intangible benefits for each party. What are the functions/benefits of forming alliances? How can they be developed, what factors cause it easier to use these functions or prevent using them, and what is the effect of alliance on the performance of SMEs? All these questions have been studied separately over time; however, no comprehensive answers are provided for these questions (Street and Cameron, 2007). One of the major problems in the industry of automotive parts manufacturers is that a lot of parts manufacturers are mostly small-sized and have limited technological capabilities and their growth requires help and support. Therefore, according to the ruling circumstances of automotive parts manufacturing, small firms can only form alliance with other small firms or participate either with other automotive parts manufacturing enterprises or with major auto manufacturers. Investigations that have taken place on the prestigious scientific databases indicate that no investigations on strategic alliances and on its impact on the success and survival of SMEs are carried out in Iran.

Therefore, this paper has tried to correct this gap and both propose a model and answer question, “Whether strategic alliance has any impact on the performance of SMEs in the industry of automotive parts manufacturing?”

2. Theory and Literature Review

2.1 Strategic Alliance

When the value chain activities of at least two companies with structures consisted of compatible objectives are combined in order to maintain or achieve significant competitive advantages, strategic alliances are formed (Bronder and Pritzl, 1992). On the other hand, strategic alliances lead to transactions which ultimately help alliance parties to achieve their goals. Also, this partnership improves their performance by reducing costs, acquiring knowledge and market development (Zoogah et al., 2011).

2.2 Dimensions of Strategic Alliance

2.2.1 Strategic Alliance and Competitive Advantage

In today’s competitive era, SMEs have entered into alliances with other enterprises in order to achieve competitive advantage due to resource limitations and their size restrictions. In the study carried out by Hung et al. (2015), it is stated that cost efficiency, product quality, flexibility, and better delivery are four dimensions of competitive advantage. Moreover, alliances are a source to achieve strategic resources and network sources, resulting in the entrance of SMEs into competitiveness and ultimately they bring long-term benefit leading to the superior performance of these firms. Competitive advantage is achieved through the acquisition of two resources including tangible resources (manpower, equipment, financial resources, and production capacity) and intangible resources including knowledge, organizational learning, market image, and innovative capabilities (Zhao, 2014).

In general, competitive advantage is defined in preceding studies as, “to achieve strategic resources and (marketing, human, technical) knowledge, to raise awareness of the competition, to reduce dependency, to strengthen the innovative approach, to achieve economies of scale in production, to achieve dynamic capabilities and complementary resources and flexibility, to reduce risk taking, to develop market development capabilities, to learn from the skills, to take advantage of management practices of partners, and to acquire recognition. This comprehensive definition of competitive advantage is presented in preceding studies on strategic alliance carried out by Street and Cameron (2007), Jeje (2014), Companys and McMullen (2007), Dyer and Singh (1998), Lew and Sinkovics (2013), and Ireland et al., (2002).

2.2.2 Strategic Alliances and Innovative and Entrepreneurial Capabilities

Innovative and entrepreneurial capability of SMEs is another aspect of strategic alliance. In a study on Portuguese SMEs, it is observed that innovative and collective capabilities are of the most important factors for forming alliances and being engaged in them. Ireland et al. (2002) stated that it is the tracking of innovations with high economic value through sharing the information and knowledge among companies which stimulates the decision to form strategic alliance (Zhao, 2014; Franco and Hesse, 2013). Furthermore, networks are an increasing component of entrepreneurship; they strengthen the ideas, pursue better opportunities, have access to a wide variety of information, and they propose an option to companies so that they can expand their current capabilities (Hoskisson et al., 2011). Lafley, the former CEO of P&G, said that in today's competitive world, no single company is able to innovate and grow fast. Innovation is rarely achieved through internal resources; however, it can be achieved through relations, knowledge, and external information. So external networks strengthen the collective capabilities and acquiring knowledge and various ideas which are a source of innovation (Baker et al., 2015)

2.2.3 Strategic Alliance and Internationalization of SMEs

Alliances and contractual arrangements are effective tools for the internationalization of small firms. SMEs will be able to share some of the costs through alliances. Cooperation arrangements can be a way to improve the international performance of family businesses through having access to information and reducing uncertainty when entering international market. Cooperation with other companies, clients, or customers in local market provides useful information about business opportunities, international market characteristics, barriers and problems, as well as the risk of entering international market. As a result, forming alliance with other companies is a way to internationalize SMEs (Fernandez and Nieto, 2005). Entrepreneurial firms could use the alliance to expand their foreign sales base. Small firms can develop their innovation through forming strategic alliance, and on the other hand, they can facilitate their entry into the foreign market by having access to financial resources and complementary partner resources (Leiblein and Reuer, 2004).

2.2.4 Strategic Alliance and Social Capital

Social capital is defined as the development of relationships between one company and other companies and is an important resource in the alliance leading to the success of SMEs. In strategic alliance, social capital is considered as the development of representatives of company partners in interaction with other companies. For example, relationship with leading firms is a valuable resource for small firms. Therefore, firms are looking for partners with significant social capital so that they can have access to network resources. On one hand, evidences show that success is a function of the quality of the relationships between partners. Achieving social capital increases the probability of the success of strategic alliance due to trust and the tendency to share resources among partners (Ireland et al., 2002). Social relations create opportunities through deep awareness, trust, and commitment among partners leading to personal relationships, and awareness of situation and reputation of key people in firms (Eisenhardt and Schoonhoven, 1996).

2.2.5 Strategic Alliance and New Opportunity

Investigations manifest that in the first place, SMEs form alliance with large-sized companies to exploit the opportunities and identify the opportunities. Strategic alliance of the companies in the area of identification and/or exploitation can be categorized on the basis of their motivation to identify new opportunities or exploit existing opportunities (Yung et al., 2014). On identification level, alliances try to identify new knowledge. Entrepreneurial activity includes not only innovation of new product but also identification of new opportunities and market such as the needs of our customers. Since the strategic alliance includes the relationship among large companies and SMEs, so SMEs form alliance with big companies to identify new customers and markets as well as to exploit these markets and new markets (Joshi and Dixit, 2014).

2.3 Evaluating the Performance in Alliance

There is no consensus about the performance and success of the alliance and there has never been a comprehensive definition of success and performance in alliance. Arino offered a relatively comprehensive framework of alliance performance in 2003. In his research, he has categorized alliance in three groups: financial performance (when firms achieve their financial goals), operational performance (the positive impact on business activities, survival, and continued cooperation) and organizational effectiveness (which embraces both previous groups and includes the realization of objectives and goals, spillover effect, and satisfaction from forming alliance).

2.4 Conceptual Framework of Study

Many studies investigated strategic alliances and its impact on performance. However, few studies investigated the impact of strategic alliance on the performance of SMEs, and there are few studies focused on the mentioned dimensions in parts manufacturing industry. The model used in this study consists of dependent and independent variables (Figure 1), and all dependent and independent variables which are used in this study are clarified and explained in previous parts. Moreover, the relationships between each of these variables are also reviewed and analyzed on the basis of previous studies. This framework is based on existing theoretical and applied fundamentals, especially studies carried out by Zhao (2014), Yung et al., (2014), Wittmann et al., (2009), Fernandez and Nieto (2005), and Arino (2003).

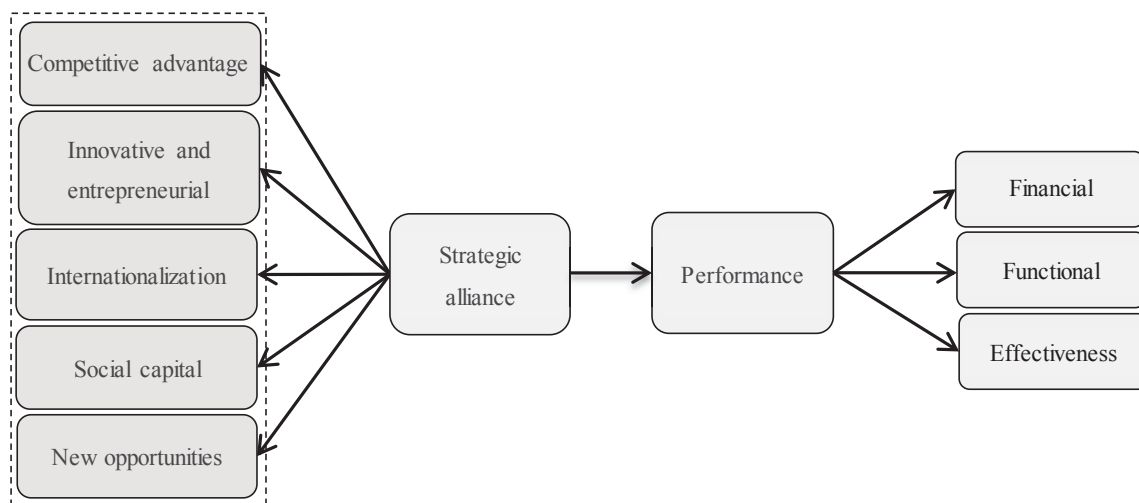


Figure 1. Conceptual Framework of Research

Based on the conceptual framework of research, hypotheses are as follows:

Main hypothesis: There is a positive relationship between strategic alliance and the performance of small firms.

Secondary hypothesis (1): There is a positive relationship between competitive advantage and the performance of SMEs.

Secondary hypothesis (2): There is a positive relationship between innovative and entrepreneurial capability and the performance of SMEs.

Secondary hypothesis (3): There is a positive relationship between the internationalization of business and the performance of SMEs.

Secondary hypothesis (4): There is a positive relationship between social capital and the performance of SMEs.

Secondary hypothesis (5): There is a positive relationship between identifying new opportunities and the performance of SMEs.

3. Research Methodology

This study is based on an applied purpose, data is collected based on a descriptive survey method and the type of collected data is quantitative (collected with a questionnaire). So a questionnaire is used to collect data from people involved in this issue (senior managers working at automotive parts manufacturing segment). Structural equation modeling method with SmartPLS2 approach was used to analyze data and comprehensive examination of conceptual model. This research method is the best tool to analyze data when the relationships between variables are complex, the sample size is small, and the distribution of the data is not normal (Diamantopoulos et al., 2012). Structural equation modeling is consisted of two parts of measurement and structural model and model variables are classified in two categories of observable and latent variables; latent variables are also used at different levels. In this study, there are two latent variables on the first level, 8 latent variables on the second level (that are in the same size as the variables on the first level), and 44 observable variables (questions of the questionnaire) (Table 2).

Table 1. Latent variables on the first and second level and observable variables

Latent variables on the first level	Latent variables on the second level (dimensions)	The number of observable variables (questions)
Strategic alliance	Competitive advantage	14
	Entrepreneurial capability	7
	Social capital	4
	Internationalization of business	4
	Identifying new opportunities	6
Performance	Financial	3
	Functional	3
	Organizational effectiveness	3

Automotive parts manufacturing SMEs in 9 sections (body, decorators, polymers, mechanisms and standards, main engines, accessories, electrical, powertrain, suspension and brakes) are the statistical population of this study and primarily have strategic alliance, and secondly, the number of their employees is less than 250. The population of this study contained all of experts that worked in two greatest auto part manufacturers of Iran. The number of these experts estimated about 1300 people. Sample size had to be gained from this population. For this purpose the Cochran formula for limited population have used as below:

$$n = \frac{N \left(\frac{Z_{\alpha}^2}{2} \right) pq}{(N - 1)d^2 + \left(\frac{Z_{\alpha}^2}{2} \right) pq}$$

Where

n=statistical sample size;

N=statistical population size which is 1300 people in this study;

P=the ratio of the trait in the statistical population. Here variance is considered to be at the maximum level and hence p=0.5.

q or 1-p= The ratio of the absence of a trait in the statistical population. Since here p=0.5, then q=1 -p=0.5.

Z=considering that in this study the significant level equals 0.95, then Z=1.96.

d=desired possible accuracy which is considered to be 0.05 in the present study.

$$n = \frac{1300(1.96)^2 0.5 * 0.5}{(1300 - 1)(.05)^2 + (1.96)^2 0.5 * 0.5} = 384$$

According to Cochran formula, the sample size is calculated to be 384 people and to make sure that sufficient questionnaires would be collected, 400 questionnaires were distributed. Eventually, 385 questionnaires were collected and analyzed.

3.1 Validity

The validity of the questionnaire is examined through convergent and divergent validity specific to structural equation modeling. At this point, AVE (Average Variance Extracted) criterion is used to assess the convergent validity, and results are shown in Table 2:

Table 2. Convergent validity of research variables

variables	Competitive advantage	Entrepreneurial capability	Social capital	Internationalization of business	Identifying new opportunities	Financial	Functional	Organizational effectiveness
AVE	0.510	0.525	0.790	0.605	0.558	0.687	0.651	0.715

Table 3. The matrix to compare the square root of AVE and correlation coefficients of structures (divergent validity)

Variables	Entrepreneurial capability	Organizational effectiveness	Financial	Internationalization of business	Identifying new opportunities	Functional	Social capital	Competitive advantage
Entrepreneurial capability	0.724							
Organizational effectiveness	0.612	0.846						
Financial	0.591	0.509	0.832					
Internationalization of business	0.615	0.471	0.457	0.889				
Identifying new opportunities	0.406	0.656	0.403	0.352	0.806			
Functional	0.661	0.626	0.782	0.543	0.554	0.747		
Social capital	0.579	0.581	0.456	0.461	0.480	0.598	0.778	
Competitive advantage	0.662	0.460	0.401	0.641	0.387	0.534	0.601	0.663

Approved value for the AVE is 0.5 (Fornell and Larcker, 1981). As shown in Table 3, the values of all variables are more than 0.5; therefore, convergent validity of research variables is approved. For divergent validity, a comparison is made between the difference of the indices of a structure and those of other structures in model. This is done through comparing the square root of AVE of each structure and the correlation coefficient of structures. As you can see in the following matrix (Table 4), the values of the main diagonal of the matrix (the square root of AVE coefficients of each structure) are more than the values which are located lower and upper the main diagonal (the correlation coefficients between each structure and other structures) which indicates that the divergent validity of structures is approved.

