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Remeasuring Sectoral Herding in the Financial Markets

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Abstract

Herding behavior was concluded to exist in some sectors and under some market conditions in the Jordanian stock market when measured using the cross-sectional absolute deviation. The purpose of this study was to retest the existence of the sectoral herding using the cross-sectional dispersion of betas and compare the results with those reached using the measure of the cross-sectional absolute deviation. Behavioral finance theory represents the main base on which this study was built. In this study, the researcher tried to answer questions related to whether herding behavior exists in the Jordanian market and its sectors if measured using cross-sectional dispersion of betas and whether results will be different from those reached using other measures. In this quantitative study, data from Amman stock exchange were used and the period covered was from 2000 to 2018. These data were used to calculate the cross-sectional dispersion of betas which was tested using *t*-test, Kruskal–Wallis test, Mann-Whitney U test, and Wilcoxon Signed-Rank test. Results indicated that herding behavior existed in market and in each sector at the same level which was not affected by the financial crisis. Furthermore, the study revealed that herding level was the same when the market (sector) was rising and when it was falling and this similarity has not been changed by the occurrence of the global financial crisis. Finally, results indicated that herding was at its lowest level in the entire market and in the industrial sector during the time of financial crisis. These results are different from those of the study conducted in Jordan using cross-sectional absolute deviation which implies that using different herding measures yields different results.

Keywords: Amman stock exchange, behavioral finance, herding, sectoral herding, cross-sectional dispersion of betas, financial crisis

1. Introduction

Herding behavior in the financial markets can increase the gap between the actual and the expected prices of stocks (Cakan, & Balagoyozyan, 2016). This means that herding in the market causes loss to investors by pushing the prices to unexpected levels. Based on this, the problem is that herding behavior can lead the market to be inefficient where the prices are determined by other variables than the relevant information (Hilal, 2015). The specific problem is that there are many measures of herding to choose from and use to detect the behavior (Demirer & Zhang, 2018) and that using different measures can lead to different decisions about the existing of herding behavior in a given market or sector (Vieira & Pereira, 2015). Herding behavior may be concluded to exist in a financial market if a given measure is used while the behavior may be concluded as absent using another measure. This conflict of results may confuse investors about whether their price expectations will be affected by anomalies like herding or not. The existing of herding is an important factor that should be considered by investors because if it exists, prices of stocks will be different than those expected based on the available information (Filip, Pochea, & Pece, 2015). Many studies were conducted in many countries to test the existence of herding using only one measure (Akinsomi, Coskun, & Gupta, 2018; ; Dutta, Gahan, & Panda, 2016; Nasarudin, Noordin, Law, & Yahya, 2017; Sharma, Narayan, & Thuraisamy, 2015; Trenca, Pece, & Mihut, 2015). The conclusions of these studies may have provided misleading indicators about the existence of herding in their markets if the conclusions of other measures are different. To sum up, conclusion about herding existence may differ based on the measure used to detect the behavior (Vieira & Pereira, 2015).

Like many other countries, herding in the Jordanian stock market was studied using one measure only and at market level (Ramadan, 2015; Nasarudin et al., 2017) and at market and sectors levels (Elshqirat, 2019). This study was conducted to achieve the objective of examining the existence of the behavior of herding in Jordan at market and at sectors level using different measure than those used before and then compare the results with the other measures. Achieving this objective may help in understanding how different measures can lead to different

conclusions about the existence of herding in the financial markets. This study may contribute to the literature by revealing the results of testing herding behavior at market and sectoral level using the standardized herd measure in an emerging market like Jordan and compare these results with the results of other measures. To make the conclusions of this study comparable with the study of Elshqirat (2019), who studied the behavior in Jordan at market and sectors level using the cross-sectional absolute deviation (CSAD), the same four hypotheses used in that study were used in this study. The first hypothesis was about testing the existence of herding in the Jordanian market at market-level and at sector-level. Hypothesis two was about the influence of the global financial crisis on herding in the market and sectors while the third hypothesis was created to examine the behavior when market and sector indices are rising and when its falling. The last hypothesis was formulated to test the difference in the effect of market and sector rising and falling on herding before the financial crisis and after it. All hypotheses were tested based on the cross-sectional dispersion of betas introduced by Hwang and Salmon (2009).

2. Literature Review

2.1 Herding Behavior

Herding behavior can be defined as the act of copying the investment actions of other investors in the market (Senarathne & Jianguo, 2020). The presence of herding behavior in a financial market can cause a gap between the actual value of a stock in the market and its intrinsic value (BenSaïda, Jlassi, & Litimi, 2015). According to Indárs, Savin, and Lublóy (2019), herding can be an intentional or unintentional behavior. Unintentional herding exists when investors take the same investment decisions because they have the same information while intentional herding occurs when investors take the same investment decision because they want to copy the decisions of other investors (Adem & Sarioğlu, 2020). Unintentional herding can lead the market to be efficient while intentional herding can bring inefficiency to it (Adem & Sarioğlu, 2020). This last fact about intentional and unintentional herding may be true because if all investors are taking their decisions based on the available information then this information will be reflected in the prices and the market will become efficient. If investors are just imitating the decisions of others then, prices will not reflect the available information but it reflects the behavior pattern of investors which means that the market is inefficient.

Herding in financial markets is a behavior that exists in many countries such as United States and United Kingdom (Galariotis, Rong, & Spyrou, 2015), Turkey (Adem & Sarioğlu, 2020), Pakistan (Shah, Shah, & Khan, 2017), China (Mahmud & Tiniç, 2018), Jordan (Elshqirat, 2019), Germany (Kremer & Nautz, 2013), Nigeria and Kenya (Guney, Kallinterakis, & Komba, 2017), Spain (Andreu, Gargallo, Salvador, & Sarto, 2015), Saudi Arabia (Rahman, Chowdhury, & Sadique, 2015), Tunisia (Hammami & Boujelbene, 2015), and Kuwait & Qatar (Demir & Solakoglu, 2016). The conclusions of these studies indicated that herding can be considered a global anomaly that affects the efficiency of many financial markets. Testing the existence of herding in the financial markets using different measures than those utilized in these studies may be of a great value in proving whether the behavior truly exists in these countries or not.

2.2 Measures of Herding Behavior

The presence of herding in the financial markets has been tested using many measures, these measures can be classified into two groups (Demirer, Lien, & Zhang, 2015): the first group is concerned with the relationship between the movement of stocks' returns and the movement of market returns while the second group is concerned with measuring herding by studying the concurrent or succeeding changes in the investor's ownership of the stock. The first group includes the measures of: cross-sectional standard deviation (CSSD) of dispersion of returns introduced by Christie and Huang (1995), the cross-sectional absolute deviation (CSAD) of returns introduced by Chang, Cheng, and Khorana (2000), the measure of cross-sectional dispersion of betas introduced by Hwang and Salmon (2004), and the standardized herd measure developed by Hwang and Salmon (2009). The measures of Hwang and Salmon belong to the first group but it uses the CSSD of systematic risk (beta) instead of the CSSD of returns (Khan & Rizwan, 2018). The second group includes the measures of Lakonishok, Shleifer, and Vishny (1992) and the measure introduced by Sias (2004).

There is no preference for one measure over another; researchers used all measures to detect herding in many markets all around the world. Herding was tested using CSSD measure by Vieira and Pereira (2015); Zafar and Hassan (2016); Lee, Liao, and Hsu (2015); Dutta, Gahan, and Panda, (2016); Ababio and Mwamba (2017); Mertzanis and Allam (2018); and Sharma (2019). CSAD measure of herding was utilized in many studies including Cakan and Balagyozyan (2014); Demirer, Kutan, and Zhang (2014); Mobarek, Mollah, and Keasey (2014); Gavriilidis, Kallinterakis, and Tsalavoutas (2016); Filip, Pochea, and Pece (2015); Demirer and Zhang (2018); and Akinsomi, Coskun, and Gupta (2018). Moreover, many researchers used the measure of Hwang and

Salmon (Güvercin, 2016; Krokida, Spyrou, & Tsouknidis, 2017; Lin, (2017); Teng, 2018). The measures of the second group, Lakonishok et al. (1992) and Sias (2004), were also used in many studies to measure herding behavior (Boyd, Buyuksahin, Haigh, & Harris, 2016; Cai, Han, Li, & Li, 2019; Choi, 2016; Fang, Lu, Yau, & Lee, 2017; Popescu & Xu, 2018). In addition, many studies were conducted using more than one measure including Shrotryia and Kalra (2019) who used three measures of CSSD, CSAD, and a modified CSSD measure introduced by Yao, Ma, and He (2014). Adem (2020) and Yousaf, Ali, and Shah, (2018) tested the behavior using CSSD and CSAD measures. Chen and Demirer (2018) tested herding using measures of CSSD, CSAD, and the measure of Hwang and Salmon (2004) while Nikulina and Bouev, (2018) used measures of CSSD, CSAD, Hwang and Salmon measure, and a measure developed by Munoz Torrecillas, Yalamova, and McKelvey (2016).