3.2 Reliability

PLS approach is used to examine the reliability of the questionnaire. The reliability of the questionnaire is measured on the basis of two criteria, Cronbach's alpha and Composite Reliability (CR). Regarding the first and second criteria, the value of Cronbach's alpha and the coefficient of composite reliability must be higher than 0.7 so that the reliability is approved (Fornell and Larcker, 1981; Cronbach, 1951). In this study, the results of the first two criteria of reliability are presented in Table 4 and clearly the results indicate that the reliability is approved for this study.

Table 4. Criteria for convergent reliability/validity of research variables

Variables on the first level	Variables on the second level	Cronbach's alpha	Coefficient of Composite Reliability (CR)
Strategic alliance	Competitive advantage	0.901	0.916
	Entrepreneurial capability	0.849	0.885
	Social capital	0.911	0.938
	Internationalization of business	0.782	0.860
	Identifying new opportunities	0.842	0.883
Performance	Financial	0.746	0.863
	Functional	0.731	0.848
	Organizational effectiveness	0.801	0.883

4. Research Hypotheses Analysis

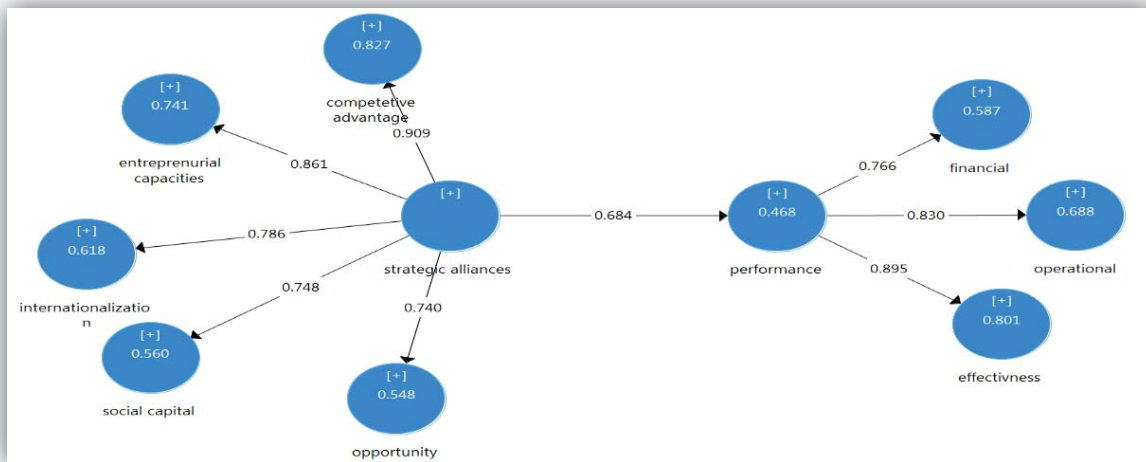


Figure 2. The output of software for conceptual model (standardized coefficients)

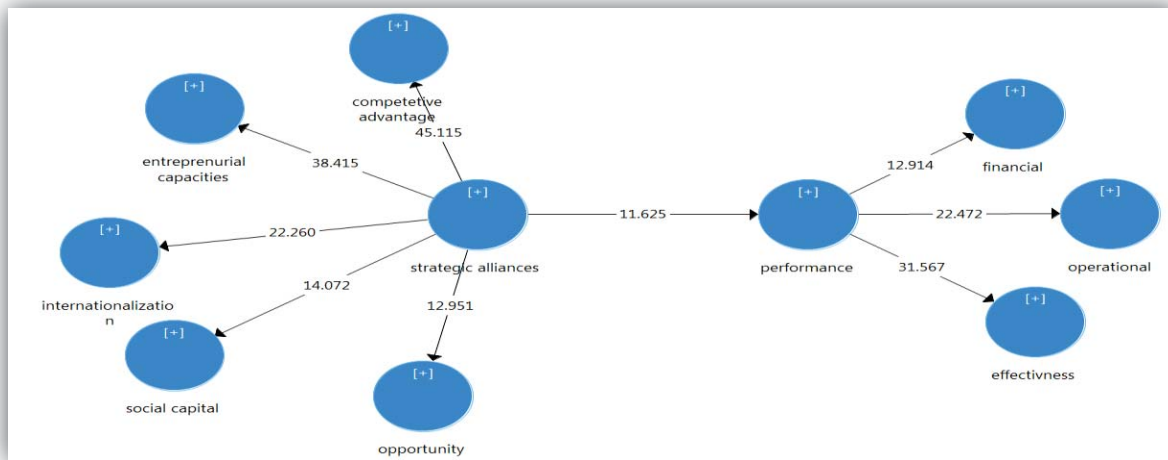


Figure 3. The output of software for conceptual model (significant)

Output of SMART PLS 2 software on the main hypothesis indicates that the significant coefficient of this path (11.625) is more than 1.96; therefore, the impact of strategic alliances on the performance of SMEs is approved at 95 percent confidence level. Moreover, the other output of software includes standardized coefficients indicating that strategic alliance variable explains 68% of performance changes. Outputs of software for secondary hypotheses are mentioned in Table 5.

Table 5. Significant coefficients and standard of secondary research hypotheses

Secondary hypotheses	Standard coefficient	Significant coefficient (t)	Result
Competitive advantage → performance	0.503	6.589	Confirmed
Entrepreneurial capability → performance	0.650	10.481	Confirmed
Internationalization → performance	0.515	6.957	Confirmed
Social capital → performance	0.617	10.668	Confirmed
New opportunity → performance	0.784	22.042	Confirmed

5. Discussion and Conclusion

This study investigates the effect of strategic alliance on the performance of SMEs in an analytical framework. The findings of this study confirm that there is a significant positive relationship between strategic alliance and the performance of SMEs.

The first findings suggest that the impact of new opportunities on the success and performance of SMEs is 78% which is the most, and businesses form alliance and cooperate with large-sized automotive parts manufacturers looking for opportunities including new market, new product, and new cooperation opportunities. These findings

are in accordance with previous findings. Yung et al. (2014) used a panel method to review the cooperation between SMEs and large companies in Biotech industry and concluded that identifying new opportunities through cooperation is one reason for SMEs to cooperate with large companies. Furthermore, Stettner & Lavie (2014) investigated the reasons why companies form strategic alliance. This study was conducted among 190 companies using software with the help of a questionnaire as research instrument and eventually came to the conclusion that one of the aspects of strategic alliances to manufacturers is to identify new opportunities through knowledge acquisition.

In addition, the second finding suggests that the impact of innovative and entrepreneurial capability on the performance of SMEs is 65 percent which is positive and significant. As the findings show businesses select alliance as a strategic option to achieve more ideas, strengthen their (managerial, productive) capabilities, and strengthen their risk taking ability. Franco and Hesse (2013) conducted their study using a questionnaire among 89 Portuguese companies and finally concluded that factors such as financial resources, as well as innovative and collective capability are the cause to enter to and participate in alliance. Similarly, Zhao (2014) reviewed respective literature, and proposed an integrated model and came into this conclusion that SMEs form alliance with large firms to strengthen entrepreneurial and innovative capability.

The third findings manifest that social capital is also one dimension of alliance and has a direct and significant relationship (62 percent) with the performance of SMEs. The results of this study reveal that SMEs form alliance to develop network resources and communication and form quality relationships based on trust. These findings are compatible with the findings of previous studies. Wittmann et al. (2009) examined the impact of strategic alliance on business success among 230 firms using a questionnaire; eventually the results showed that strengthening social capital is one dimension of alliance which is achieved through a partnership based on trust, commitment and good communication and leads to the superior financial performance of the business. Moreover, Ireland et al. (2002) and Eisenhardt and Schoonhoven (1996) revealed that achieving social capital increases the likelihood of the success of strategic alliance.

The fourth findings of this study indicate that internationalization of business is one aspect of strategic alliance and has direct and significant relationship with performance and explains 52% of performance changes. Alliance allows small firms to get familiar with (tastes, standards of) foreign market and as the result of this collaboration, businesses enter international market either directly through creating products or indirectly through intermediate products. Leiblein and Reuer (2004) and Fernandez and Nieto (2005) also examined 101 manufacturing company and came to the conclusion that internationalization of business through increased sales and increased international experience is one of the important aspects of the formation of alliance, and increases the likelihood of the success of entrepreneurial and family businesses.

Finally, the fifth findings also indicate that competitive advantage explains about 50 percent of the performance of business. Again, these findings are in line with the findings of previous studies. Street and Cameron (2007) examined 218 articles published during 1990-2002 using meta-analysis and concluded that strengthening competitive advantage through increasing competitive awareness, knowledge, having access to tangible and intangible resources, flexibility, marketing benefits and so on is one of important dimensions of the alliance of small firms with other firms. Moreover, Zhao (2014), Ireland et al. (2002), and Wittmann et al. (2009) claimed that strengthening competitive advantage is one important dimension resulting from forming alliance.

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Identifying the Effect of Entrepreneurship Approach on the Banking Industry Development Strategy (Study at Bank Mellat)

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Abstract

Approach to entrepreneurship and strategy of development is the concepts that have attracted the attention of many researchers and managers from the theoretical and practical dimension, and many companies have used these two concepts, and have won a lot of success. In today's world, the entrepreneurship is known as an engine of local, regional and national economic development. (Ahmadpour, 2007) The process of economic development in developed countries reflects the fact that the economy is under the influence of entrepreneurship. In addition, in the current competitive environment, it is an important factor in the development and survival of the companies. Companies that put the entrepreneurial orientation as their policy approach, through the development of flexible resources, they can increase their long-term potential. (Khanka, 2003) Therefore, in this paper, we examine the relationship between development strategy and entrepreneurship dimensions, including innovation, risk-taking, activism, and competitive aggression in the Mellat bank. The research is applied and is done in correlation way. The questionnaire is used to collect data. The statistical population of the study was limited that 261 statistical samples were used in the analysis. The research findings show that entrepreneurship approaches have a strong and positive impact on its development strategy. The Moderating Competitive dynamic has no impact on the relationship between entrepreneurship approach and development strategy. The findings of this study will help decision-makers to be able to know the importance of entrepreneurial approach so that they can decide appropriate policies to create and launch apps. Based on the results obtained, recommendations are provided for statistical population and bank managers.

Keywords: entrepreneurship, strategy of development, risk, competitive aggression, Bank Mellat

1. Introduction

Today, an entrepreneur is called as the engine of economic development (Mcgrath & Macmillan, 2000). Entrepreneurship because the community has led to ingenious technical change and economic growth growth is causing and as well as entrepreneurial new knowledge into new products and services will become important. (Salazar, 2004) also believes that entrepreneurs in addition to creating jobs, increasing quality of life, income distribution, social anxiety reduction and utilization of national resources. In addition, one of the biggest challenges for different societies is the issue of rapidly and growing changes that, every year, but every day, we are witnessing more than ever, in all sectors of human society, ranging from cultural, political and economic. Analysis of several developed and developing countries, which have followed their path to success, has shown that one of the most important factors in the development of these countries are strengthening the private sector. In particular, the presence of small and independent businesses and entrepreneurial organizations, as dynamic and creative organization that coordinate their strategy, structure and performance quickly with the modern developments. (AhmadPour Dariyani, M., & Moghimi, M. 2006)

Today, unlike in the past, the global markets are facing with daily changes and even moment-to-moment needs of human societies and manufacturing and services organizations that are the main cause for meeting these needs, should move quickly and with the correct target to not being stay behind of rapid changes, survival and growth

in this market. In fact, for today's organizations, creativity, innovation and entrepreneurship, either are as steps of a ladder, which must be passed with full awareness and successfully (Farhangi & Safarzadeh, 2007). The main aim of Entrepreneurs (in the public and private sectors) is creating the ability to cope with changes for the betterment of society (Lynch, 2006).

Entrepreneurial firms are better off entering a select number of strategic alliances and focusing on enhancing the outcomes of those select alliances as well as developing a dynamic alliance management capability. Such firms benefit most from establishing a moderate number of alliances rather than depending on a small number of alliances or becoming overwhelmed with a great number of alliances.

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The privatization of entities, especially financial institutions, increased competition, competitive advantage, information technology and electronic banking have caused the designed structure does not respond the new needs and forces the banking industry to develop its activities in the field of increasing the variety of services and products, creation of investment business and the related business. Meanwhile, the need for entrepreneurial activities in the banking system is more crucial than ever.

Using existing resources, even in a critical condition of the economy, we should also make appropriate decisions, identify opportunities, invent, innovate, create new products, create businesses, and take steps to provide new jobs. Identifying entrepreneurship in the banking industry does not only make progress and the development of banking, but also it creates and grows small economic businesses and new economic activities that will entail the following results:

The creation of wealth in society, production of technology, proper jobs, especially for young people.

This study aims to study the concept of entrepreneurial orientation provided by (Lumpkin & Veds, 1996). For this purpose, after reviewing prior studies and approaches, it studied the developing entrepreneurship approach and strategy, and then it offers a model to measure.

2. A review of the Research Literature

Every concept has a specific vision and approaches and the concept of entrepreneurship is not an exception. From the perspective of entrepreneurs, entrepreneurs are a style of management. The objective of entrepreneurial management is strategic management that organizes and examines all the items. Entrepreneurship is an approach to management that could be learned (Wickham, 2000).

Special attention to entrepreneurs in organizations is mainly due to keep the employees and their thoughts active in the organization and rehabilitation in the hierarchical structure of the organization (Pardakhtchi and Shafi'zadeh, 2005). To increase performance in both ways of strategic modernization and new venture opportunities, organizations have engaged themselves in entrepreneurship. (Guth and Ginsberg, 1990; Stevenson and Jarillo, 1990)

Exploration, evaluation and extraction of opportunity are a defining feature of entrepreneurship (Shane, 2003; Shane and Venkataraman, 2000) and the amount that organizations operate entrepreneurial is in relation to their ability to produce new products and services. (Lumpkin and Dess, 1997) According to Artokol, entrepreneurship is purposeful activity, which consists of a series of coherent decisions for individual or group of people to create, develop or maintain economic unit. On the other hand, "Robert Neshtat" has considered the entrepreneurial culture to accept the risk, pursue opportunities, and satisfy the needs, through innovation and the establishment of a business and labor. (Ahmadpour Daryani, 2008)

The ineffectiveness of traditional methods of management, intense competition between organizations and small business growth would cause the serious attention of organizations to innovation; because they have considered the innovation the only guarantee of survival in the field of competition. Therefore, they have tried to encourage the creative people and entrepreneurs that were the main producer of new products and services in the organization, to remain in the organizations and their ideas in the Pinkat organization and called these people corporate entrepreneurship (Gholipour and et al., 2008: 166).

A feature of entrepreneurial organization is having the clear, continuous, customer-oriented and flexible mission so that encourage the organization's growth through new ventures. In fact, one of the most important factors in the development of organizational entrepreneurship is that all staffs understand the mission of the organization and work towards its realization (Hadizadeh and Rahim Fil Abadi, 2005).

Accordingly, organizational strategy should be entrepreneurial strategies. For example, Scholhomer considers the entrepreneurship strategy consists of a series of targeted activities that act in order to equip and use of

resources. The strategies that this authority has proposed to include administrative entrepreneurship, opportunity-oriented entrepreneurs, imitation entrepreneurship, acquired entrepreneurship and educational entrepreneurship.

In recent years, the banking industry has witnessed intense competition combined with many opportunities and threats. Certainly, no bank can provide all possible services and be the best in the services it offers. Banks can evaluate their strengths and opportunities in the market, to adopt strategies and to achieve a good competitive position in the market. (Kermanshah and Abdi, 2006)

Research shows that various factors, such as the organization's external environment, the strategy of the organization and management practices are effective factors in organizational entrepreneurship (Koartko et al, 1990). In a number of studies, it has been trying to expand the conceptual model, and classify the factors affecting the development of organizational entrepreneurship. Lumpkin and Dess (1996) have considered four key factors, including entrepreneurial orientation, organizational factors, environmental factors and organizational performance for entrepreneurship.

Banks as economic firms, according to the country's future prospects, with a move towards privatization and competitive conditions, it is necessary to train managers that in addition to the ability and management skills, use the creativity, innovation and risk taking of their entrepreneurial attitude, in order to achieve their own purposes (Divandari, Hassanpour, 2007).

Renowned management theorists and managers have considered the innovation, as something more than an issue of interest. In their opinion, innovation has a vital role in providing and maintaining a competitive advantage in the bank, for example, leading banks are seeking to maintain their distance relative to their competitors. These banks provide new services at different times to the market (Porter, 1980).

The Mellat Bank has sought to implement Article 44 of the Constitution of the Islamic Republic of Iran, and has joined the private banks and has considered an approach to entrepreneurship in its product and service development strategy to improve the share of resources and customers. It considers creating value with considering entrepreneurship, innovation, improvement, change and diversity in service delivery and increase production for its customers. Now the question is whether entrepreneurial approaches are effective on the development strategy of Bank Mellat in Tehran.

Despite the importance of the discussion above, in the banking system, so far, there was less research in the field of entrepreneurial approaches in the banking industry. Therefore, this study aims to identify the entrepreneurial approaches in Bank Mellat, and determine its effects on Development Strategies. In addition, it can be concluded that in case of doing the stages and reaching all the major and minor goals, this research may be considered innovative from the perspective of research, and will be used by senior managers, experts, analysts of Mellat bank and the banking systems of the country.

3. Entrepreneurship Approaches

Lumpkin and Dess, (1996) have described the entrepreneurial orientation, as an economic process and decision-making activity that resulted in a new input. Entrepreneurship orientation can be considered as an entrepreneurial process, which the managers use for entrepreneurial activity, while, entrepreneurship could be defined as a new entry. They have drawn 5 dimensions of entrepreneurship orientation, include: independence, innovation, risk taking, interaction, competitive invasion, which insist on all entrepreneurial processes.

Lee and Peterson, (2000) have defined the entrepreneurial orientation as the entrepreneurial process, which reveals that, how the entrepreneur will happen in terms of methods, operations, decision-making processes for new input to the market. They have stated that the firms that act independently and continue the test take risks and innovate and compete in their market, and have a strong entrepreneurship orientation; however, those who lack all of these have a weak entrepreneurship orientation.

Becherer and Maurer, (1997) have examined the relationship between entrepreneurial orientation, marketing trends and firm performance and indicated that entrepreneurial orientation is related to changes in profits.

Dess and et al ,(1997) have examined the nature of entrepreneurial strategy and its relationships with environmental strategy and high performance. The results of this study showed that entrepreneurship strategy has a strong relationship with firm performance, when combined with the right strategy and the same environment. The research of Covin and Slevin, (1991), also stated that the entrepreneurial orientation has a relation with performance among small firms in hostile environments.

Wikilund (1999), has examined the stability of the relationship between entrepreneurial orientation and firm

performance. He has analyzed the data of Swedish firms and understood a positive correlation between entrepreneurship orientation and high performance. In addition, the research results showed that relationship has increased over time.

Antoncic model (2000), has considered the characteristics of organizational entrepreneurship (new business, new venture business, service and product innovation, process innovation, modernization, risk-taking and the hyperactive and aggressive competition) as well as the factors affecting it, (features of the organizations, departments and unit characteristics and environmental factors), in the study of organizational entrepreneurship.

Research states that the organization may show different shapes of these dimensions to comply the organizational strategy with the external environment (Kreiser 2002; Lumpkin and Dess, 1996)

In line with this, our research landscape looks at entrepreneurial approaches process, consisting of activism (hyperactive), innovation and risk taking, which may be the pioneers or resulted, depending on the internal or external content of the organization.

It seems, entrepreneurial approaches have an important influence on the development of the organization's strategy, and therefore, the investigator believes that the focus for Entrepreneurial Studies on the Mellat banks - where very little attention has been devoted to it – on entrepreneurial approaches in explaining the strategy of development, in the bank, is very important.

In this study, we study the effect of five dimensions of entrepreneurial orientation, (independence, innovation, risk-taking, action-oriented, competitive aggression) on development strategy.

4. Expression of Conceptual Model

The research, based on previous research, such as Miller, has defined an entrepreneurial firm as a firm that is engaged in innovation of the product market and is made risky investments and is along with activities innovation, puts the rivals aside. He has used the aspect of activities, innovation and risk to evaluate entrepreneurial approach. These three dimensions had been taken by most prior research, to explain entrepreneurship (Lumpkin and Dess, 1996; Covin and Slevin, 1989; Lee Patterson, 2000 Kreiser, 2002 Tarabishky, 2005).

On the other hand, Kavyn and Slevin 1989 have stated according to Miller that, firms are entrepreneurs that will be an innovative and proactive risk taker. In other studies, Kreiser has supported the three dimensions, including proactive innovation and risks and stated, these three dimensions can be different from each other in several mentioned occasions, by Lumpkin and Dess. Tarabishky has adopted the basic developed framework by Miller. They have focused on taking risks, innovation and action, to measure entrepreneurial strategic posture (ESP).

Table 1. A comparative study of entrepreneurship approaches

Writer	Innovation	action	Risk	Independence	Competitive invasion	Dynamic competitive
Miller 1983	⊙	⊙	⊙	-	-	-
1989						
Covin and Slevin 1996	⊙	⊙	⊙	-	-	-
Lumpkin and Dess 1996	⊙	⊙	⊙	⊙	⊙	-
Wikilund 1999	⊙	⊙	⊙	-	-	-
2002 Lee and Peterson	⊙	⊙	⊙	⊙	-	⊙
, Chrisser and et al 2002						
Marino.	⊙	⊙	⊙	-	-	-
Masgham 2003	⊙	⊙	⊙	-	-	-
Tarabishy and and et al 2005	⊙	⊙	⊙	-	-	-
Moreno 2008	⊙	⊙	⊙	-	-	-
This research	⊙	⊙	⊙	-	⊙	-

Also, when the relationship between aspects time comes, Miller (1993) and Kovin and Slevin (1989) have accepted entrepreneurship approaches as a one-dimensional structure. They have insisted that these three dimensions can be placed on a scale and on the other hand, Lumpkin and Dess (1996) and Christ and other (2002) have claimed that entrepreneurs' approaches dimensions can be different from each other. This research has adopted the attitude of Miller (1993) and Kovin and Slevin (1989).

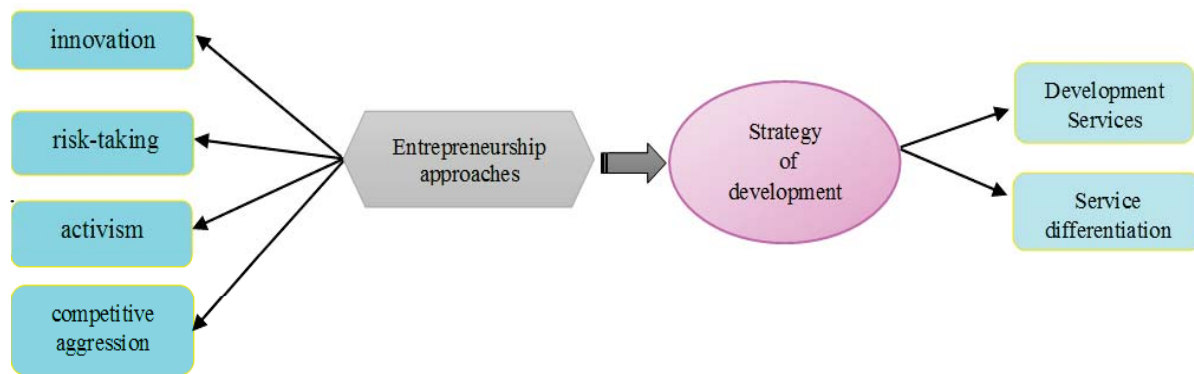


Figure 1. Conceptual model of research

5. The Questions and Main Objective of the Research

H1. There is a direct and significant relationship between entrepreneurial approaches and strategy of development.

H2. Competitive dynamics have a moderating effect on the relationship between entrepreneurship approaches and strategy of development.

In addition, the underlying aim of this research is to "investigate the effects of entrepreneurship approaches on development strategy".

6. Research Methodology

The research is applied in terms of objective, gathering information is descriptive-correlation type, and gathering information was done by using survey methods. To identify aspects of entrepreneurship and development strategy, the background of the research was studied. A questionnaire as designed with 62 closed questions with 5-point Likert scale and 8 demographic questions. The statistical population of the research consisted of employees (managers and experts) of line and staff management headquarters and branches in Tehran that 1429 people were identified. The population is limited, therefore, in this study; finite population-sampling formula was used for sampling.

$$n = \frac{1429 \times [1.96]^2 \times 0.5 \times 0.5}{(0.05)^2 \times (1429 - 1) + (1.96)^2 \times 0.5 \times 0.5} = 302.96 \cong 303$$

N=the sample size, according to the formula, was calculated 303 number.

In this study, the number of samples, selected from each category, is calculated as follows :

$$nn=n Nn/N$$

Table 2. Statistical population

row	The desired class	All subjects	The questionnaire needed	Questionnaires sent	Returned questionnaires
1	Management	506	303×506/1429=107.29	140	70
3	professional	741	303×741/1429=157.11	180	133
2	executive	182	303×182/1429=38.59	100	58
4	Total	1429	303	420	261

However, for assurance of returning the questionnaire, more number of them was distributed. Questionnaires were distributed randomly-class so that 261 questionnaires were collected. In this study, to evaluate the validity of the questionnaire, professors and experts used content -face validity. In order to have the high reliability questionnaire, a pre-test was used. Thus, after designing the initial questionnaire, 30 questionnaires were distributed and collected trial that the level of its reliability was obtained 0.862 by using the Cronbach's alpha that indicates an acceptable credit.

7. Data Analysis

To analyze the data, after extracting factors from the research literature, for the extraction of entrepreneurship approaches and strategy of development, structural equation method and confirmatory factor analysis were used to test the research measurement models. In addition, to study the effect of moderator variables, Moderated Multiple Regression methods and correlation analysis of subgroups adjustment were used.

8. Research findings

Among 261 respondents, 36% were male and 49 percent were female that 12.3% were ranged from 22-28 years, 44.8 percent were from 29 to 35 years, 27.6 percent were 36 to 45 years and 0.4% were over 46 years. Respondents in terms of education, 10.3 percent had a high school diploma and associate degree, 46 percent had bachelor, 28 percent had master and 0.8 percent had PhDs. In terms of the service experienced, 11.9% had less than 5 years, 35.2% had between 5 and 10 years, 21.8% had between 10 and 15 years and 10.3% had between 15-20 years and 21 years and above work experience, and 14.6 percent did not answer the questions. In terms of the position, 21.8% of the respondents were managers, 54.8% were experts, 20.7 percent were executive staff, and 2.7 percent did not answer the question.

9. Confirmatory Factor Analysis

To establish causal relationships between independent variables and the dependent variables, the proposed model was analyzed by using structural equation and LISREL software. In the causal model, first, the initial model should be tested; therefore, different criteria of pattern fit should be applied. In this study, several indices were used, which its results are shown in Figure 3. As can be seen in the table, all the indices of fit confirm the framework (template). In general, if the value of GFI will be greater than or equal to 0.9, indicates perfect fitting templates. On the other hand, the RMSEA must be less than 0.08, and its confidence interval should not be very high, which in this model is about 0.071. In addition, the NFI, GFI and RFI, which are larger than 0.9 shows the satisfactory level of fitness model. Ratio of chi-square to the degrees of freedom as the most important indicator in determining the fitting, in this model is below 3 and equal to 2.30, which is in the proper range.

Table 3. The fitting criteria for the final model

Indicators	The maximum allowable	Numbers	result
Chi-square ratio to the degree of freedom	$\chi^2/df < 3$	2.30	A good fit
RMSEA	0.05 < < 0.08	0.071	A good fit
GFI	Higher than 0.9	0.96	A good fit
AGFI	Higher than 0.9	0.91	A good fit
CFI	Higher than 0.9	0.98	A good fit
NFI	Higher than 0.9	0.97	A good fit
NNFI	Higher than 0.9	0.96	A good fit

After the pattern fit was logically confirmed by the data, significant components of the framework (template) and relationships between variables were evaluated. Figures 1 to 4 show LISREL parameter estimation in the examined model. These parameters all show the impact of each of these observer variables at the same time (rectangle) and latent (Oval), in the overall framework.

10. The Main Research Hypotheses by Path Analysis

One of the strongest and most appropriate analysis methods in behavioral sciences research is multivariate analysis. Because the nature of these issues is multivariate and cannot solve them with the two variables, method (each time only one independent variable with the dependent variable). Therefore, in this study, to confirm or refute the hypotheses, structural equation modeling and in particular, path analysis was used. Path analysis (structural model), is a technique that shows the relationships between research variables (independent, intermediate and dependent) simultaneously. The purpose of the path analysis is to identify causality (effect), between the conceptual model variables of the research.