The same results about the presence of herding were concluded using different measures in some studies including the study of Shrotryia and Kalra (2019) and Yousaf, et al. (2018). On the other hand, testing the existence of herding using different measures may yield different results (Vieira & Pereira, 2015). In the same study, herding may be claimed to exist using one measure and concluded to be absent using another. For instance, Adem (2020) tested the behavior using CSSD and CSAD and found that each measure gave a different result about herding presence in Istanbul exchange. In that study, herding behavior during market rising was absent using CSSD measure but existed using CSAD measure. Another example is when Khan and Rizwan (2018) found that herding was absent in all sectors of Pakistani market using CSAD measure while they detected herding in two sectors using the CSSD measures. Finally, Hilal (2015), concluded that herding was absent when tested using both CSSD and CSAD while it existed using Hwan and Salmon measure. In Jordan, herding was tested using CSSD and CSAD measures by Al-Shboul (2012) who concluded that different measures resulted in different decisions regarding the presence of herding in Jordan. In addition, Chen (2013) examined herding behavior in many countries at market-level including Jordan and found that the behavior was absent when measured using CSSD while it existed when measured using CSAD and the measure of Hwang and Salmon (2004). Herding behavior at sector-level in the Jordanian stock market was not tested before using Hwang and Salmon measure. This study adds to the literature by filling the gap of detecting herding behavior using the measure of Hwang and Salmon (2009) at sectors level, by testing herding when the sector index is rising and when its falling, and by testing herding before and after the financial crisis. Moreover, the study may verify the existence of herding in the Jordanian market at market and sectors level by comparing its results with the results of previous study that tested herding in Jordan using another measure.

2.3 Cross-Sectional Dispersion of Betas

This measure of herding belongs to the group of measures that detect herding by testing the movement of the stock's returns compared to the movement of market returns. CSSD and CSAD use the dispersion of returns from the market to detect herding while the measure of Hwang and Salmon uses the dispersion of stocks' betas from the equilibrium to detect the behavior (Khan & Rizwan, 2018). When investors in the financial market herd, the betas of capital asset pricing model (CAPM) will deviate from what it should be in the equilibrium and its cross-sectional dispersion will become less than that in the equilibrium (Hwang & Salmon, 2004). The measure of cross-sectional dispersion of betas was first introduced by Hwang and Salmon (2004) and they test it in the stock markets of the United States, United Kingdom, and South Korea. The first measure of Hwang and Salmon was a state space model that includes the following equations (Hwang & Salmon, 2004):

$$\begin{aligned} \text{Log}[\text{Std}(\beta_{imt}^b)] &= \mu_m + H_{mt} + v_{mt} \\ H_{mt} &= \varphi_m H_{mt-1} + \eta_{mt} \end{aligned} \quad (1)$$

Where $\text{Std}(\beta_{imt}^b)$ is the cross-sectional standard deviation of the stocks' betas, $\mu_m = E[\text{Log}[\text{Std}(\beta_{imt}^b)]]$, H_{mt} is the herding effect, $v_{mt} \sim iid(0, \sigma_{mv}^2)$, and $\eta_{mt} \sim iid(0, \sigma_{m\eta}^2)$. If herding exists in the market, $\sigma_{m\eta}^2$ will have a significant value while if its value is zero, herding behavior is absent (Hwang & Salmon, 2004). This measure was adjusted by Hwang and Salmon (2009). The two equations for the new herding measure were as follows (Hwang & Salmon, 2009):

$$H_{mt} = \frac{1}{N_t} \sum_{i=1}^{N_t} (b_{imt}^s - 1)^2 \quad (2)$$

$$H_{mt}^* = \frac{1}{N_t} \sum_{i=1}^{N_t} \left(\frac{b_{imt}^s - 1}{\hat{\sigma}_{Eit} / \hat{\sigma}_{mt}} \right)^2 \quad (3)$$

Where H_{mt}^* is the standardized herd measure, N_t is the number of stocks at time t , b_{imt}^s is the observed estimate of beta of stock i at time t , $\hat{\sigma}_{Eit}$ is the sample standard deviation of the ordinary least squares (OLS) residuals, and $\hat{\sigma}_{mt}$ is the sample standard deviation of market excess return at time t . The lower the value of H_{mt}^* the higher the standardized beta herding (Hwang and Salmon, 2009). If $H_{mt}^*=0$, then perfect standardized beta herding exists because this is the minimum value of the measure.

The measure of herding calculated in Equation 2 is called “beta-based herd measure” while the measure in Equation 3 is called the “standardized herd measure” (Hwang and Salmon, 2009) and it has the advantage of dealing with herding as a dynamic behavior that changes over time rather than a static phenomenon (Krokida, Makrichoriti, & Spyrou, 2017). This measure can be used to test herding at market-level and sector-level (Hwang and Salmon, 2009). In this study, I used the standardized herd measure calculated in equation 3 to detect herding in the Jordanian stock market at both levels of market and sectors. The standardized herd measure was utilized in many studies to measure herding behavior including the study of Krokida, Spyrou, et al. (2017) who used the measure to measure herding and study its relationship with liquidity and the study of Jokar, Shamsaddini, and Daneshi (2018) who utilized the measure to estimate herding variable and include it in their model which was developed to test the effect of investors’ behavior and management on the stock returns in the Iranian market. In Jordan, studies conducted to detect herding using Hwang and Salmon’s standardized herd measure are absent at market and at sectoral level. This study may contribute to the literature by revealing the results of testing herding behavior at market and sectoral level using the standardized herd measure in an emerging market like Jordan and compare these results with the results of other measures.

2.4 Hypotheses

Four hypotheses were developed to achieve the purpose of measuring herding behavior in the Jordanian stock market and its sectors using the standardized herd measure. Following Elshqirat (2019), each hypothesis was divided into two sections: the first section is related to the entire market and the second section is related to each sector. The purpose of the first hypothesis was to test the existence of herding in the market and in its sectors while the second hypothesis was formulated to examine the effect of the financial crisis of 2008 on the presence of herding in the market and sectors. The third hypothesis was about whether the existence of herding behavior is different during market (sector) rising and falling. The last hypothesis was formulated to test whether the effect of market conditions of rising and falling on the presence of herding was the same before the financial crisis and after it. For each hypothesis there were two sub-hypotheses, the first sub-hypothesis was related to the market (denoted with m like $H1_m$) and the other sub-hypothesis is related to the sectors (denoted with s like $H1_s$). The study hypotheses were as follows:

$H1_m$: Herding exists in the Jordanian stock market

$H1_s$: Herding exists in each sector of the market

$H2_m$: Existence of herding behavior in the market is not the same prior to and post financial crisis

$H2_s$: Existence of herding behavior for each sector is not the same prior to and post financial crisis

$H3_m$: Existence of herding behavior is not the same during conditions of market increasing and decreasing

$H3_s$: Existence of herding behavior is not the same during conditions of sector increasing and decreasing

$H4_m$: The effect of market increasing and decreasing on the existence of herding behavior is different prior to and post financial crisis

$H4_s$: The effect of sector increasing and decreasing on the existence of herding behavior is different prior to and post financial crisis

3. Method

3.1 Research Data

All companies that were listed on Amman Stock Exchange from January, 2000 to December, 2018 were included in this study which is the same period covered by Elshqirat (2019). The total number of listed companies as on

December 31, 2018 was 191 companies while the total number of companies included in the study was 85 companies from which 33 companies were from the financial sector, 19 companies were from the services sector, and 33 companies were from the industrial sector. Companies that became unlisted during the study period were excluded. For the purposes of testing the hypotheses related to the global financial crisis, the same two sub-periods in Elshqirat (2019) were used: 2000 – 2007 (before financial crisis) and 2009 – 2018 (after the financial crisis). The ASE free float index was used to calculate the market return for the covered period and the interest rates on the Jordanian treasury bills were used as the risk-free rate of return for the same period. Monthly closing prices for the ASE index and for the included stocks for the period from January 2000 to December 2018 were obtained from the website of ASE while the interest rates on the treasury bills were obtained by email from the central bank of Jordan who provides such information to the public through its website and email. Beta's of stocks were estimated using the standard capital asset pricing model (CAPM) and then the data were used to calculate the standardized herd measure presented in Equation 3.