Structural model shows the relationship between entrepreneurship approaches and development strategy. Structural model in the standard estimation mode, showed a positive effect (0.87) and significantly (15.28) between the approaches of entrepreneurship and development strategy.

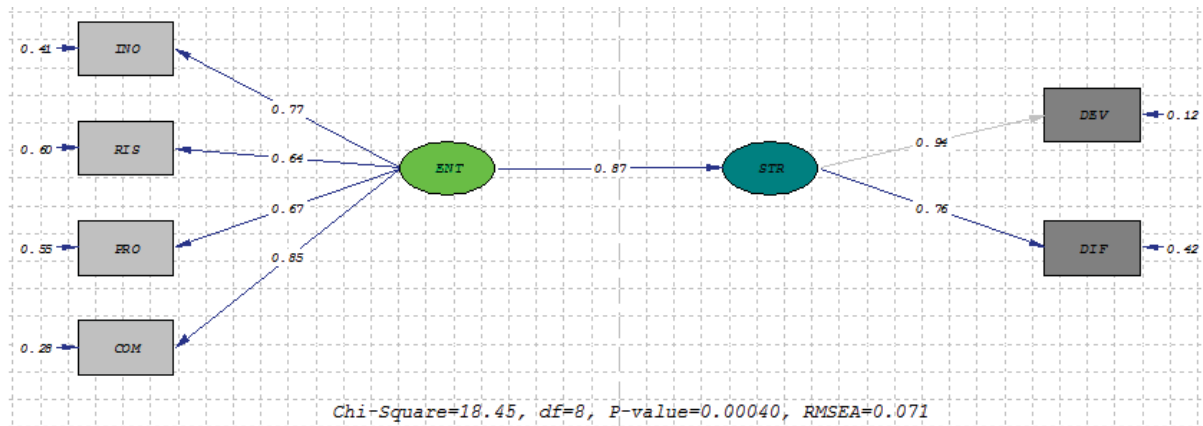


Figure 1. Structural Model in standard estimation mode

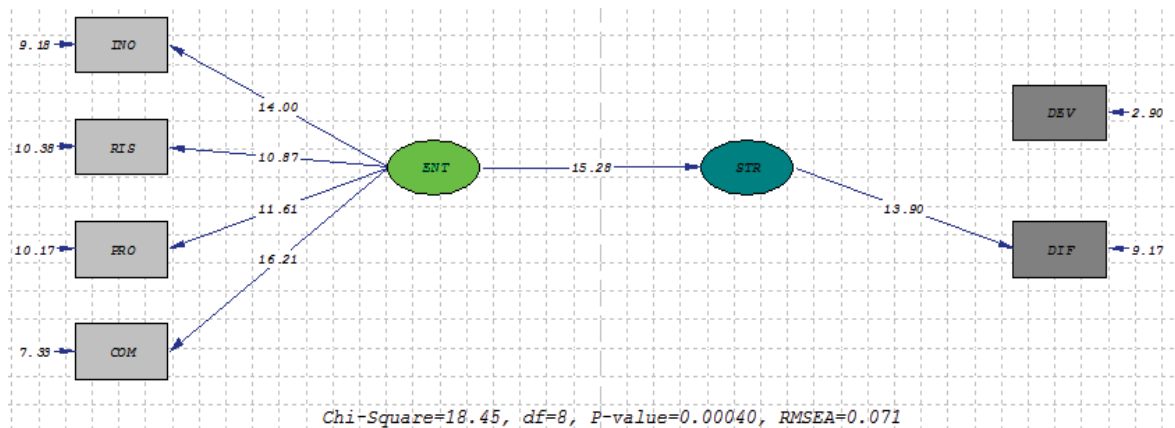


Figure 2. structural model in a significant factor mode

11. Moderating Competitive Dynamics in the Relationship between Entrepreneurship and Development Strategy

For testing and identification of moderator variables, there are three ways, that each of these methods has assumptions and specific requirements. In this study, to investigate the moderating dynamics of competition between entrepreneurship approaches and development strategy, the sub-group procedure is used. To this end, the moderator variable is divided into two high and low groups by using the average. In addition, each of them was run separately, after running, the impact factors were compared between entrepreneurship approaches variables and development strategy that in the case of a huge difference, a moderator command will be given.

Due to this that the dynamic variables can be considered as a category and class (low and high competitive dynamics ...). Therefore, the Subgroup analysis will be used for moderate form test of this variable on the relationship between the independent variable and the dependent variable in the model. In this way, in this method, first, we run the relevant structural equation model in all kinds of amounts and situations of mediator variables (low doses and high amounts) and we compare the results of these amounts and modes together, if the results of the models (especially regression coefficients) have significant differences, indicating a moderating effect on the considered relationship.

1) Competitive Dynamics

Small amounts (130 cases)

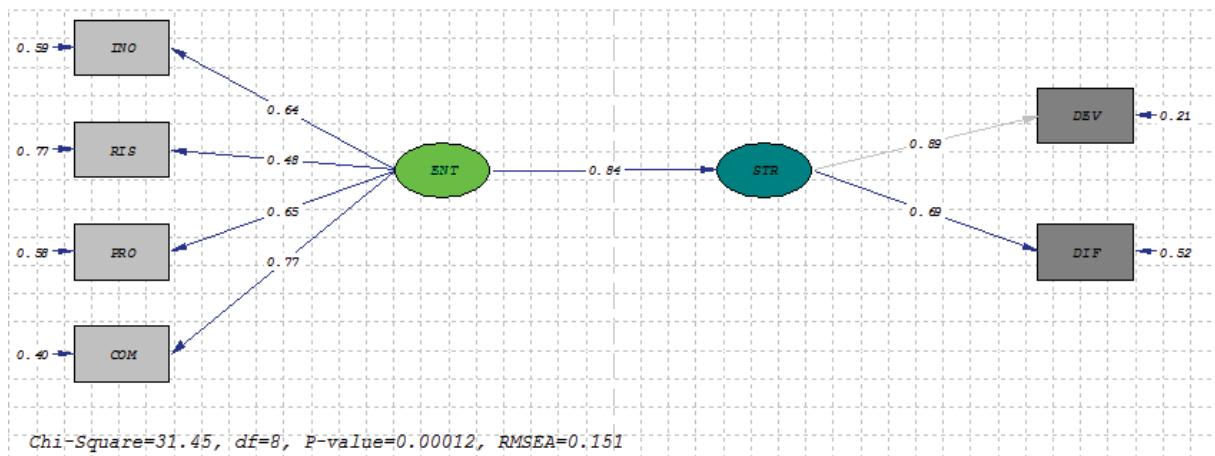


Figure 3. standard estimation model of small amounts moderating effect on competitive dynamic variables

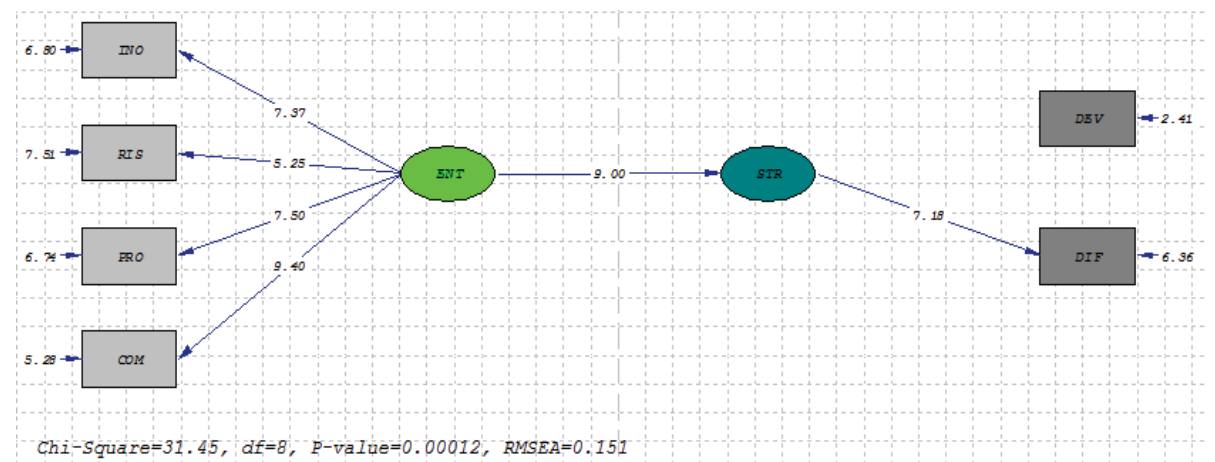


Figure 4. a significant moderating effect of small amounts on competitive dynamics variable large quantities (131 cases)

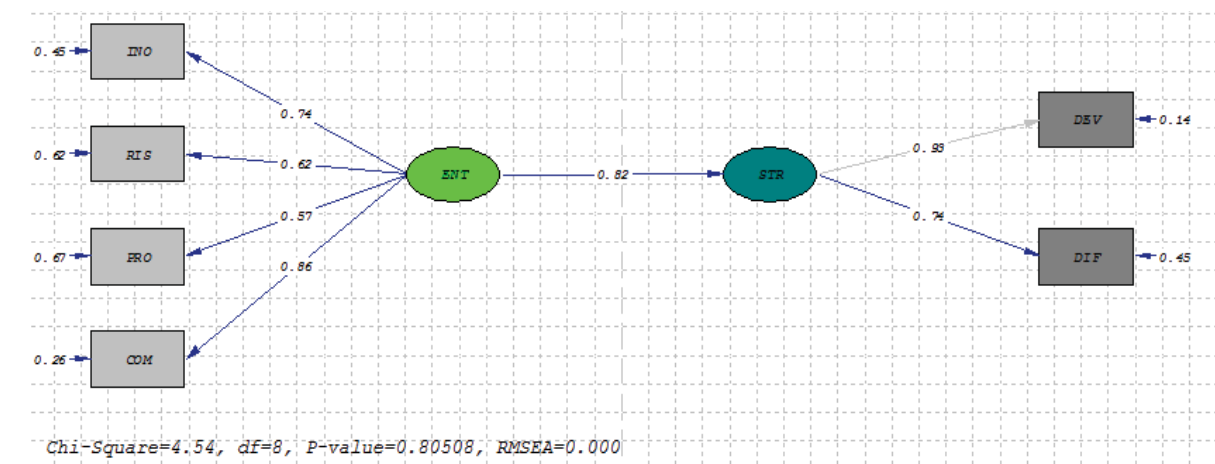


Figure 5. Standard regression models to estimate the effect of moderating high levels in competitive dynamic variable

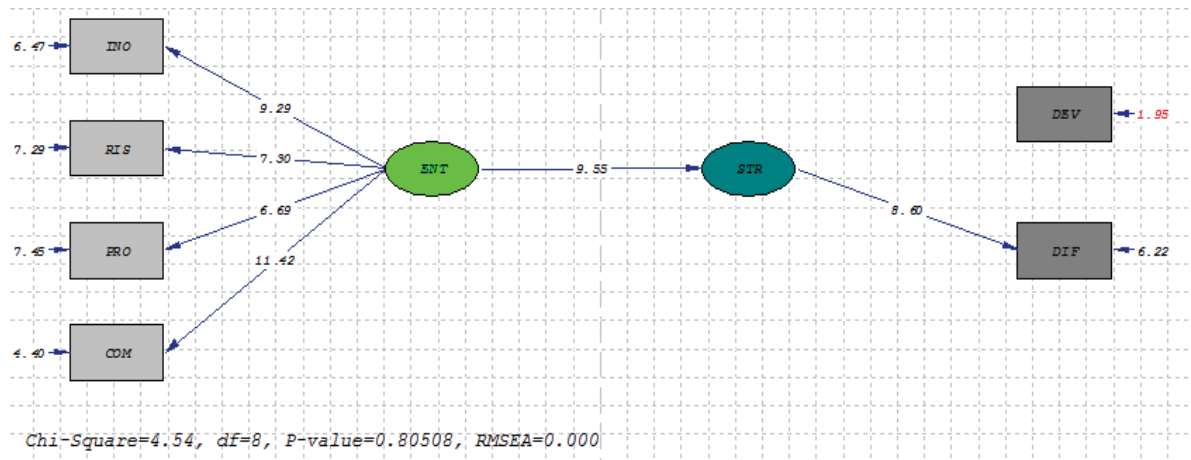


Figure 6. significant numbers of large amounts of moderating effect of competitive dynamics variable

Table 4. Comparison of low and high amounts moderating effect in competitive dynamics variable

Relations between model components	Low amounts of moderating variable	High amounts of moderating variable	The difference in the two models
Entrepreneurial approaches effect on development strategy	0.84 significant	0.82 significant	0.02 low

12. Discussion and Conclusion

Services industry is the largest and fastest growing part of the economy of a developed country, for example, in the US, the service industry uses about 76 percent of the work force and forms 57 GDP. Therefore, many previous studies have tried to identify the factors that effect on business performance by focusing on service quality, as a factor that satisfies customer needs and improve organizational performance (Asubonteng,1996; Lee and Ulgado, 1997; Ying, Cheng, 2006; Lee and Lim, 2009, Chen, Artejo, 2008; Tang and et al,2009). However, it is difficult to find a study that has examined the impact of entrepreneurship approaches on the development strategy, despite the fact that the orientation of entrepreneurs is suggested as a mandatory feature of high-performance firms (Covin and Slevin, 1991; Lee and Peterson, 2000). There is a feature of experimental documentation regarding the impact of entrepreneurship approaches on the performance of the service business; therefore, the aim of this study is to investigate the effect of entrepreneurship approaches on the strategy of development as well as to evaluate competitive dynamics moderating in the relationship between entrepreneurship approaches and strategy of development. The present study has limitations and disadvantages as well. In this study, the proposed model was in the early stages of design, and should be used in future studies, in several organizations with different work activities, so that it is proven and its weaknesses will be determined. The study proposes a scale for all organizations, and variables such as size or industry have not been entered in it. Further studies can indigenously the proposed scale for every industry, in particular. This issue in particular, can be important for distinguishing between High-tech industries and Low-tech industries because the nature of used entrepreneurship is different in each of these industries and has different functions.

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Relationship of External Knowledge Management and Performance of Chinese Manufacturing Firms: The Mediating Role of Talent Management

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Abstract

For the competitive market, both talent management and knowledge management of employees are key primary resources in organizations. While it is well known that in today's emerging economy, intangible resources like knowledge and human capital seem as the soul of survival; few studies have examined the effect of external knowledge management and talent management strategies in Chinese manufacturing firms. This study tries to bridge this gap by examining the importance of external knowledge management and talent management, Moreover, how this consequence can affect in particular industry for the economic growth of China? Total 249 responses were collected through structured questionnaire from manufacturing organizations located in Shanghai and Suzhou, China. PLS-SEM techniques via Smart-PLS (3.2.4) software has been used to test and validate proposed model and the relationships among the hypothesized constructs. The findings of this study show that external knowledge management (E-KM) and talent management both contributes positively to the performance of manufacturing firms. Moreover, talent management as mechanism demonstrated strong mediation effects between E-KM and performance. In researchers' point of view and results revealed the evidence by linking E-KM with TM-OP and TM as a mechanism between E-KM and OP. Such insights may helpful for managers to target sustainable current and future growth of the organizations and also, to overcome the shortage of talented and qualified worker's issues in fast-growing emerging economies.

Keywords: external knowledge, talent management, emerging economy, manufacturing industry, China

1. Introduction

The economic deployment in Asian continent has been increasingly becoming persuasive and underlined a dramatic change from western developed countries to the Asian continent. The foreign direct investment (FDI) in that continent flows accounted US\$ 383 billion in 2014 with 31.9 percent contribution in the global economy; higher than Europe and North America that accounts 23.3 percent and 28.8 percent respectively; and has contributed 38 percent of the world GDP (UNCTAD, 2015). In the whole scenario, manufacturing industry (hereafter '*MI*') attained rapid growth in Asia pacific countries due to (FDI) and has contributed 32.6 percent of the world manufacturing value. In that case, particularly China is so for running ahead, accounting \$ 2.05 trillion manufacturing output even higher than developed countries like USA (Lu et al., 2015). It has achieved milestones in '*MI*' and become a leading manufacturing nation in the world with title engine of growth in Asian as well as global economy.

However, equally, create more demands for skilled and talented labor in the industry and facing deficiency in innovation, because of competition among local and international enterprises to maintain and retain talented and skilled labor (SL). According to China's National Bureau of Statistics (2006-2010), FDI share in '*MI*' fell from 61 percent to 56 percent because of concomitant labor market effects. Rising demand for more skilled and talented labor in the '*MI*', China's vocational education and training system (VETS) also receives criticism for not supplying sufficient workers with appropriate skills (Blecher, 2013). In that scenario, Chinese '*MI*' has been forced to compete and upgrade its competitiveness by inimitable resources (i.e. SL) among emerging economies and need long-term planning to overcome these issues for the sustain future growth and development. Moreover,

turnover ratio becoming prevalent in 'MP' (Sheldon & Li, 2013), and the organizations are spending a huge amount to maintain and retain skilled labor. The dominance and rapid demand of talented and skilled employees in the Chinese economy raise important concern for both researchers and practitioners to address this issue with a possible solution.

Chinese MI facing talent as a scarce resource, because of not supplying sufficient workers with appropriate knowledge and skills that are the critical situation for industries' further development. Close scrutiny is required by practitioners and researchers to address these issues in order to provide a strategic weapon for long-term survival and development, nevertheless, not only for China but even for the development of the world (Lu et al., 2015). Moreover, the previous study revealed talent management (hereafter 'TM') and knowledge management (hereafter 'KM') in US base multinationals and privately-owned enterprises (Collings, Scullion, and Vaiman, 2011). However, it is, questionable either this current notions and postulations in literature related to US context help to understand and explain 'TM' and 'KM' in another context especially in emerging economies like China (Thunnissen, 2013). As it is claimed that the shortage of talented and knowledgeable employees are greatest barriers to current and future growth of China (Ma & Trigo, 2008).

2. Theoretical perspectives and Hypothesis

2.1 Talent Management (TM)

Acquiring talented people has become an all the time challenge for those who are responsible for turning the wheel towards success. As organization is known by the people it keeps and in today's business world, 'TM' has become one of the most significant buzzwords and omnipresent phenomenon in organizations. The commencement of the concept is recognized in the 1990s when the proclamation war for talent presented by Mckinsey to address the shortage of talented people in the future business market. The key to success for any organization is the ability to ensure inflow and retention of talented people by creating an environment in which people have freedom to think what they want, share their ideas among each other and are empowered to work what they want to deliver that organization desire.

From last few years, in contemporary workplaces especially in emerging economies, practitioners and academia related people have evolved considerably with 'TM' literature (Meyers & Woerkom, 2014; Minbaeva & Collings, 2013; Nijs et al., 2014; Schiemann, 2014; Vaiman & Collings, 2013). A different perspective has been canvassed with different emphases to conceptualize and contextualize 'TM' (Iles, 2013), and huge controversy has been found between researchers with the debate of 'TM'. Recent literature is seen 'TM' as bridge field drawing upon the concept of capacity theory, HRM, marketing, operations, the resource-based view and HRM, focusing human capital thinking with assumptions to add value by the talented employees and would help to generate superior outputs (Sparrow & Makram, 2015).

For the purpose of this study, we adopt the definition proposed by (Collings & Millahi, 2009). As, 'TM' is the processes that involve the systematic identification of key positions which differentially contribute to the organization's sustainable competitive advantage, the development of a talent pool of high potential and high performing incumbents to fill these roles, and the development of a differentiated architecture to facilitate filling these positions with competent incumbents and to ensure their continued commitment to the organization. These 'pivotal positions' contribute to the organizational performance because these positions differentiated capability among the top and low performer employees that contribute more in organizational competitive performance (Heinen & O'Neill, 2004), therefore, such positions need to be acknowledged and filled with top performers (Mellahi & Collings, 2010). Consequently, the strategic role of HR practitioners is to ensure the availability of sustainable talent pool, and these pivotal positions adhere adequately with required talented employees in the organization.

Asia is considered as a densely-inhabited region in the world, but facing an acute challenge with talent shortage (Horwitz, 2012). Previous studies focused in Asia pacific region (For example, Hartmann, Feisel, & Schober, 2010; Skuza, Scullion, & McDonnell, 2013). However, despite these numerous research, there remain a need to examine further the contextual nature of 'TM' and the prevalence of diverse 'TM' practices within organizations (Dries, 2013; Festing, Schafer, & Scullion, 2013; Sidani & Al-Ariss, 2014), and 'TM' practices in emerging market economies especially in 'MI' like China (Chadee & Raman, 2012; Cooke, Saini, & Wang, 2014). The talent shortage is predicted one of the greatest challenges for organizational sustainability (Hartmann et al., 2010), and also organizations do not only have to compete for the best talent in the market but also struggle with high turnover rates (Lui, 2006). International-level skilled/knowledge and talented employees are limited in china especially in the managerial sector, and estimates forecast that China would need over 75,000 qualified managers in the next ten to fifteen years (Farrell & Grant, 2005). Moreover, MNCs facing a shortage of managerial talent to run their

business and rising employee turnover issues (Zheng, Soosay, & Hyland, 2008). There are several reasons for the deficiency of managerial talent in China. For example, historical and demographic reasons, nation-wide famine policy (1959-1961), interruption of cultural revolution (1965-1975), one child policy (1979-2015), brain-drain, lack of cultivated managerial talent in education system, poorly address the need of managerial talent after the accession of FDI and WTO, an oversupply of young workers lacking the experience or education for managerial roles, and complex relationship networks 'Guanxi' (Zhang & Bright, 2012). Therefore, 'TM' and KM' are the major concern for both MNCs and domestic organizations, also need to develop effective strategies for long-term survival in a competitive environment (Ma & Trigo, 2008). Based on above-mentioned discussion, we proposed following hypotheses;

Hypothesis 1: Talent management contributes positively to the organization performance.

2.2 External-Knowledge Management (E-KM)

In today's knowledge-based emerging economy, knowledge plays a strategic role in organizational success; as it signifies intangible competitive resource, operational routines and creative processes that are hard to imitate (Carlsson, 2003). It can be defined as information combined with experience, context, interpretation and reflection (Davenport & Volpel, 2001). Acquisition of knowledge is an integral part of 'KM' process and usually acquire from two sources. For example, internally (i.e. intra-departmental communication channel, intelligence teams, R & D department, and knowledge system) and externally (i.e. competitors, academic institutions, consulting firms, and industry associations), and the integration of both sources plays vital role for organizational effectiveness (Choi, Poon, & Davis, 2008). Moreover, organizations that constantly owns, acquire and manage updated knowledge through proper 'KM' strategy may sustain a superior position among competitors (Sanchez et al., 2015). Previous studies have confirmed that 'KM' has a positive association with organizational performance, innovation and competitiveness (for example, Chadee & Raman, 2012; Hsiao, Chen, & Chang 2011). In line with reasoning, we proposed following hypothesis;

Hypothesis 2: External knowledge has a positive effect on organization performance.

In the previous study, mostly the internal 'KM' system and processes have been demonstrated, however, neglect the role of external sources of knowledge especially in emerging economies, where formal institutions and infrastructure similar to those in Western industrialized countries either do not exist or are underdeveloped. To date, most studies observed either implicitly or explicitly on internal sources of knowledge, while the role of external sources both explicit and tacit has been overlooked in the 'MI' of emerging economies like China. The core emphasis of this study is to analyze the mediating role of 'TM' between the external- 'KM' and organizational performance. However, specific to the effect of external sources of knowledge in 'MI' seems underdeveloped in emerging economies (Chadee & Raman, 2012) like china. As, both tacit and explicit knowledge if managed through proper strategy, may become a key resource of competitive advantage (Sanchez, Marin, & Morales, 2015). Moreover, knowledge related to profitability and competitiveness inside and outside the organization is of being imperfectly known (Zhao et al., 2012). This study fills the research gap by focusing on the external source of explicit and tacit knowledge. Those organizations which acquire and exploit external sources of knowledge (explicit and tacit) are probable to be more effective, innovative and perform better by being able to operate outside of their knowledge frontier. In support, Chadee & Raman (2012) argued that both external knowledge and talent management has a positive association with organizational and that the latter has strong mediating effects on the relationship between external knowledge and firm performance. From the above literature, we proposed the following hypotheses:

Hypothesis 3: External knowledge has a positive relationship with talent management.

Hypothesis 4: Talent management mediates the relationship between external knowledge management and organization performance.

3. Methodology

3.1 Target Population, Sample and Data Collection

Data were collected with the help of guanxi network, from 117 Chinese manufacturing firms located in Shanghai and Suzhou, well-known with leading MI representing financial industry centers and industrial park respectively. Both cities are considered as Chinese's economic hub varying degrees of the market economy. Managerial staff having more than 10-year experience were targeted to complete the survey, each firm were given five questionnaires, and in response 265 filled questionnaires were received from 53 firms (response rate about 45.29%), out of a total 219 were useable enough to analyze the data, representing a response rate of 37.43%. Following previous studies (Liao & Chuang, 2004; Sun, Aryee, & Law, 2007; Liao et al., 2009), we controlled

respondent's education level (69.41 % hold master degree, 23.59 % hold below master degree); gender (female 73.51%, male 26.49%); and age (0% between 0-20 years of age, 71% between 21-40 years of age, and 29% between 41-60 years of age). We strategically selected companies that are more than five years of incorporation and employed between 24 up to 250 employees. Chinese version survey was conducted through email and telephone with the help of guanxi network and Chinese research mates, because of the language barrier. For the accuracy of the survey, we followed an iterative translation procedure by (Liao et al., 2009). Some survey items were reworded accordingly and before collecting the data, a questionnaire was discussed with HR and managerial related employees, supervisor and academics experts. To analyze the data, partial least square-structure equation modeling (PLS-SEM) technique is applied, as a number of recent studies of PLS-SEM have supported its advantages over covariance-based modeling. Moreover, due to sample size limitations of the current study, this technique is useful to analyze for small samples size data (Sosik, Kahai, & Piovoso, 2009).

3.2 Variables and Measures

3.2.1 External Knowledge Management (Independent Variable-IV)

KM was measured with six items scale with two-dimensional strategy, first, three represents knowledge codification and remaining three are personalization, developed by (Lee & Choi, 2003). In order to identify and evaluate that company utilize an external source of KM strategy based on five-point Likert scales, respondents were asked to rate their company and the higher the rating given by the respondent to each item, the more the company involved in external KM strategy. These scales have been also used and validated in other studies, e.g., (Lopez-Nicolas & Merono-Cerdan, 2011).

3.2.2 Talent Management (Mediator-MV)

'*TM*' was measured with six items scale adopted from (Chadee & Raman, 2012). Researchers in previous studies also formulated a number of several '*TM*' measures to capture various '*TM*' practices according to organizational context, e.g., (Hatch & Dyer, 2004). As Chinese MI compete with each other for talented employees because of the limited talent pool with a focus on performance, respondents were asked to rate '*TM*' practices relating to the identification of recruitment, retention, rewarding of talented employees, selection, and training talent gaps, concerning organizational criteria on a 5-point Likert-type scale.

3.2.3 Organization Performance (Dependent Variable-DV)

Organization performance was measured using financial performance indicator i.e. total revenue growth (TRG) and operational performance draw from previous studies (Flynn, Huo, & Zhao, 2010; Chadee & Raman, 2012) respectively. Both performance indicators have been widely used in the literature (Cho, Ozment, & Sink, 2008; Coltman, Devinney, & Midgley, 2011; Feng et al., 2013). Respondents were asked to rate OP comparatively using a five-point Likert scale.

3.3 PLS Path Model Estimation

To assess the path coefficient in the structural model, first, indicator reliability (IR), internal consistency reliability (ICR), convergent validity (CV) and discriminant validity (DV) of the measurement model were examined (Wong, 2013).

3.3.1 Indicator Reliability (IR)

As reliability is a condition for validity, first we checked IR to ensure the associated indicators have much in common that is captured by the latent construct. Table 1. Showed the outer loadings for all latent variables, all are above than 0.4 threshold level (Hair et al., 2013). Meanwhile, one indicator (TM-2) is found to have loading 0.682 and to retain that indicator in the model, a loading relevance test is performed. After removing that indicator from PLS mode, the value of average variance extracted (AVE) and composite reliability (CR) didn't increase (over the 0.5 thresholds), so it is not eliminated from the model.