3.2 Research Design

This quantitative study was conducted to examine the existence of herding in the stock market of Jordan and its sectors, to examine the effect of the financial crisis on the presence of herding, to test the impact of market and sector increasing and decreasing on the existence of herding, to examine the effect of financial crisis on the herding presence when market and sectors increasing and decreasing, and to compare the results with those of the other measure used before.. These objectives were achieved using the standardized herd measure which consists of the dependent variable of the herding measure (H_{mt}^*) and the independent variables of stocks beta (b_{imt}^s), the sample standard deviation of the OLS residuals ($\hat{\sigma}_{Eit}$), and the sample standard deviation of market excess return ($\hat{\sigma}_{mt}$).

3.3 Variables Definitions

Beta of the stock with the market (b_{imt}^s): is the sensitivity of the rate of return of the stock to the change in the rate of return for the market (Dzaja & Aljinovic, 2013). This variable can be calculated using the following equation (Matar, 2016):

$$b_{imt}^s = \frac{COV(R_i, R_m)}{\sigma^2 R_m} \quad (4)$$

Where R_i is the rate of return of stock i, R_m is the rate of return on the market, and $\sigma^2 R_m$ is the variance of the market return. This variable was estimated using the standard capital asset pricing model by regressing the stock's excess return on the market excess return.

Beta of the stock with the sector (b_{ist}^s): is the sensitivity of the rate of return of the stock to the change in the rate of return for the sector. This variable can be calculated as follows:

$$b_{ist}^s = \frac{COV(R_i, R_s)}{\sigma^2 R_s} \quad (5)$$

Where R_i is the rate of return of stock i, R_s is the rate of return on the sector, and $\sigma^2 R_s$ is the variance of the sector return. This variable was estimated using the standard capital asset pricing model by regressing the stock's excess return on the sector excess return.

Market excess return: is the rate of return on the market index for a given holding period (one month) less the risk-free rate of return for the same period

Rate of return on the stock (R_i): is the realized rate of return on stock i that actually generated during the month. This return is calculated as follows (Elshqirat, 2019):

$$R_{i,t} = \left[\frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \right] * 100 \quad (6)$$

Where $P_{i,t}$ is the closing price of the stock at the end of month t and $P_{i,t-1}$ is the closing price of that stock at the end of month t-1 or the month before.

Rate of return on the market (R_m): is the realized rate of return on the market free float index and it was determined as follows:

$$R_{m,t} = \left[\frac{P_{m,t} - P_{m,t-1}}{P_{m,t-1}} \right] * 100 \quad (7)$$

Where $P_{m,t}$ is the closing price of the sector index at the end of month t and $P_{m,t-1}$ is the closing price of that index at the end of month t-1.

Rate of return on the sector (R_s): is the realized rate of return on the sector index. The following equation was used to calculate this variable:

$$R_{s,t} = \left[\frac{P_{s,t} - P_{s,t-1}}{P_{s,t-1}} \right] * 100 \quad (8)$$

Where $P_{s,t}$ is the closing price of the sector index at the end of month t and $P_{s,t-1}$ is the closing price of that index at the end of month t-1.

Risk-free rate of return: is the riskless return represented by the rates of return on the treasury bills issued by the central bank of Jordan during the study period.

Sector excess return: is the rate of return on the sector index for a given holding period (one month) less the risk-free rate of return for the same period.

Standardized herd measure for the market (H_m^*): is the standardized measure of beta herding that was introduced by Hwang and Salmon (2009) to test the herding behavior in the stock markets. This measure can be calculated as follows:

$$H_{mt}^* = \frac{1}{N_t} \sum_{i=1}^{N_t} \left(\frac{b_{imt}^s - 1}{\hat{\sigma}_{Eit} / \hat{\sigma}_{mt}} \right)^2 \quad (9)$$

Where H_{mt}^* is the standardized herd measure for the market at time t, N_t is the number of stocks at time t, b_{imt}^s is the observed estimate of beta of stock i with the market at time t, $\hat{\sigma}_{Eit}$ is the sample standard deviation of the OLS residuals, and $\hat{\sigma}_{mt}$ is the sample standard deviation of market excess return at time t

Standardized herd measure for each sector (H_{ms}^*): is the standardized measure of beta herding that was utilized to test herding behavior in the sectors of the financial market. This measure can be calculated as follows:

$$H_{mst}^* = \frac{1}{N_{st}} \sum_{i=1}^{N_{st}} \left(\frac{b_{ist}^s - 1}{\hat{\sigma}_{Eit} / \hat{\sigma}_{st}} \right)^2 \quad (10)$$

Where H_{mst}^* is the standardized herd measure for each sector at time t, N_{st} is the number of stocks in the sector at time t, b_{ist}^s is the observed estimate of beta of stock i with the sector at time t, $\hat{\sigma}_{Eit}$ is the sample standard deviation of the OLS residuals, and $\hat{\sigma}_{st}$ is the sample standard deviation of sector excess return at time t.

Stock excess return: is the rate of return on the stock for a given holding period (one month) less the risk-free rate of return for the same period.

4. Results

4.1 Descriptive Statistics

Companies included in this study belong to the three groups of companies in Amman stock exchange (ASE): financial group, services group, and industrial group. Because of the exclusion of companies that became unlisted during the study period, the percentage of included companies to the total number of listed companies in each sector at the end of 2018 was as follows: 34% of listed financial companies, 41% of services companies, and 70% of industrial companies. This means that industrial companies have the most stable listing status among all sectors while the financial companies have the least stable status. Some univariate statistics for the variables included in the study are presented in Table 1.

Table 1. Descriptive statistics about variables of: b_{imt}^s , b_{ist}^s , stocks excess returns, market excess return, sector excess return, $\hat{\sigma}_{Eit}$, $\hat{\sigma}_{mt}$, and $\hat{\sigma}_{st}$

Variable	Mean	Standard deviation	Min	Max
<i>Market</i>				
b_{imt}^s *	0.668	0.408	-0.038	2.084
Stocks excess returns %	-0.046	11.543	-86.367	232.853
Market excess returns %	-0.164	4.501	-22.996	15.347
$\hat{\sigma}_{Eit}$	10.466	3.473	5.423	21.327
$\hat{\sigma}_{mt}$	4.511	0.000	4.511	4.511
<i>Financial sector</i>				
b_{ist}^s *	0.682	0.456	0.003	1.884
Stocks excess returns %	-0.087	11.263	-86.367	213.045
Sector excess return %	-0.002	5.245	-17.765	21.489
$\hat{\sigma}_{Eit}$	9.951	3.162	5.424	21.021
$\hat{\sigma}_{st}$	5.256	0.000	5.256	5.256
<i>Services sector</i>				
b_{ist}^s *	0.667	0.305	0.242	1.433
Stocks excess returns %	-0.032	10.882	-79.327	212.357
Sector excess return %	-0.379	3.979	-21.458	12.426
$\hat{\sigma}_{Eit}$	9.874	3.603	5.795	21.607
$\hat{\sigma}_{st}$	3.988	0.000	3.988	3.988
<i>Industrial sector</i>				
b_{ist}^s *	0.469	0.388	-0.048	1.693
Stocks excess returns %	-0.013	12.173	-79.100	232.853
Sector excess return %	-0.140	5.363	-34.916	18.785
$\hat{\sigma}_{Eit}$	11.204	3.586	5.910	19.840
$\hat{\sigma}_{st}$	5.375	0.000	5.375	5.375

* Percentage of significant b_{imt}^s 's for the market at 5% = 85%, percentage of significant b_{ist}^s 's at 5%: for financial sector = 85%, for services sector = 95%, for industrial sector = 61%

4.2 Hypotheses Testing

4.2.1 Hypothesis One

There were two sections in this hypothesis: the first section was to test the existence of herding at the level of market and section two was to examine the same in each sector. Calculated values and descriptive statistics of H_{mt}^* and H_{mst}^* (market-level and sector-level herding measures) are summarized in Table 2. It can be noticed from Table 2 that herding was very high when measured at market-level because the value of H_{mt}^* for the entire

period was very close to zero (perfect herding). At sector-level, however, the highest level of herding was in the services sector followed by the financial sector and then the industrial sector. In addition, the maximum values of H_{mt}^* for market-level and H_{mst}^* for the industrial sector were in the year 2008 which is the year of the global financial crises. This means that herding behavior in market and in the industrial sector was at its lowest level during the global financial crisis.

Table 2. Values and descriptive statistics for H_{mt}^* and H_{mst}^*

Details	Value for the entire period	Yearly calculated 2000 - 2018			
		Mean	Standard deviation	Min	Max
H_{mt}^*	0.071	0.548	0.323	0.218	1.248
H_{mst}^* financial sector	0.120	0.625	0.500	0.137	1.811
H_{mst}^* services sector	0.044	0.417	0.282	0.083	1.019
H_{mst}^* industrial sector	0.135	0.724	0.723	0.151	3.066

The movement of standardized beta herding measure for the market and for each sector during the study period is illustrated in the Figure of herding measure movement (Figure 1). The higher the value of herding measure, the lower the level of standardized beta herding. The Figure clarifies that herding movement was slightly different between market-level and other sectors except for industrial sector which had only one big peak related to 2008, the year of global financial crisis. No trends were noticed in the movement of herding behavior at market-level and at sectors-level.