3.3.2 Internal Consistency Reliability (ICR)

CR is used to evaluate the measurement model's ICR. To validate a satisfactory CR, the threshold level of 0.60 or higher is required in exploratory research but not exceeding the 0.95 level (Bagozzi & Yi, 1998; Hair et al., 2013). In our case, the CR for the construct '*TM*', E-KM and OP are indicating high levels of the ICR. Results are shown in table 1.

3.3.3 Convergent Validity (CV)

CV is used to explain the indicator's variance in the model. The AVE of the latent constructs ('TM', E-KM, and OP) can be used with 0.5 threshold level as evidence of CV (Fornell & Larcker, 1981; Bagozzi & Yi, 1998). Table 1. Showed all constructs confirmed the minimum level of CV.

Table 1. Outer loadings

Constructs (Latent Variables)	Outer Loadings (OL)	CR	AVE
Talent Management ('TM')			
TM-1	0.779	0.885	0.561
TM-2	0.682		
TM-2	0.735		
TM-4	0.788		
TM-5	0.775		
TM-6	0.731		
Eternal Knowledge Management (E-KM)			
KC-1	0.813	0.928	0.684
KC-2	0.794		
KC-3	0.835		
KP-1	0.942		
KP-2	0.834		
KP-3	0.842		
Organization Performance (OP)			
TRG-1	0.834	0.910	0.591
TRG-2	0.786		
OP-1	0.709		
OP-2	0.718		
OP-3	0.744		
OP-4	0.829		
OP-5	0.760		

3.3.4 Discriminant Validity (DV)

In previous research, Fornell-Larcker Criterion (Fornell & Larcker, 1981) and cross loading examination is dominant approaches, used to assess the DV. However, recently another study criticized that approach and preferred the Heterotrait-Monotrait Ratio (HTMT) approach to assess the DV.

To establish DV in our study and cross verification, both approaches are adopted. Table 2 shows that the square root of AVE for E-KM, OP, and TM, are much higher than the corresponding latent variable correlations. We followed HTMT.85 approach, as it is the most conservative criterion and achieves the lowest specificity rates of all the simulation conditions. Results in table 2, confirmed that there is no discriminant validity problem and all values meet mini threshold levels.

Table 2. Fornell-Larcker Criterion & Heterotrait-Monotrait Ratio (HTMT)

Latent Variable Correlations (LVC)	Discriminant Validity met? (Square root of AVE>LVC?)			Discriminant Validity Established (HTMT) (0.85- criterion)		
	E-KM	OP	TM	(E-KM)	(OP)	(TM)
E-KM	0.827			Yes		
OP	0.628	0.769		Yes	(0.670)	Yes
TM	0.642	0.664	0.749	Yes	(0.697)	(0.675) Yes

Note: The Square root of AVE values is shown on the diagonal and printed in italic bold; non-diagonal elements are latent variable correlations (LVC).

3.4 Evaluation of the Structural Model in PLS-SEM

To evaluate the structure model in PLS-SEM, we followed collinearity assessment and coefficient of determination tools. To check collinearity issue, variance inflation factor value (VIF*) is obtained. As VIF value of 5 or above typically indicates such problems (Hair et al., 2011). In our model 'TM' and OP act as dependent variables because they have arrows (path) pointing towards them. Therefore, we need to run two different sets of linear regressions. The Collinearity assessment results are summarized in Table 3. All values of VIF are lower

than 5, suggesting no indicative of collinearity between each set of predictor variables. Another evaluation tool, the coefficient of determination (R^2) is used in the model, shown in table 5. The threshold value of 0.25, 0.5 and 0.7 are referred as the weak, moderate and strong coefficient of determination (Hair et al., 2013). In our research model, it suggests that construct E-KM and 'TM' can jointly explain 51% of the variance of the endogenous construct OP, also it reveals the R^2 for other latent construct E-KM explain 41.3% of 'TM's variances. OP and 'TM' are the main constructs of interest.

Table 3. Collinearity Assessment

Dependent Variable: OP			Dependent Variable: TM		
Constructs (1 st Set)	VIF	Collinearity Problem? (VIF>5?)	(2 nd Set)	VIF	Collinearity Problem? (VIF>5?)
E-KM	1.703	NO	E-KM	1.000	NO
TM	1.706	NO			

Note: *Smart-PLS doesn't generate VIF, so IBM-SPSS is used to obtain VIF values.

3.4.1 Path Coefficient

To test the hypothesis, path coefficient and related t statistics via bootstrapping can use to determine the relationship between the constructs. Table 4 summarized significance testing results of the structure model path coefficient. The PLS structure model results enable us to conclude that, E-KM has the strongest effect on 'TM' (0.642), followed by 'TM' (0.443) on OP, and confirming our various hypotheses about the construct relationships.

Table 4. Significance Testing Results of the structural Model Path Coefficients

Hypothesis	Path:	Path Coefficient	t-Values	P-Values	Hypothesis
H ₁	E-KM → OP	0.344	04.281	0.000	Accepted
H ₂	E-KM → TM	0.642	13.294	0.000	Accepted
H ₃	TM → OP	0.443	05.806	0.000	Accepted

3.4.2 Predictive Relevance (Q2)

To propose either model has predictive relevance for all the endogenous variables, Stone-Geisser's predictive relevance (Q2) is important because it checks if the data points of indicators predict in the reflective measurement model of endogenous construct accurately. Table 5 summarize the results and confirmed that our model demonstrates good predictive relevance, as Q2 is larger than zero (Chin, 1998).

Table 5. Results of Coefficient of Determination (R2) and Predictive Relevance (Q2)

Endogenous Latent Variable	R ² Value	Q ² Value
OP	0.510	0.321
TM	0.413	0.234

Note: Q² is the 1-SSE/SSO value as shown in the Construct Cross-validated Redundancy section in blindfolding.

3.4.3 The f2 and q2 Effect Sizes

To complete the structure model evaluation process, the final step is to assess the effect of specific exogenous construct on the endogenous construct. In order to do so, f2 and q2 effect sizes are achieved to assess the effect sizes through R2 and Q2 respectively. In our model, we followed Cohen's (1988) guideline that is 0.02, 0.15 and 0.35 are referred as small, medium and large effect sizes, respectively. Table 6 summarize the results of f2 and q2 effect sizes.

Table 6. Results of f² and q² effect sizes

(OP)	Path coefficient	f2 Effect Size	q2 effect size
E-KM	0.344	0.049	0.043
TM	0.443	0.218	0.084

3.4.4 Mediation Test

For mediation analysis, we followed Preacher & Hayes (2008) two-step procedure of bootstrapping instead of Sobel (1982) test, because it does not have strict distribution assumptions (Hair et al., 2013). Mediation analysis results are presented in table 7, explained 40.7% of E-KM's effect on OP can be explained via the 'TM' mediator which demonstrate partial strong mediation with threshold level 0.2 (Hair et al., 2013). These findings lead us to accept our hypothesis H4.

Table 7. Mediation Analysis

Hypothesis	Procedure	Path	Path Coef.	Indirect Effect	S.D.	Total Effect	VAF	t-Values	Sig. Level	P-Values	Hypothesis
H ₄	Step 1: Direct effect (without mediator)	E-KM → OP	0.635			n/a		14.274	***	0.000	Accepted
	Step 2: Indirect effect (with mediator)	E-KM → OP	0.443						***		
		E-KM → TM	0.642	0.305	0.048	0.748	0.407	6.35			
		TM → OP	0.443								

4. Conclusion

In recent years, 'TM' has been addressed worldwide by both researchers and practitioners. In this study, our main objective was to investigate the role of 'TM' and KM in the manufacturing sector, where knowledge and human capital both are core resources, and act as main drivers for its survival. Though the effects of knowledge and human capital are well researched in previous studies, we highlighted some gaps in knowledge intensive organizations. First, the role of external sources of knowledge (both explicit and tacit) and strategic 'TM' (managerial perspective) has been overlooked in Chinese MI. Second, the interplay between these drivers and OP (Financial and Operational) are under-researched. Third, EK (both explicit and tacit) through codification and personalization strategy and 'TM' as mediator is analyzed. Although China is most populous and emerging country in the world but demand and supply of talented employees are unbalanced (Chadee & Raman, 2012), which may impede their current and future growth especially in MI. Also, due to brain drain and knowledge diaspora both domestic and MNCs in China facing a shortage of talented employees that may hinder their development to contend their competitors (Tung, 2008). To overcome these issues, both 'TM' and KM of employees are significance strategies for the organizations (Uen et al., 2012). The findings of this study confirm that both 'TM' and E-KM contribute positively to the performance of manufacturing firms. The PLS structure model results enable us to conclude that E-KM has the strongest effect on 'TM' followed by 'TM' on OP, consequently leads us to accept our hypothesis 1, 2 and 3. Mediation analysis results also reveal that 'TM' demonstrates partial strong mediation effects between E-KM and performance, which leads us to accept hypothesis 4.

5. Discussion

Thus, the main concern of 'TM' is to recognize and fill strategic (pivotal) positions based on well-established systems and processes of recruitment, retention, remuneration, reward and development of employees. In response, organizations have adequately competent workforce, low absenteeism, and attrition ratio (Bethke-Langenegger, Mahler, & Staffelbach, 2011), otherwise, performance may adversely affect due to lack of talent pipeline, and also, the deficiency would occur between talent and business strategies (Guthridge, Komm, & Lawson, 2008). Moreover, it advocates certain key positions that contribute more to the organization's sustainable competitive strategy, and that management can be proactive in developing a talent pool to fill these positions (Boudreau & Ramstad, 2007; Cappelli, 2014).

The previous literature demonstrates that organizations having employees with knowledge, skills, and abilities are a major source of their competitive advantages (Collings & Mellahi, 2009; Lewis & Heckmann, 2006). Regardless of this awareness still organizations are facing a shortage of skilled and talented employees (Burke & Ng, 2006). In general, the availability of skilled and talented employees always a critical element of organization, especially due to migration of highly skilled workers to abroad and the supply is continuously decreasing (Oltra & Vivas-Lopez, 2013). Also, when aging people leaves the organization, a pool of knowledge also leaves with them and it becomes a great challenge for the organization to sustain its competency in the market. This war for talent was prompted by the realization that talent shortages were increasingly becoming one of the biggest HR concerns for multinational corporations (Makela, Bjorkman, & Ehrnrooth, 2010). However, those organizations that have developed their 'TM' process on the strategic ground hold clear visibility on future realities. To this end, a fusion of 'TM' and KM holds significant competitive implications for advanced technological organizations; also, certified that its human resources are employs to the fullest extent (Vance & Vaiman, 2008; Lengnick-Hall & Andrade, 2008).

6. Managerial Relevance and Limitations

Our study also has some practical implications. First, Chinese MI facing one of the greatest challenges is to recruit and retain talented and qualified employees. Also, Chinese employees preferred to join MNCs domestic

organizations. It, therefore, needs to develop effective 'TM' strategies that can balance the supply and demand of qualified and talented employees in the organizations. In that particular scenario, the organization should adhere training and development programs which may improve, retain and develop a talented pool of current and next-generation employees. Also, partnering with educational institutes, trade bodies, consulting firms may be helpful to alleviate the shortage of qualified workers. The managers of targeted sectors may use this study to overcome 'TM' and required qualified worker's issues. Moreover, due to a global shortage of qualified and talented employees, it is suggested to the managers of the organizations to invest in their own training and development programs to grow their own talent, as well as ensuring the overall welfare of their employees in order to improve their retention rates. This study contributes to the growing literature on 'TM' and KM in Chinese MI. Nevertheless, it has several limitations like all research. First, the sample size is an inherent limitation of the study. Because of response rate and language barrier. Second, the specific targeted area was chosen for data collection, which should be addressed in future research. Third, only EK (with tacit and explicit) concept is analyzed in the framework, however, future research may explore detail analysis on both external as well as internal KM strategies. It would be valuable for researchers to explore more on targeted sample like managerial as well as technical staff of the organizations in other developing and developed countries to gain further insights.

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Role of Internal Auditor in Dealing with Computer Networks Technology - Applied Study in Islamic Banks in Jordan

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Abstract

The aim of the study was to identify Role of internal auditor in dealing with computer networks technology - Applied study in Islamic banks in Jordan -. The objectives were to identify the role of the computer networks that are installed for the first time in addition to the role of the auditor in the physical components of computer networks and maintenance. The study community consists of internal auditors in Islamic banks or financial institutions, a total of 101 questionnaires were distributed and 89 questionnaires were retrieved for statistical analysis. A single sample test was used to test the hypotheses of the study. The arithmetic mean and the alpha test were used to find the internal consistency rate of the study sample. The most important results of the study: the presence of the impact of computer networks on the internal audit work environment both in the installation of the computer for the first time or provide the physical components of computer networks. The most important recommendations: The need to hold seminars and conferences using technology tools and their effects on the environment of internal auditing or external auditing or accounting environment in general.

Keywords: internal auditor, networks, Islamic banks

1. Introduction

1.1 Introduce the Problem

Computer networks are an IT tool that should be used by all employees of banks in general and Islamic banks in particular, as they are the most widely used means of exchanging information among employees. This means that the internal audit department needs to transfer and exchange information with the different parties in the bank. This necessitates that the internal auditor should be proficient in dealing with computer networks technically and academically so that it has a degree of stability and credibility in the nature of the information that is exchanged and have an impact on the decision-making in banks. Also, most previous studies focused on the work of the auditor with the tools of information technology in general and did not focus on computer networks in terms of the installation process in addition to technical information Maintenance and handling. The Islamic banks in Jordan rely on computer networks to rely heavily on the exchange of new information with parties inside and outside the bank, which means that there should be more than one dealing with computer networks so that there is greater control over the mechanism of information exchange. This study is aimed at identifying the new functions of internal auditors as a result of increasing the use of computer networks in Islamic banks in Jordan, in addition to determining how the internal auditor deals with the physical components of computer networks to serve the objectives of internal auditing in general. This study presents the new functions of the internal auditor in dealing with computer networks in terms of their components and dealing with them in terms of maintenance and reliability. This study will identify the types of computer networks, and determine the role of internal auditor in dealing with the physical components of computer networks and how to deal with them in terms of maintenance. The technological developments make the accounting programs a permanent need for modification and development in line with the work of the banks or the developments in which they operate, which means also the development of computer networks to suit the development of computerized accounting programs by providing or relying on the providers of computer networks and increase the length of the guarantee and the possibility of amendment to it. Blame the matter as well as increase the maintenance period as much as possible.