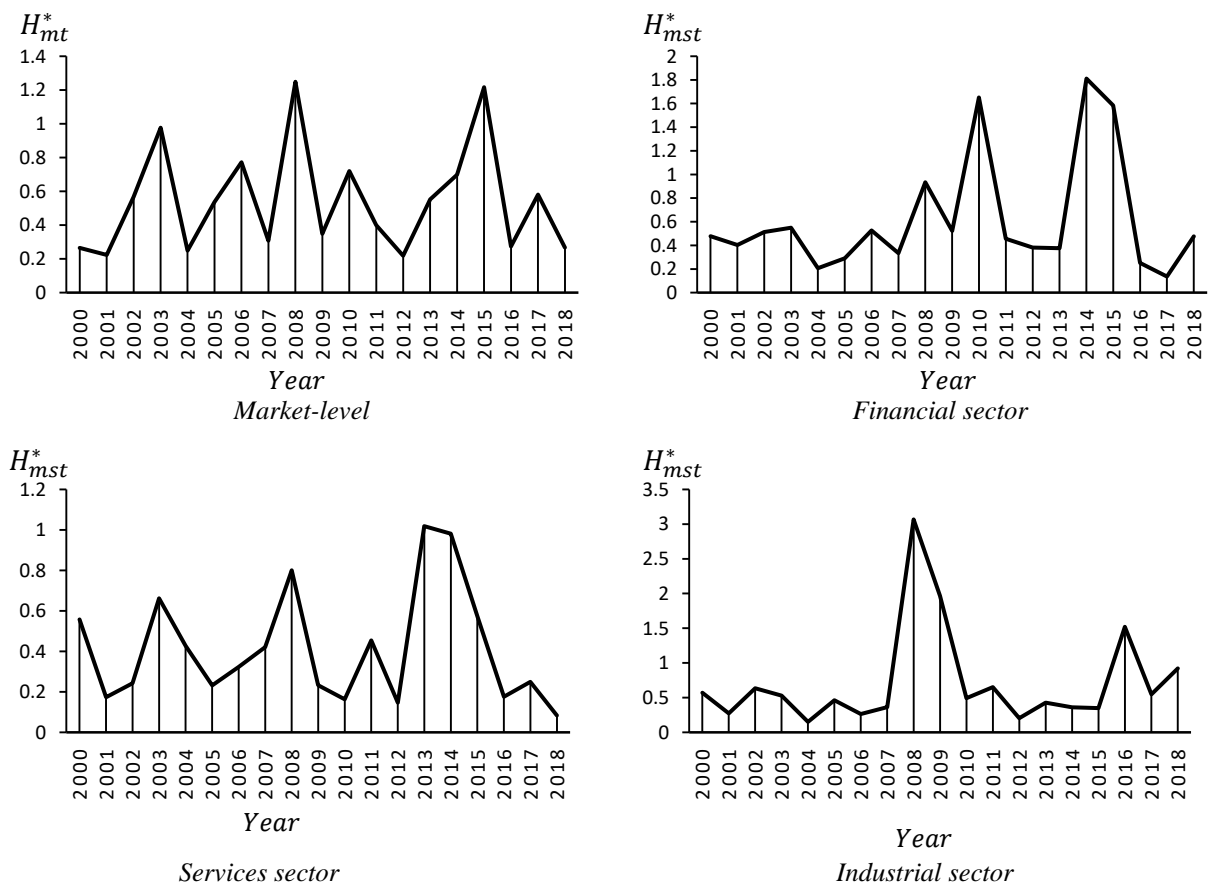


Figure 1. Herding measure movement 2000-2018

To test whether there herding behavior at market-level and at sectors-level was different, I used Kruskal–Wallis test. I used this test because I have more than two groups (market-level and three sectors) and because the data of H_{mt}^* , H_{mst}^* were not normal at a significance level of 5% as suggested by the results of Shapiro–Wilk test of normality summarized in Table 3. Based on the results of Kruskal–Wallis test, it can be concluded that herding behavior at market and sectors level was the same during the study period (Kruskal–Wallis statistic = 3.687, $p = .297$). To sum up, herding behavior existed in market and in each sector at the same level.

Table 3. Results of Shapiro–Wilk test of normality for hypothesis one

Details	Market-level	Financial sector	Services sector	Industrial sector
Statistic	.869	.735	.885	.683
<i>P</i> value	.014	<.001	.026	<.001

4.2.2 Second Hypothesis

This hypothesis was about the impact of the financial crisis of 2008 on the herding behavior at market-level and sector level. The first section of the hypothesis was about the effect of the crisis on herding at the level of market. To test this hypothesis, data were first tested for normality using Shapiro–Wilk test. Based on the test of normality clarified in Table 4, data of H_{mt}^* for market-level were normal while data of H_{mst}^* for sector-level were not normal. The value of H_{mt}^* (as calculated for the whole period before the crisis and the whole period after the crisis) for market-level before the financial crises was 0.088 and after the crisis was 0.064. Both values are very close to zero which means that herding was high before and after the crisis. To examine the first section of this hypothesis, I used the independent samples *t*-test because there were two groups for this hypothesis (before and after financial crisis) with homogenous variance (Levene’s test $p = .998$) and because data were normal. The results of *t*-test showed that herding level in the entire market can be considered the same before the financial crisis and after it, $t(16) = -0.291$, $p = .774$.

Table 4. Results of Shapiro–Wilk test of normality for the second hypothesis

Details	Market-level		Financial sector		Services sector		Industrial sector	
	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis
Statistic	.878	.875	.921	.770	.944	.812	.957	.815
<i>P</i> value	.181	.114	.442	.006	.650	.020	.785	.022

The values of H_{mst}^* for each sector (as calculated for the whole period before the crisis and the whole period after the crisis) are clarified in Table 5. From the values of herding measure in Table 5, it can be said that herding level was high in all sectors because all values are close to zero. Because data for sectors were not normal, I used Mann–Whitney U test to examine the second section of hypothesis two.

Table 5. Values of H_{mst}^* for each sector before and after the financial crisis

Details	H_{mst}^* before financial crisis	H_{mst}^* after financial crisis
Financial sector	0.159	0.09
Services sector	0.037	0.088
Industrial sector	0.061	0.161

The results of Mann-Whitney test for each sector are illustrated in Table 6. These results suggest that the null hypothesis that the presence of herding behavior in each sector is the same pre and post the financial crisis cannot be rejected and thus, it can be said that the crisis had no effect on the herding behavior in all sectors.

Table 6. Results of Mann-Whitney U test for the second hypothesis-second section

Details	Statistic	P value
Financial sector	35	.657
Services sector	35	.657
Industrial sector	26	.214

4.2.3 Third Hypothesis

This hypothesis was related to the level of herding behavior at times of market (sector) rising (i.e. $R_{m,t}, R_{s,t} > 0$) and falling (i.e. $R_{m,t}, R_{s,t} < 0$). As done in the previous hypotheses, the first step was to test market and sectors' data for normality. The results of Shapiro-Wilk test of normality are illustrated in Table 7. These results indicate that data for market and sectors were not normal.

Table 7. Results of Shapiro-Wilk test of normality for the third hypothesis

Details	Market-level		Financial sector		Services sector		Industrial sector	
	Market rising	Market falling	Sector rising	Sector falling	Sector rising	Sector falling	Sector rising	Sector falling
Statistic	.835	.837	.614	.435	.397	.778	.499	.794
P value	.008	.009	<.001	<.001	<.001	.001	<.001	.001

The values of H_{mt}^* and H_{mst}^* (as calculated for the whole period during market rising and the whole period during market falling) for market and sectors are illustrated in Table 8. Because all values are close to zero, it can be claimed that herding was high at market-level when the market was rising and falling and high at sector-level for all sectors when the sector was rising and when it was falling.

Table 8. Values of H_{mt}^* and H_{mst}^* for market and for each sector when market (sector) increasing and decreasing

Details	Market-level		Financial companies		Services companies		Industrial companies	
	Market rising	Market falling	Sector rising	Sector falling	Sector rising	Sector falling	Sector rising	Sector falling
H_{mt}^*	0.036	0.057						
H_{mst}^*			0.077	0.085	0.034	0.047	0.098	0.098

To test this hypothesis at market and sector levels, I used Wilcoxon Signed-Rank test. The results of this test are summarized in table 9. It can be noticed from Table 9 that all p values are insignificant at 5% level which means that herding measure was the same at times of increasing and decreasing in market and in sectors. In other words, conditions of market (sector) increasing and decreasing did not affect the level of herding in market and in each sector.

Table 9. Results of Wilcoxon Signed-Rank test for the third hypothesis

Details	Market-level	Financial companies	Services companies	Industrial companies
z	-0.724	-0.310	-0.806	-0.121
P value	.469	.756	.420	.904

4.2.4 Hypothesis Four

This hypothesis was about whether herding during times of market (sector) increasing and decreasing is different pre and post the financial crisis of 2008. Data required to test this hypothesis were normal at market-level before the crisis but not normal after the crisis and at sector-level, it was not normal before and after the crisis as clarified in Table 10. The values of H_{mt}^* and H_{mst}^* (as calculated during market (sector) rising and falling for the entire period before financial crisis and the entire period after the financial crisis) are illustrated in Table 11.

Table 10. Results of Shapiro-Wilk test of normality for the fourth hypothesis

Details	Market-level		Financial sector		Services sector		Industrial sector	
	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis	Before financial crisis	After financial crisis
<i>Under rising</i>								
Statistic	.869	.760	.849	.698	.557	.476	.538	.508
P value	.262	.005	.193	.001	<.001	<.001	<.001	<.001
<i>Under falling</i>								
Statistic	.941	.810	.728	.736	.744	.840	.812	.764
P value	.675	.019	.018	.002	.007	.057	.038	.005

It can be noticed from Table 11 that highest herding level before the financial crisis was in the services sector during the time of sector falling while the lowest level was in the financial sector during the time of falling. After the financial crisis, however, the highest level of herding changed to be at market-level during market falling and the lowest level changed to be in the industrial sector during sector increasing.

Table 11. Values of H_{mt}^* and H_{mst}^* for market and for each sector during market (sector) increasing and decreasing pre and post the financial crisis

Details	Market-level		Financial companies		Services companies		Industrial companies	
	Pre-financial crisis	Post financial crisis	Pre-financial crisis	Post financial crisis	Pre-financial crisis	Post financial crisis	Pre financial crisis	Post financial crisis
H_{mt}^* under rising	0.056	0.071						
H_{mt}^* under falling	0.102	0.030						
H_{mst}^* under rising			0.107	0.109	0.050	0.115	0.058	0.165
H_{mst}^* under falling			0.151	0.048	0.029	.035	0.032	0.057

To test the first section of this hypothesis (at market-level) before the financial crisis, I used the paired samples t -test because data for the market were normal and because there were two values for each year (increasing and decreasing). The results of this test indicated that herding behavior before the financial crisis was the same under market rising and falling $t(4) = 0.255$, $p = .811$. To test data at market-level after the crisis, Wilcoxon Signed-Rank test was used because data were not normal. The results of the test indicated that herding after the financial crisis was the same under market rising and falling $z = -1.173$, $p = .241$. Based on this, the null

hypothesis of the first section cannot be rejected and it can be concluded that investors in the entire market herded during market increasing and decreasing in the same manner prior to and post the crisis. To test the second section of this hypothesis (at sector-level), Wilcoxon Signed-Rank test was used because data for sectors were not normal before and after the crisis. The results of this test are illustrated in table 12. As the results revealed, the alternate hypothesis can be rejected and thus, it can be concluded that investors in each sector herded during sector increasing and decreasing in the same way pre and post the crisis.

Table 12. Results of Wilcoxon Signed-Rank test for second section of fourth hypothesis (sectors-level)

Details	Financial companies		Services companies		Industrial companies	
	Before crisis	After crisis	Before crisis	After crisis	Before crisis	After crisis
<i>z</i>	-1.214	-0.968	-0.980	-0.533	-0.420	-0.357
<i>P</i> value	.225	.333	.327	.594	.674	.721

4.2.5 Comparing Results

The results of this study can be compared with the study of Elshqirat (2019) because it covered the same period (2000-2018) and the same financial market (Jordanian stock market). In addition, the same hypotheses were tested in this study to facilitate the comparison. Elshqirat (2019) used the measure of CSAD to test herding while in this study, the measure of Hwang and Salmon (2009) was used. The purpose of the comparison was to determine if different herding measures yield different results. The results of the comparison are illustrated in Table 13. Results are different between the two measures for all hypothesis except for the effect of financial crisis at market-level and the effect of rising and falling at sector-level. From these results, it can be claimed that different herding measures result in different decisions about the behavior even if those measures belong to the same family. In other words, results of detecting herding in the stock market depend on the measure used and thus, reaching reasonable results about herding in a market may require utilizing more than one measure.

Table 13. Results of comparing the results of CSAD measure with the measure of Hwang and Salmon (2009)

Details	Market-level		Sector-level	
	CSAD	Hwang and Salmon	CSAD	Hwang and Salmon
Presence of herding	No herding	Herding exists	Herding exists in services and industrial sectors only	Herding exists in all sectors
Effect of financial crisis	No effect	No effect	Financial crisis affected services and industrial sectors	No effect
Effect of market(sector) increasing and decreasing	Herding affected	No effect	No effect	No effect
Financial crisis effect on herding during increasing and decreasing	Financial crisis affected herding during increasing and decreasing	No effect	Financial crisis changed herding during increasing and decreasing	No effect

5. Discussion

Study results revealed that investors in the stock market of Jordan practiced herding at the level of the entire market which is the same conclusion reached by Obaidat (2016), Ramadan (2015), Nasarudin et al. (2017), and Chen (2013) and opposite to the results of Al-Shboul (2012). In addition, results indicated that herding existed in

each sector of the market which supports the conclusions of Cakan, and Balagyozyan (2016) who detected herding in all industries of the stock market in Turkey. However, study results are different from other studies in which it was concluded that herding existed in some and not all of the market sectors including the study of BenSa'ïla (2017), Jabeen, and Rizavi (2019), and Litimi (2017). The results of this study indicated that investors herded at the same level in the entire market and in each sector. The results of this study indicated also that the global financial crisis of 2008 did not affect herding behavior neither at the level of market nor at the level of sectors (herding existed in both periods pre and post the crisis). The results about the effect of financial crisis at market-level do not support the results reached by Angela-Maria, Maria, and Miruna (2015) and BenSa'ïla, Jlassi, and Litimi (2015) who concluded that the global financial crisis had an effect on the herding behavior at market-level. On the other hand, these results are in line with those concluded by Al-Shboul (2012) who claimed that herding behavior was the same before and after the financial crisis at market-level and in the financial sector.

Based on the results of this study, it was concluded that herding behavior was the same during times of market (sector) rising and falling. These results are opposite to the results concluded by and Rahman, Chowdhury, and Sadique (2015) who claimed that herding at market-level is higher during the time of market rising and also opposite to the results of Tabesh, Kelly, and Poulouse (2018) who concluded that herding behavior respond in different way in each sector when the market was rising and falling. These results, however, support the conclusions of Yousaf, et al. (2018) who concluded that herding at market-level was the same in times of market rising and falling and Elshqirat (2019) who claimed that herding at sector-level was not affected by the conditions of sector rising and falling. As concluded in this study, the level of herding behavior during market (sector) rising and falling was the same before and after the global financial crisis. Investors in Amman stock exchange continued herding in the same manner during market rising and falling even after the global financial crisis. Finally, the results of this study clarified that the results reached about herding using the measure of Hwang and Salmon (2009) were different from those reached using CSAD measure for the same market (Jordan) and the same period (2000-2018) implying that the decision about the behavior is affected by the measure used. Herding at market level was absent when tested using CSAD measure by Elshqirat (2019) while it existed when tested in this study using Hwang and Salmon (2009). At sector level, however, herding existed in some sectors when measured using CSAD while it existed in all sectors at the same level when measured using Hwang and Salmon (2009). When herding was measured using Hwang and Salmon measure, there was no effect for the financial crisis on herding at both levels: market and sectors while the crisis affected two sectors when herding was measured using CSAD. In addition, herding was affected by the market condition of rising and falling at market-level only when CSAD was utilized but these conditions had no effect at all levels when the measure of Hwang and Salmon was used. In addition, different herding manners during rising and falling were detected before and after the crisis using CSAD at all levels while the same manners were observed before and after the crisis using Hwang and Salmon measure. The latter conclusions about reaching different results using different measures of herding are supported by some studies including the study of Adem (2020) who concluded that herding existed during market rising using CSAD while it was absent using the measure of cross-sectional standard deviation (CSSD). Other studies that used different measures and reached different results include Khan and Rizwan (2018) and Hilal (2015). In Jordan, different conclusions about herding were reached using different measures by Al-Shboul (2012) who used CSAD and CSSD to test the behavior and Chen (2013) who used CSSD, CSAD, and the measure of Hwang and Salmon (2004) to test herding at market-level. What this study may add to the previous studies about herding is that different measures may result in different decisions about herding at sector-level and not only at market-level.