These modern functions have imposed on the internal auditor or internal audit new functions that did not exist in the previous internal audit environment. Therefore, the problem of the study is trying to answer the following questions:

- 1- Does the internal auditor of Islamic banks in Jordan audit the physical components of computer networks efficiently and effectively when they are newly installed?
- 2- Does the internal auditor of the Islamic banks in Jordan ensure the reliability of computer networks to ensure the stability of financial information efficiently and effectively?

1.2 Explore Importance of the Problem

The information technology tools, especially the computer networks, are usually controlled by the computer department only, which means that the other departments in the bank, for example, do not know how to exchange information between employees and the stability of computer networks in the transfer of information between the parties involved. The Internal Audit Department is a database of financial information and non-financial information for various stakeholders. Therefore, new functions required the auditor to know and deal with them to ensure the reliability of the exchange of information to the parties involved, which introduced new functions such as ensuring the reliability of computer networks and physical components and how to maintain them. Therefore, the importance of the study of the following:

- 1 - It provides a theoretical framework for the new functions of internal auditing in dealing with one of the most important tools of information technology are computer networks.
- 2 - It introduces the new functions of internal audit by focusing on computer networks only to serve the internal audit objectives of evaluating the effectiveness of internal control.
- 3 - to link the electronic work environment with the internal audit work environment in terms of the components of computer networks and the role of internal auditor and the role in the maintenance and reliability.
- 4 - The computer networks represent the center of exchange of data and information in banks. The internal audit is a database of the different departments in the banks, which means the need to find the role of the internal auditor in the computer networks without interfering with the role of computer circuits in computer networks.
- 5 - Islamic banks in Jordan are considered to be one of the sectors most applicable to IT tools, especially computer networks, which means that the role of the internal auditor in communicating data and information among related parties.

1.3 Describe Relevant Scholarship

1.3.1 Previous Studies

1 - Deihani study (2016) "The role of electronic auditing in the development of auditing performance in the State of Kuwait".

The aim of this study is to determine the impact of electronic auditing on computer networks, databases and team work in the development of auditing performance in the State of Kuwait. The study community is represented by the external audit offices in the State of Kuwait. The questionnaire was used as a main tool in obtaining the study data. Statistical methods were used such as: arithmetic mean, standard deviation, and sample sampling. One of the most important results of the study is the presence of an average impact in the use of electronic auditing tools, which positively affected the development of the audit process in the State of Kuwait. The most important recommendations of the study: the need to develop legislation or instructions to determine the nature of the work of the internal auditor and external auditor in dealing with the various tools of information technology used in the audit process.

2 - Jamran Study (2016) "The impact of the use of IT tools on the public budget in the State of Kuwait".

The aim of this study was to highlight the use of computer technology tools and computer networks to prepare and implement the general budget in Kuwait. The questionnaire was used to obtain preliminary data from the study sample represented by the Audit Bureau and the Ministry of Finance. The standard and arithmetic methods were used, the most important results of the study: the existence of a reasonable degree in the presence of the impact of computer networks in the transfer of data revenue and expenditure of the state through the definition of powers and responsibilities. One of the most important recommendations: to expand the use of information technology tools commensurate with the development in the preparation of the general budget in the State of Kuwait.

3 - The study of Alhosbanand Bishtawi (2015) "The role of auditor in determining the cost and benefit of auditing accounting information systems in Jordanian commercial banks.

The study aimed at showing the role of accounting programs in reducing the costs of IT tools, including computer networks, through a study on Jordanian commercial banks. A questionnaire containing the study variables was designed and distributed to external auditors in Islamic banks. Repeats, percentages, standard deviation, and simple regression testing were used to test hypotheses. The most important results of the study: The auditor to measure the costs of using IT tools. The most important recommendations: The auditor to determine the value of data or information depending on the prior identification of the level of sensitivity of information to the company.

4 - The study of Al hosbanan, Hamdan (2015) "The impact of internal auditing in dealing with the infrastructure and the risks of IT tools in Jordanian commercial banks.

The study aimed to show the role of the internal auditor in dealing with the infrastructure of the IT environment and identify the risks that can be faced through the application of computer, computer networks and accessories to the nature of the work of the internal auditors. The questionnaire was used to obtain preliminary data for the study from a random sample on the internal auditors in the Jordanian commercial banks. The use of the statistical analysis program was used in analyzing the data such as arithmetic mean, standard deviation, frequencies and percentages. The most important results: The impact of the internal auditor's handling of the infrastructure of the IT environment.

5 - Marai Study (2015) "Electronic Audit and its impact on the quality of audit at the offices and audit companies operating in Jordan.

This study aimed to identify the impact of the application of electronic auditing on the quality of auditing of the offices and auditing companies operating in Jordan. In order to achieve this objective, the study followed the analytical descriptive approach to suit the nature of the study. A questionnaire was designed as a data collection tool. 140 questionnaires were distributed, 108 of which were retrieved. (85%) of the retrieved questionnaires. The researcher used some appropriate statistical methods such as arithmetical mean, standard deviation and T test. The main findings of the study were that the use of electronic auditing has an impact on quality The audit process, because of the accuracy in the output and tabulation of data, and the auditors practice the process of electronic auditing effectively, because they realize that the electronic audit contains many advantages, which can adjust the quality of external audit. The results of the study also showed that the auditing offices and companies operating in Jordan are applying electronic auditing to a high degree. The study concluded with a number of recommendations, the most important of which is the continuation of the offices and auditing companies operating in Jordan, using electronic auditing, developing methods of applying them, and reviewing the traditional methods of external auditing in line with technological development.

1.3.2 Computer Networks

1.3.2.1 Computer Networks Concept

Networks can be defined as follows

1 - are technological tools that help in the distribution of information and the achievement of office functions with the best effort and time in the work environment that depends on the tools of information technology in the practice of its work. (Zu'bi, 2014, p. 64)

2 - is one of the modern technological tools that help to organize desktop work through the optimal use of the transfer and exchange of financial and non-financial information from one place. (Roomney, 2013, p 148)

It should be noted that computer networks can be defined as "two or more computers. These devices are connected to each other through cable wires, or wirelessly, until data and information are exchanged between them. Network devices are computers, printers, cameras, phones, servers, databases, or other devices that require connectivity to other data exchange devices

1.3.2.2 Types of Computer Networks

The forms of computer networks vary according to the purpose of their use. The forms vary according to the distribution of devices, depending on the mode and direction of data transmission or the adoption of network devices on a main server that organizes the transmission of data between them and of computer networks: (ICP , 2017, P 21)

- 1- Linear form: Networks, which is a main line connected to all devices on the network, and used as a main transmission line of data, and if the line is disrupted the network will be completely idle.
- 2- Ring shape: In this form of network, the devices are connected directly to nearby devices. A loop-like problem. Each device in the network is connected to two other devices in the network, and the data is transmitted in this line only one way.

- 3- Stellar: Devices in this format are connected to a main device responsible for transferring data between devices within the network. If this main server is down, the whole network will be idle because there is no other way to transfer data in this format.

1.3.2.3 Benefits of Computer Networks

Computer networks are among the most inventive in the world because of their rapid and easy exchange of information and data, and the benefits of countless networks: Connecting high-priced devices to multiple devices Computers, such as a laser printer, and a data show through this network. The ability to transfer data to other networked devices without the need to transfer data via CD and Flash memory, thus reducing time during the transfer process, as well as providing little effort. This data can be placed in a file known as the database, It is often used to connect media organizations, which place files in a date and name, for easy reference when needed, which is known as data management. Internet connectivity, which is one of the things affecting the development of technology, is connected to this network among users from all over the world; it made the world appear as a small village, and users through this network can access infinitesimal information and talk with people in different places of During which. It has made it easier for a lot of new graduates and job seekers to send CVs to different companies inside and outside the country, and to conduct interviews through these networks, without having to go to buy newspapers, to watch advertisements and then go to company headquarters to conduct the interview. Many people have money, effort, but they need to connect to the Internet first. File sharing: Data can be easily shared between different users, or accessed remotely if it is retained on other geographically distant devices. Increase storage: Access to files and multimedia, such as images and music stored on other devices within the network, and this saves a lot of storage space on many devices because of the required files on one machine only (Rene , 2017 , p48).

1.3.3 Electronic Audit

The information security audit covered topics ranging from checking the physical security of the data centers to checking the logical security of the databases and highlighting the main components of the search for means to audit these different areas. When focusing on aspects of information security technology, they can be seen as part of the IT security audit. Then often referred to as computer security audits.

1.3.3.1 The Concept of Electronic Auditing

The electronic audit defines "the auditor's use of IT tools - computer hardware, computer networks, printers, etc. - in carrying out the audit of accounting books and records in order to assess the quality of accounting operations and their effects on the financial statements (Hamdoon , 2008 , p924).

1.3.3.2 Importance of Networks Computer Audit

Became the audit using the Networks computer in the review processes very important, because it works to facilitate the review process and the reduction needed to conduct cost, and the use of information technology to help enterprises to develop and grow, by reducing the time and costs and improve the quality of the review process and provide a better basis for the exercise of professional judgment by auditors, as the auditor can be used for computer programs that benefit in the speed of implementation of the audit, and the use of checker software storage and retrieval of information and analytical review programs enable him to make comparisons and analyzes between the actual numbers And planned, and references uses special programs to help him in the process of conducting tests, helping to support decision-making process .(Alerood , 2011 , p 6).

The internal audit of computer networks as a whole depends on the level of technical knowledge possessed by the internal auditor of IT tools. Acquiring that knowledge is not easy, especially if the training budget is generally limited. Without detailed knowledge of computer networks and components, it is difficult for the internal auditor to perform the audit. In terms of maintenance and processing of data and information owned by the networks and how to communicate the accounting and financial data of the relevant parties (Oliphant, 2004, p 4).

The internal auditor should ensure that the accounting programs that rely on the computer networks have a period of maintenance, ensuring and trying to increase them as much as possible, as well as ensuring the availability of the pieces necessary to run the accounting programs of the company and the market and the possibility of identifying the possible risks of dealing with these programs and networks, Programs to change the activities and activities of the company and ensure the security policies of information and suitability to those programs and achieve these networks and accounting programs staff interest, and provide the ability to get cadres to work and continue with these programs Accounting and computer networks, which are based on communicating information to relevant parties (Al-Hosban, 2009, p. 149).

1.3.3.3 The Role of Internal Auditor in Dealing with Computer Networks

1.3.3.3.1 The Role of the Auditor in Installing a Computer Network for the First Time Must: (Oliphant (B), 2003, p 6)

- 1 - Determine the extent of the company's need to exchange certain information with other parties to determine the risks of external dealings.
- 2 - Determine the need for the company to deal with public networks such as the Internet to determine the powers of users from within or outside the company.
- 3 - Determine the level of network connectivity the company needs whether it is a temporary connection or a permanent connection.
- 4 - Determine the need for the company to connect the local network with external networks and identify external connectivity tools.
- 5 - Clearly define the roles and responsibilities of employees in terms of identifying persons authorized to maintain computer networks, identify parties that can solve problems that affect computer networks, and determine the means of human and material security on computer networks.

1.2.3.3.2 The Role of Internal Auditor on Computer Network Components (Oliphant (b), 2003, p 4)

- 1 - Identify the main components of computer networks and ensure that these components are in the company's stores.
- 2 - Confirmation of the presence of the components and ensure that access to those components only authorized staff to access those components.
- 3 - Determine whether these components conform to published standards for networks and evaluate the development of these networks and ensure that they have strong control.
- 4 - Determine the maintenance process from inside or outside the company.
- 5 - Ensure that there are no risks to financial and non-financial information exchanged through computer networks.
- 6 - Determining the ability of computer networks to adapt to the emergency conditions surrounding the company.

1.2.3.3.3 The Role of Internal Auditor in the Maintenance of Computer Networks: (P, 2003, p 5)

- 1 - Reduce staff costs in the company as much as possible.
- 2 - Develop the ability to respond quickly to the requirements of computer networks.
- 3 - Provide better maintenance of computer networks if the source of maintenance from outside the company.
- 4 - Achieving more appropriate to keep pace with new systems related to maintenance contracts from outside the company.
- 5 - Develop higher levels of design and experience of systems and maintenance of computer networks within the company.
- 6 - Mitigating responsibilities for employees if the source of maintenance from outside the company.
- 7 - Determine the risk of maintenance from outside the company on the security of information within the company if the source of maintenance from outside the company.

1.4 State Hypotheses and Their Correspondence to Research Design

1.4.1 State Hypothesis

- 1 - The internal auditor at the Islamic banks in Jordan does not review the physical components of newly installed computer networks efficiently and effectively.
- 2 - The internal auditor of Islamic banks in Jordan does not verify the reliability of computer networks to ensure the stability of financial information efficiently and effectively.

1.4.2 Correspondence to Research Design

The study is based on the following sources:

- 1 - Preliminary sources: Based on the design of a questionnaire containing the variables of the study, and distributed to internal auditors in Islamic banks in Jordan in order to obtain the necessary data to help solve the problems of study.

2 - secondary sources: Based on books, references and previous studies - Master and research papers from international magazines - to cover the theoretical aspects related to the subject of the study.

2. Method

2.1 Terminology of Study

1 - Islamic banks are a financial institution to collect funds and employ them in accordance with the provisions of the Islamic Shari'a, in order to serve the Islamic Takaful community, and to achieve distribution justice with the obligation not to deal with riba-based interest (al-Husseini, 2000, p197)

2 - Internal audit it is A department, a team of consultants or other professional practitioners who provide independent, objective and objective assurance and advisory services designed to increase and improve the value of the Organization's operations and assist in the systematic and systematic achievement of its objectives with a view to assessing and improving the Organization's operations and assisting in the systematic and systematic achievement of its objectives With a view to evaluating and improving the effectiveness of governance processes, risk management and control (Alhosban, 2009, p74).