The results of this study can be generalized to all sectors of the Jordanian stock market because it included all companies listed for the entire period from 2000 to 2018 and not only a sample. In addition, results can be generalized to other markets that have the same specifications of the Jordanian stock market. It was known from the previous studies that using different measures may result in different decisions about herding but that was mostly at market-level and in countries other than Jordan. This study is the first study in Jordan to examine the effect of using different measures on the testing of herding at market-level and at sector-level by comparing the results of two measures: CSAD and Hwang & Salmon (2009). Knowing that different measures of herding may lead to different results can change the investors' view of the market. Investors may no longer depend on the results of one measure to decide if herding exists in the market and they may reconsider the factors included in their price expectations. In addition, the study results may benefit the management of the market by providing them with additional information about the existence of herding at market and at sector levels. Market management may plan to educate and train investors to make their own investment decisions instead of just copying others. Further research may be needed to gain more understanding about herding behavior at sector-level and to develop new measures that can be used when studying the behavior in each sector.

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The Dual Pricing of Destinations: Tourist Perception on Sri Lanka

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Abstract

Dual-Pricing of entrance fees to tourist destinations is a sensitive current issue among travelers, industry experts, and policy developers. This practice is mostly observed in the global south countries, to which Sri Lanka belongs. This study focuses on identifying and measuring the factors that influence the willingness-to-pay (WTP) entrance fees by foreign tourists visiting Sri Lanka and to understand their perception of the concept. The findings of this study revealed that income, knowledge, perceived price fairness, and visitor expectations possessed a significant relationship with WTP entrance fees in a dual-pricing context. Excepting knowledge other three variables had a significant impact on WTP. Furthermore, it was revealed that a majority of tourists accepted the dual-pricing policy, subject to certain concerns.

Keywords: dual-pricing, willingness-to-pay, perception, foreign tourists, Sri Lanka

1. Introduction

The global travel and tourism industry is considered to be one of the world's largest industries with an overall economic contribution of over 2.9 trillion USD to Global GDP in 2019 (World Tourism Organization (WTO), 2020). The statistics on global tourism suggest that Europe had received the most number of tourists by region, whilst the highest expenditure on international travel and tourism was recorded by China followed by the United States (Sri Lanka Tourism Development Authority(SLTDA), 2019). Given the fact that how lucrative the industry is, the attractions around the world are primarily divided into two geographical areas based on the economic strength of the countries, namely, Global North countries and Global South countries. Out of these two regions, the case of 'dual pricing' (DP) on entrance fees at tourist attractions, is a current and a topical issue which is a widely discussed subject in the latter region.

The term 'dual pricing' in tourism, at a glance, is not very familiar to local or foreign visitors, especially among the foreign visitors, since this concept does not operate in most of the developed western nations. Neither, do the locals know much about this policy, except the fact that they are charged a lesser fee to enter the various tourist attractions. Thus, the concept of 'dual pricing' or differential pricing in generic terms is a pricing policy where different segments of a market, in simple terms where foreigners and locals are charged different rates to experience the same product or service. Moreover, dual pricing is not just based upon the concept of residents and non – residents but can be implemented via a practice of charging differential prices (i.e. two separate prices in this case) in different market segments for the same product or service. Hence dual pricing is a concept that is not defined based only on being residents and non-residents but under various categorizations such as, students, researchers, nationals, and foreigners. Thus, governments who are promoting tourism employ different pricing strategies for these categorized groups. Howard (2009) has discussed that there are both pros and cons in this context, as the willingness of the tourists to travel to a place is highly dependent on the cost of the destination.

Sri Lanka is a country that thrives on tourism and would strive to gain its maximum benefits, wherein 14.8% of annual total foreign earnings are generated through the industry in the discussion (SLTDA Annual Report, 2019). Therefore, the focus on dual pricing and its impact on the overall tourist attraction towards the country is in-depth discussed. Specifically, when Sri Lanka recorded a total foreign tourist inflow (travelers) of 1,913,702 in 2019, 82% visited for leisure and holiday (SLTDA Annual Report, 2019). The island nation is home to a wide range of tourist attractions, which can offer experience and enjoyment to both the locals and foreigners visiting these sites. Such sites include national parks, museums, cultural triangle sites, botanical gardens, forest reserves, historical sites, and temples in religious sites. Similar to the pricing policy adopted by the regional counterparts/

neighboring countries in the region, most of these locations charge a relatively higher entrance fee for foreign visitors but allows free or subsidized-fee access to local visitors. However, the discussion on dual pricing is often of two folds. In many instances, from a service provider's standpoint, it is justified with the notion of letting their sites to be explored by the non-residents. From the viewpoint of foreigners, they are willing to pay a price for the visits but felt they are being over-charged, which is often discussed as a discouraging fact (Howard 2009). As such, this DP concept is highly important to Sri Lanka.

Moreover, the recent trends in the flow of tourists to the island show that there is an increase in the number of youth traveling to Sri Lanka and also a higher percentage of Chinese travelers among the visitors (SLTDA Annual Report, 2019). Considering these statistics, more youth travelers imply that their spending capacity is relatively lesser as opposed to a traveler of middle age or a person in his fifties. This has been a trend seen in many parts of the world, and Sri Lanka is no exception. Pearce (2005) has noted the behavior surrounding the tourists, that when it comes to choosing a destination, it is about having a rich experience. Hence, they intend to choose a few places and then engage in finding a richer experience. In this context, the tourist sites are a particularly important selection criterion for the tourists. Therefore, if these are high priced, it reduces the overall quality of experience. Customer dissatisfaction will lead to a lesser number of tourists visiting these sites. However, the Asian region is often perceived as an inexpensive destination. Further, it is important to understand that Sri Lanka is not a tourist destination that is visited by a majority of rich, extravagant travelers but the average spenders (SLTB Annual Report, 2019). As a result, the case of dual-pricing may have a greater impact in the years to come especially with the expected negative impact on the global economic and social conditions due to COVID 19 epidemic. In this context, the primary focus of this paper is regarding the foreign tourist's willingness-to-pay (WTP) entrance fees at tourist destinations in Sri Lanka under the dual-pricing policy and to gain an understanding of tourist perception of adopting such a pricing mechanism in Sri Lanka.

Table 1. Countries using Dual-pricing system

Country	Tourist facility	Local people (USD)	Foreign tourist (USD)	Percentage difference
India	Taj Mahal	0.4	14	3400%
Kenya	Fort Jesus	2.5	9.5	280%
Peru	Machu Picchu	25	49	196%
Thailand	Bangkok Museum	3.5	7	200%
Iran	Persepolis	0.5	12	2300%
Indonesia	Borobudur	3	20	566%
Zimbabwe	Victoria Falls	7	30	328%
Seychelles	Vallee de Ma	1	27	2600%
Ecuador	Galapagos Park	6	100	1566%

Source: Apollo (2014)

Table 2. Destinations with Dual-pricing in Sri Lanka

Destinations	Local (LKR)	Foreigners (LKR)	Difference (%)
Sigiriya Rock Fortress	50	5 250	10 400%
Pinnawala Elephant Orphanage	110	3 000	2627%
Temple Kandy	No charge	1 500	huge
Peradeniya Botanical Gardens	110	2 000	1 718%
Yala National Park	200	2 500	1 250%
National Zoological Garden	110	3 000	2627%
Horton Plains - Nuwara Eliya	200	3000	1400%
Dambulla Cave Temple	No charge	1500	huge

Source: Sri Lanka Tourism Development Authority (2019).

Table 1 shows that there is a substantial difference between what the tourist and a local is paying to enter into a tourist site around the world. Table 2 further confirms the same situation in Sri Lanka. This leads to two major disadvantages; one is that when these discrepancies are noted – some tourists have become reluctant to visit these places. On the other hand, many foreign tourists have appreciated the fact that they must pay a fee to enter into different historical and other important sites in the destination country (Walpole et al, 2011). However, if they are paying the premium prices – they look forward to better and quality infrastructure. This has been an issue in Sri Lanka where many tourists have complained about the lack of facilities at the destinations.

Especially many travel bloggers and independent viewers have discussed and pointed out the fact that there is far lesser tourism-friendly infrastructure in Sri Lanka, specifically when it comes to amenities such as washrooms, and changing rooms. In terms of the Sri Lankan tourist sites – it shows that there is a huge gap between what is expected with a fee – and what is delivered to the tourists. Hence, the purpose of high fees is also not justified.

Dual-pricing is an issue and also a matter of concern not only in Sri Lanka but in the South Asian region as well. Countries such as Thailand have legalized DP, charging fees from tourists when they are receiving public health care services (Bangkok Post, 2012). However, there is a concern about the ethical aspect. Moreover, Nepal is also one of the countries which have legalized DP on residents and non-residents. Thus, the legalization of these aspects has created a concern for the tourists who visit these countries. Nevertheless, the DP issue remains the same on the ground of rationalization. Some scholars such as Howard (2009) stated, that there is rationalization because most of the dual pricing is seen in the developing countries. As a result, these nations rely heavily on tourism and thus, needs to gain the maximum benefits that can be derived from a foreign traveler.

In terms of business ethics and corporate governance, the high prices/premium prices should be charged based on the level of service. Hence, if the dual pricing system is to be implemented – there needs to be a higher quality of service. However, the focus should also be on the foreign traveler's perspective. If the latter are willing or unwilling to pay – they (foreign travelers) should have a choice, especially with regards to knowing ahead of the facilities that they will be offered with the high prices charged. Henceforth, this creates a substantial research opportunity to analyze and discuss the concept of dual pricing and as to the willingness of these foreign travelers to pay the price, especially concerning ethical, economic, and social aspects. Hence, this research has built upon scholarly findings of several other researchers conducted in countries such as Thailand, Nepal, and Iran – which also carries the same principle towards foreign travelers.

Firstly, the study identifies the variables that determine the willingness-to-pay dual-priced entry fees in the Sri Lankan context. Which are Income, Knowledge, Perceived Price Fairness, and Visitor Expectations and the relevant conceptual framework will be established? Secondly, the study evaluates the relationship of the Independent variables with the dependent variable which is WTP.

Thirdly, the research evaluates the impact of the identified variables on Willingness to pay entry fees in a dual-pricing condition which revealed that Income, Perceived Price Fairness, and Visitor Expectations have had a significant impact on determining the WTP in the given context, while Knowledge was not making a significant impact on WTP when tested collectively. Thus, in this study context, the dominant influencers were only three out of the four variables tested, as opposed to literature based on other countries.

Finally, the study facilitated understanding the perception of foreigners on the dual-pricing policy and its implementation. Hence, it will contribute to the theory, knowledge, policy, and practice. Further, as a result of a post-COVID impact on the economies of other countries, attracting tourists to Sri Lanka would be much harder than it was, hence analyzing this problem would be of high priority to Sri Lanka.

2. Materials and Methods

2.1 Research Problem

The research problem takes into consideration under this study is *the Impact of Dual-pricing policy* adapted at tourist destinations on the *Willingness-to-pay (WTP)* of foreign travelers in Sri Lanka. A dual-pricing system in tourism services refers to the practice of setting two separate prices for residents and non-residents (Sharifi-Tehrani et al., 2013), in which non-residents are asked to pay higher prices than residents. More specifically, this research ponders on the tourist destinations in Sri Lanka that issue a ticket, or rather charge an entrance fee to experience the respective attraction, where foreigners are charged a substantially higher price than the locals.

The rationale for imposing dual-pricing strategy on cultural attractions, such as museums in developing countries, is assumed to be results of believing that tourists from more developed countries have a higher household income than the earnings of host country residents and that tourists do not pay taxes (Sharifi-Tehrani et al., 2013).

Although, one might assume that exchange rates would cancel out any unacceptable effect of dual-pricing, which is true to a certain extent. DP can generate negative word of mouth and could build criticisms that may hamper the image of Sri Lanka as a top-class tourist destination.

The issue of Dual-pricing is more prevalent in the 'Global South countries', in which Sri Lanka is a part of. Studies on similar areas have been conducted in different geographical locations, such as Costa Rica, the United States of America, Iran, Nepal, and many other countries. However, previously documented research available to

date has not been based on a study of this nature, applied in the Sri Lankan context.

Thus, there prevails a knowledge gap that needs to be addressed in this study. It is evident now that the issue on the concept of dual-pricing has not been tested in Sri Lanka before (as per available information and sources), and most importantly that the willingness-to-pay and factors influencing it, in terms of foreign tourists to the country. In the context of the post-COVID economic impact on Sri Lanka being a country earning approximately 15% of its foreign exchange earnings from tourism, the research problem identified would be of great concern.

2.2 Research Objectives

1. To determine the variables that affect foreign traveler's willingness-to-pay entrance fees at tourist attractions.
2. To identify the relationship between each variable with willingness-to-pay.
3. To evaluate the impact of the identified variables on willingness-to-pay by foreign travelers in Sri Lanka.
4. To understand the perception of foreign tourists on the dual-pricing concept and its application.

2.3 The Hypothesis of the Study

Currently, tourism has become a major influencer in the economy of many developing countries. The travel and tourism industry is a vast sector that can be categorized into many segments based on the destination, such as eco-tourism, adventure and leisure, and culture & heritage.

Many facilities used by tourists are public goods or are supported by a mix of revenue streams arising from both the private and public sectors, for example, parks, beaches, museums, gardens, etc. (Wu et al., 2014). Moreover, Wu et al. (2014) state that whether to charge or not for the use of public goods and if so, how much to charge are questions that have been under discussion over the years.

Dual-pricing refers to the practice of setting much higher prices for foreigners than for domestic visitors (Apollo, 2014). This kind of price differentiation, according to Apollo is a common problem in Global South countries which are still under the category of 'developing countries'. The reason for the aforementioned can be stated as developing countries hold the belief that tourists from developed countries have a higher household income (Reynisdottir, Song, and Agrusa 2008).

Past literature reveals information about knowledge and the feelings of price differences on entry fees at tourist facilities. The study conducted based on nine tourist destinations in Nepal in the year 2014 concluded that a relatively low (46%) percentage of foreign travelers from the selected sample were aware of the price difference. Apollo (2014) states that a large percentage from the group under study held, that foreigners who have experienced differential pricing will convey about the price discrimination to their family and friends after returning home.

Differences in willingness-to-pay have been found to affect according to income, some previous visits, history of paying entrance fees, country of residence, age, and education (Reynisdottir et al., 2008). Thus, it has been emphasizing on the demographical aspects which also plays a vital role concerning the topic under discussion. Wu et al. (2014) in their research highlight the fact that to determine variables such as WTP, 'Contingent Valuation' studies, have been carried out to evaluate the effects of different admission fees, or to place a value on the benefits/non-market benefits acquired by users.

A study carried out based in 'West Lake, China' has shown that adaption of a free pricing policy for entrance to a majority of sites in the area, has impacted tourism positively with an increased flow of tourists. Thereafter, national survey results indicated that the area under consideration was one of the few places in China known to have high satisfaction among independent travelers and tourists. Furthermore, a comparison between the free-admission sites and fee-charging sites has shown that the free admission policy has stimulated growth in the number of tourists substantially (Wu et al., 2014). Sharifi-Tehrani et al. (2013) highlighted three variables - attitude, distance, and involvement - which have deemed to be an important justification for implementing a dual-pricing strategy. Similarly, past literature elaborates that demographical factors such as age, gender, education, and knowledge level affect the willingness-to-pay. Besides, Murphy, Pritchard, and Smith (2000) elaborate on the 'Price-Value Perception model' of tourists which discusses the determinants i.e., reasonable price, satisfaction, value for money, country of origin, the season of visit, that would affect a tourist's intent to revisit the same destination. The proportion of the entrance fee within the composite price is likely to influence the purchase decision (Crompton & Jeong, 2016). However, there is no clear evidence of documented material on the perception of dual-pricing, connecting the possible variables that would determine the willingness-to-pay of entrance fees in Sri Lanka. The following table (Table 3) summarizes the four independent variables which are

considered in this study based on the literature survey in understanding the behavior of the dependent variable; willingness to pay by the tourists under a dual pricing policy.

Table 3. Summary of literature review for identifying variables

Variable	Author	Measurements and findings
Income	Apollo (2014) Chung et al. (2011) Reynisdottir et al. (2008) Sharifi-Tehrani et al. (2013)	A strong positive relationship with WTP
Knowledge	Apollo (2014) Reynisdottir et al. (2008) Sharifi-Tehrani et al. (2013) Samdin et al. (2010)	5 point Likert scale A moderate positive relationship with WTP
Perceived Price Fairness	Chung et al. (2011) Perdue (2002) Asadi et al. (2014) Petrick (2004) Bolton et al. (2003)	5 point Likert scale A strong positive relationship with WTP
Visitor Expectations	Khan (2003) Cheung and Jim (2013) Reeves and Bednar (1995) Cohen (1972)	5 point Likert scale A strong positive relationship with WTP

Source: Authors' compilation based on Literature

Thus, this literature survey shows the importance of carrying out this study and conceptualizing a model to address the problem, by converging the best-suited variables from literature. However, the area of study concerned in this research has been tested in different contexts. As such, the conceptual framework (Figure 1) is derived from past literature in the Sri Lankan setting.