3 - The network is a collection of computers and a variety of computers (peripherals, computers, workstations, medium computers, large computers or giant) linked to each other through network nodes and media (from coaxial cables, (Such as a booster or repeater, connection collectors, a bridge or a connection path), thus forming an integrated network. In this way, any computer can benefit from the services provided by other computers connected with the network, as it is rare to use the computer in isolation from other computers.

2.2 Choosing the Method of Study

Based on the distribution of a questionnaire to the internal auditors at the Islamic banks in Jordan.

1 - Jordan Islamic Bank.

2 - Arab Islamic International Bank.

3 - Dubai Islamic Bank.

4 - Al-Rajhi Bank.

2.3 Reasons for Selecting Internal Auditors as a Community and a Sample Study

1 - Internal auditors review all transactions within the bank at 100%.

2 - The internal auditors shall be considered as a database for the various departments or parties inside and outside the Bank.

3 - The internal auditors provide the advisory role and the role of authorizing all operations within the bank.

4 - The internal auditors in the banks are using networks as a tool of audit.

2.4 Reasons for Applying the Study to the Islamic Banks in Jordan

1 - The Islamic banks in Jordan are some old ones from 1994, which is the Islamic Bank of Jordan. There are modern banks such as Dubai Islamic Bank, which means that banks are applied to computer networks. There are banks that have recently installed networks.

2 - Islamic banks in Jordan are considered one of the most economic sectors in application of information technology tools, especially networks.

3 - Islamic banks have internal audit departments of their functions to do electronic work.

2.5 Identify Subsections

This study includes the following

1 - Methodology of scientific research.

2 - theoretical framework of the study.

3 - Statistical analysis of the identification of the study.

4 - Conclusion includes findings and recommendations.

2.6 Participant (Subject) Characteristics

2.6.1 The Current Study Differs from Previous Studies

First, it is noted from previous studies that it focused on the following

1 - It is based on the IT environment in general and its impact on the work environment of the internal auditor and the external auditor

2 - It focused on the risks of using IT tools in the electronic work environment by determining the benefits and costs of using them in the audit environment in general

3 - It focused on the recruitment of information technology tools in the preparation of the budget in order to achieve control over the revenues and expenses of the state

2.6.2 Additions to the Current Study on Previous Studies

1 - It focuses on the use of one of the tools of information technology is computer networks, which contributes to the existence of specialization in the subject matter of the study

2 - It focuses on the role of internal auditor in the audit of computer networks for the first time in terms of participation in the committees to buy computer networks and accessories and the process of employment in banks

3 - It relied on the role of internal auditor in auditing the physical components of computer networks in commercial banks

4 - It focused on the role of the auditor in the maintenance of computer networks or increase the maintenance period

2.7 Sampling Procedures

Procedures for selecting the study sample

1 - The study community was composed of internal auditors in the Islamic banks in Jordan and they numbered about 101 internal auditors

2 - A simple random sample was selected in the distribution of the questionnaire to all the internal auditors in the Islamic banks in Jordan.

2.7.1 Sample Size, Power, and Precision

Sample size of the study: Questionnaires were distributed to the study community. 89 valid questionnaires were retrieved for statistical analysis and recovery rate 89% of the study population.

2.7.2 Measures and Covariates

After completing the theoretical framework of the subject of the study, statistical methods were used

1 - Percentages and frequencies in order to describe the members of the study sample

2 - The arithmetic mean and the standard deviation in order to describe the views of the study sample with the study variables

3 - Komgrove Samanrove test to identify the study of natural distribution

4 - One sample T Test test the hypotheses of the study

5 - Kronbach Alfa test in order to find the level of internal consistency between the answers of the sample members of the study.

3. Results of Field Study

3.1 Recruitment

This study began in terms of the idea in the last quarter of 2016. The questionnaire was started at the beginning of 2017 and was distributed in February 2017 and was published in the same month and then sent to the statistical analysis

3.2 Statistics and Data Analysis

The study community represents the internal auditors of the Jordanian commercial banks listed on the Amman Stock Exchange. The sample of the study is represented by the internal auditors of the Jordanian commercial banks listed in the first market. The number of internal auditors in the Jordanian banks listed in the first market was determined by 118 internal auditors. The simple random sampling method was used to distribute the survey questionnaire, and 108 questionnaires were distributed. 89 valid questionnaires were retrieved for statistical analysis. The following symbols were used when conducting the statistical analysis: Strongly agree with code 5, OK with code 4, Neutral with code 3, Disagree 2 is strongly disagree with code 1, so the average of the hypothesis is less than 3, The higher the average of the paragraph or the hypothesis of the number 3, the more the sample is directed to agree with that hypothesis or paragraph.

3.2.1 Test Credibility and Consistency

The Kronbach Alpha test was used to identify the study and found a value of 77%, which is higher than the minimum 70%. This indicates that the responses of the sample of the study have an appropriate degree of internal consistency that has a positive reflection on the credibility of the questionnaire. The value of Kronbach Alpha for the first hypothesis 81% and for the second hypothesis 74%. This also indicates that the questionnaire of the study has a degree of internal consistency between the responses of the sample of the study, whether for study in general or on the level of hypotheses.

3.2.2 Description of the Sample of the Study

Table 1. Description of the study sample by specialization

Title	Frequencies	Percentages
Accounting	64	72%
Finance	16	18%
Management	9	10%
Total	89	100%

Note from the previous table that the vast majority of the sample of the study represents accounting specialization and this is normal as the sample of the study represent the internal auditors in the banks, as the banks are appointing the specialists in accounting in the internal audit departments. This is a positive indicator of the stability and absorption of the paragraphs of the questionnaire, which gives credibility in the answer to the paragraphs of the questionnaire.

Table 2. Sample of the study by years of experience

Title	Frequencies	Percentages
Less than 5 years	24	27%
5-less than 10 years	17	19%
10-less than 15 years	15	17%
15 years and more	33	37%
Total	89	100%

It is noted from the previous table that the vast majority of the sample of the study category of more than 15 years and this is a positive reflection on the results of the study, as the subject of the study depends on the experience using IT tools, because it is based on development and improvement and continuous, which means that the experience has an important role Dealing with computer networks.

3.2.3 Test the Normal Distribution of Data

The normal distribution data using the Test One Sample Kolmogorov-Smirnov test was verified and Table (3) shows that: Test one sample Kolmogorov-Smirnov for independent, variable and dependent variables.

Variable	Value of test	Statistical significance
The role of internal auditor in dealing with computer networks that are installed for the first time	1.25	0.24
The role of internal auditor in dealing with the physical components of computer networks and maintaining them	0.86	0.62
Total	0.97	0.48

Table (3) shows that the statistical value of the One Sample Kolmogorov-Smirnov test for all variables was greater than the statistical significance level ($\alpha 0.05$), indicating that these variables follow the normal distribution. Also, based on the theory of central tendency, which states that if, the sample size is greater than (30) and has a mean (μ) and a variation (2σ), the sampling distribution of the arithmetic mean is close to normal distribution.

Discuss the hypothesis of the study with the statistical results as below:

Table 4. The views of the study sample in the first hypothesis paragraphs

Number	Paragraph	Mean	Standard deviation	Rank
1	Internal auditor need to exchange certain information with other parties is determined to determine the risk of external transactions	2.58	0.59	7
2	An Internal Auditor deal with public networks such as the Internet is determined to determine the powers of users within or outside the company	3.76	0.93	4
3	Internal auditor determined whether it is a temporary connection or a permanent connection	4.18	0.48	1
4	Internal Auditor deal with external networks and determine the external connectivity tools is determined	3.09	0.61	5
5	The roles and responsibilities for Internal Auditors are clearly defined in terms of identifying persons authorized to maintain computer networks	2.17	1.01	6
6	Internal Auditor Identify the parties that can solve problems that affect computer networks, and he determine the means of human and physical security on computer networks	3.89	0.52	3
7	Management of computer networks is determined from within the company	4.07	0.43	2
Total		3.39		

We noted from the previous table that the internal auditors of Islamic banks confirm that the third paragraph has the highest average value of 4.18, which indicates that the ratios of the approved and the corresponding ratios are higher than the rates of non-approved and ratios are not strongly approved, and this paragraph is the existence of a certain level of network connectivity that it needs The company or the bank either temporarily or permanently, and this indicates that the internal auditors have the technical knowledge to determine the level of use of computer networks when installed or dealing with them recently, which means there is appropriate technical knowledge in computer networks. It is also noted that the seventh paragraph represents the second degree of acceptance with an average of 4.07. This section specifies the management of computer networks within the company. This means that the internal auditors have a role in maintaining the security and confidentiality of customer information, since the management of computer networks is done within the bank. The third paragraph represents the third degree of acceptance according to the opinion of the internal auditors at an average of 3.89. This paragraph identifies the parties that can solve the problems that affect the computer networks; this means that the internal auditors have the appropriate skills in identifying the problems of computer networks and proposing a solution in dealing with those problems and determining the means of protecting the information, whether material or human. It is also noted that the first paragraph has the lowest degree of acceptance of the internal auditors in the Islamic banks in Jordan and this paragraph is a weakness in the identification of degrees of dealing with external parties with information exchanged. It is also noted that the general average of the hypothesis is 3.39, which is higher than the accepted average. 3 This means that the internal auditors of the Islamic banks in Jordan confirm that the internal auditors have the ability to deal with the computer network technology that is installed or handled for the first time.

Table 5. The views of the study sample in the second hypotheses

Number	Paragraph	Mean	Standard deviation	Rank
1	Internal Auditor can Identify The main components of computer networks and the presence of those components in the company's stores is ensured	4.15	0.84	1
2	The presence of the components is confirmed by Internal Auditor and the access to those components is ensured. Only authorized personnel have access to those components	2.76	0.73	5
3	Internal Auditor can be determined whether these components are consistent with published standards for networks and assess the development of these networks and ensure that they have strong control over them	3.73	0.69	2
4	Internal Auditor can be ensured that there are no risks to financial and non-financial information exchanged through computer networks	3.18	0.92	4
5	Internal Auditor can determine the ability of computer networks to adapt to the emergency surrounding the company is determined.	3.46	1.12	3
Total		3.51		

It is noted from the previous table that the sample of the study confirms that the first paragraph has the highest acceptance level of 4.15 averages. This paragraph ensures the existence of the main hardware components of

computer networks in addition to ensure the availability of spare parts in the bank constantly, as IT tools are constantly developing and improving it. Which means that the necessary spare parts to ensure the continuity of the work of computer networks efficiently and effectively, this also means that the internal auditors have a new function is to know the physical components of computer networks to ensure access to financial information of the parties involved and quickly. Appropriate. It is also noted that the third paragraph represents the second degree of acceptance according to the sample of the study sample to determine whether the components of computer networks conform to published standards of the networks and evaluate the development of these networks and ensure the existence of strong control, whether it was physical or moral control to maintain the security and confidentiality of financial information. The second paragraph represents the lowest level of acceptance by an average of 2.76, namely, confirming the presence of computer network components in the bank, while ensuring the authorized legal entry of employees to the For financial information and non-financial information stored on computer networks. It is also noted that the general average of the hypothesis is 3.51, which is higher than the satisfactory mean 3, which means that the internal auditors confirm the presence of a new role is dealing with physical machines for computer networks and maintenance.

3.2.4 Testing Hypotheses

The first hypothesis "The internal auditor at the Islamic banks in Jordan does not review the physical components of newly installed computer networks efficiently and effectively."

One Sample T-Test was used to test the first hypothesis.

Table 6. T test results for first hypothesis

Variable	Average	Computed T	Schedule T	Degree of freedom	Statistical significant
role for the internal auditor when installing modern computer networks	3.39	11.15	1.977	88	0

It is noted from the previous table that the calculated value is higher than the tabular value. This means accepting the alternative hypothesis and rejecting the null hypothesis. This means that internal auditors in Islamic banks have the ability to deal with the initial installation of computer networks.

The second hypothesis "The internal auditor of Islamic banks in Jordan does not verify the reliability of computer networks to ensure the stability of financial information efficiently and effectively.

One Sample T-Test was used to test the second hypothesis and the following table (Table 7).

Table 7. T test results for second hypothesis.

Variable	Average	Computed T	Schedule T	Degree of freedom	Statistical significant
role for the internal auditor in dealing with the components of computer networks	3.51	8.75	1.977	88	0

Note from the above table that the calculated value is higher than the tabular value. This means accepting the alternative hypothesis and rejecting the null hypothesis. This means that internal auditors in Islamic banks have the ability to deal with computer network components.

4. Discussion

4.1 Results

1 - Internal Auditors in Islamic banks have the ability to determine the level of communication of their information in addition to determining the level of communication whether permanent or temporary. This means that internal auditors have a good knowledge of computer networks in terms of the need for the bank to permanent networks or temporary networks, and has a role in reducing the costs of network installation and reduce the risk.

2 - Internal Auditors in Islamic banks provide management of computer networks by management from within the bank, which provides security for the information contained in the programs within the bank. This means establishing rules of communication between the internal auditors and the employees of the computer department in the bank, which helps to integrate the views in the formation of the opinion on the reliability and credibility of computer networks.

3 - Internal Auditors in Islamic banks identify the parties that can solve the problems that affect the computer networks, and determine the means of human and material security on computer networks within Islamic banks.

4 - Internal Auditors in Islamic banks ensure the existence of the physical components of computer networks, which helps to provide the permanent operation of networks as much as possible, in addition to the internal

auditors to ensure the availability of key parts of computer networks within the bank.

5 - Internal Auditors in Islamic banks can be determined Whether or not these components are consistent with published standards of networks and assess the development of such networks and ensure that they have strong control.

6 - Internal Auditors in Islamic banks can be determined the ability of computer networks to adapt to developments in the operations of the bank or what is new in the expansion of IT tools.

4.2 Recommendations

Based on the study results, the study recommends the following:

1 - The need to ensure the accuracy of the data transmitted by computer networks to ensure that the data is not illegally accessed or modified.

2 - The roles and responsibilities of employees should be clearly defined in terms of identifying persons authorized to maintain computer networks.

3 - The necessity of applying the study to other sectors such as the service sector or industry sector because of the importance of computer networks.

4 - The need for continuous training on the applications of computer networks by the staff to be in line with technological developments in the field of computer networks.

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