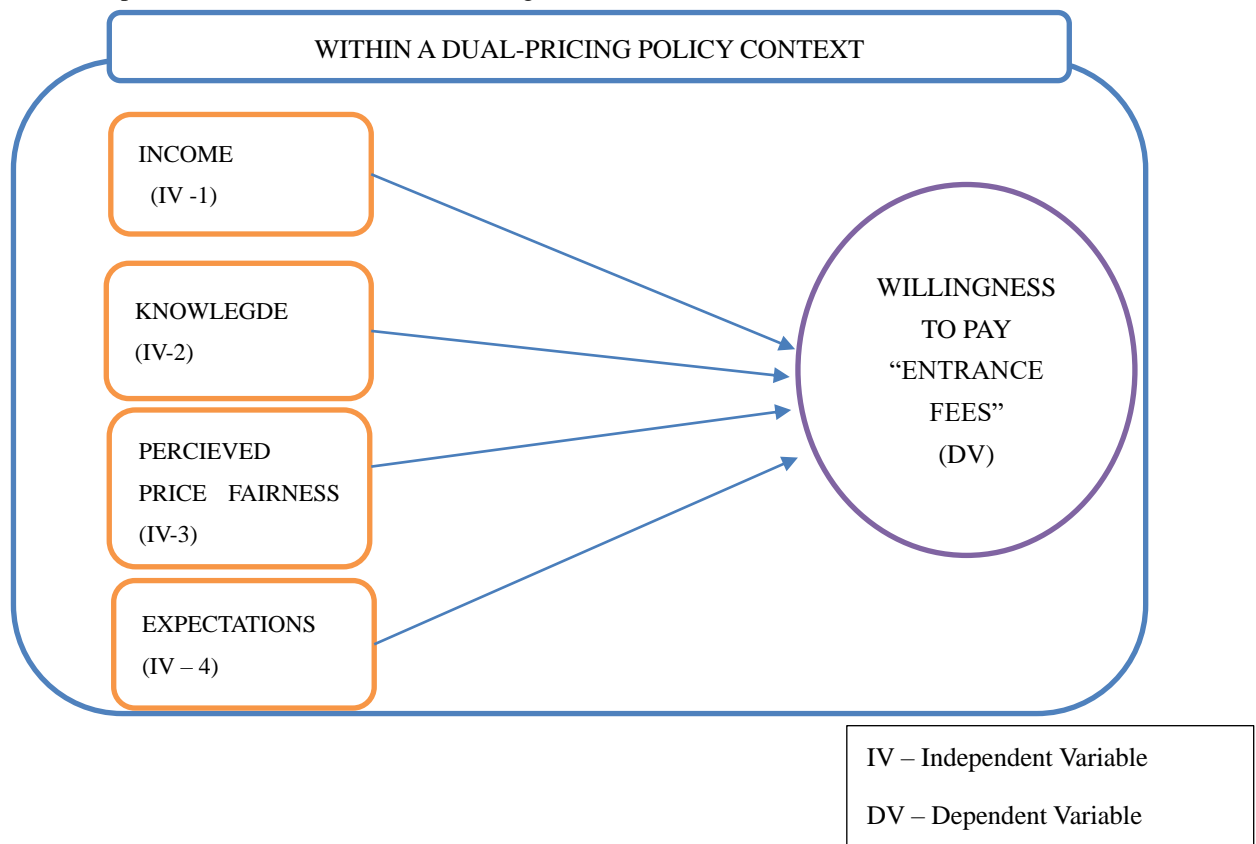


Figure 1. Conceptual Framework

Source: Author's illustration based on Literature (2019)

2.3.1 Willingness-to-pay

Preceding literature suggests that willingness-to-pay has been tested in several ways worldwide, for a variety of research motives in different fields of studies. For this particular study, willingness-to-pay will be considered as the dependent variable (DV) in the proposed conceptual model. According to literature that focuses on user fees, WTP is one of the most frequently used DVs in the area of tourism research (Chung, J., Kyle, G., Petrick, J. and Absher, J. 2011).

The dual pricing of entrance fees to tourist's sites is carried out based on the assumption that foreign visitors are willing-to-pay more for entrance fees, has been debated that if non-residents can afford the money and time to travel the world for leisure activities, then they are most likely to be less sensitive to price (Mak, 2004). However, foreign holidaymakers disagree with the argument that the ability to pay and willingness-to-pay are two distinct concepts that should not be misinterpreted and used interchangeably.

Although WTP is distinguished from the reference price, it has often been used to indicate the maximum amount that consumers intend to pay. In tourism literature, WTP has been used to estimate the value of non-market goods (Chung et al., 2011).

Further, a recent study by Shultz, S., Pinazzo, J., and Cifuentes, M. (1998) applied the 'Contingent Valuation' method for estimating WTP for entrance fees at two national parks in Costa Rica. The study revealed that willingness-to-pay estimates for both the residents and foreign visitors were considerably higher than the actual fees paid. Thus, there exists an unclear grey area, if the DV would have behaved similarly or otherwise when tested within Sri Lanka along with the suggested independent variables (IV), i.e., indicated in the conceptual framework (Figure 1) as; IV-1, IV-2, IV-3, IV-4.

From a pricing perspective, Dharmaratne and Brathwaite (1998) have stated that money spent by a non-resident on a trip, i.e., hotel charges, airfare, or fuel costs, add up to form the total costs or composite price that becomes sunk costs once tourists get to the destination. This is when the sunk cost effect comes into play on consumption behavior. Sunk costs refer to the costs that have been incurred and cannot be recovered. Further research in the field of psychology and marketing have put forward the fact that consumer decision making is a portion of sunk costs, it is also considered as the human tendency to continue an attempt regardless of its advantages or value, once a monetary investment, effort, or time was put in (Arkes & Blumer, 1985).

2.3.2 Income

As a tourist planning a trip, one of the main aspects considered is the expenses or the cost of the trip. Segments of the tourists visiting tourist attractions differ among categories such as locals, residents, and foreigners, while it is believed that the latter category has a higher willingness to pay (Apollo, 2014; Lindberg, 1991). Among the few reasons which justify the concept of dual-pricing used in countries, most foreign tourists have a higher disposal income, making the differed pricing levels appropriate (Apollo, 2014; Sandin, et al., 2010).

In a study conducted by Apollo (2014) using 162 respondents in the area of Kathmandu Valley, the income and budgeting aspect of foreign tourists were mapped out against the willingness to pay concerning the dual pricing concept. It revealed that nearly 22% of the foreign tourists spend up to one-tenth on the entry fees and as many as 60% of the local population; 41% of the foreign tourists were certain that the amount of the entry fee would not cause someone to cancel a visit, as according to them, tourists are willing to pay more while on holiday (Apollo, 2014).

Therefore, it is possible that the willingness-to-pay the entrance fees has an impact on the income of the tourists.

2.3.3 Knowledge

Sufficient justification is available when considering the possibility of visitors (foreign tourists) experiencing dual-pricing without their knowledge, which in turn, affects the willingness-to-pay. In a study carried out by Apollo (2014) using a sample population in Nepal, asked a simple question as to whether respondents are aware of the dual-pricing system. Many locals did reply in the affirmative along with a considerable amount of foreigners. Over half the tested individuals agreed to the price differentiation in a positive mindset, owing to the benefits gained from the said practice. However, it was not without a set of displeased respondents as well.

“More than half of the citizens and non-citizens agree with a higher fee (56% and 61% respectively), which will contribute to the economic development of the host country. However, more than one-third of the respondents (65% and 33% respectively) are displeased about it and disapprove of the dual pricing system”(Apollo, 2014).

Reynisdottir et al.,(2008); Cordell and Johnson (1999) showed evidence that younger and highly educated individuals have a higher prominence to support the fee-paying policy for natural attractions. It is evident from

the literature analyzed, that education plays an important role in the attitude of tourists on tourist sites. The likeliness of engagement with heritage and cultural locations improves with the level of education. Therefore, it is possible that the willingness-to-pay the entrance fees has an impact through the cultural education of tourists (Sharifi-Tehrani et al., 2013).

2.3.4 Perceived Price Fairness

In a generalized context or business terminology, perceived value is defined as the consumer's overall assessment of the utility, perception of what is received and what is given. As cited by Petrick (2004) in his writing, Zeithaml (1988) defines that value has four diverse meanings; value is the low price; whatever someone wants in a product, the quality that the consumer receives for the price paid, and what the consumer gets for what they pay.

Fairness of price or fees is initially referred to as a psychological perception of what is right or just in a particular setting (Chung et al., 2011). In the case of tourism, perceived price fairness is of no difference. A positive outcome was observed concerning the relationship between price fairness and willingness-to-pay (WTP), when empirically tested for public goods or services, including a university library, a campus beautification project (Chung et al., 2011). Interestingly, McCarville, Reiling, and White (1996) argued that while fair fees caught little public attention, unfair fees evoked considerable hostility and displacement.

Given the fact that tourism is one of the most non-price transparent industries, it would seem that price fairness perception should be examined about tourism (Chung & Petrick, 2019). Literature in this avenue suggests that perceived fairness of price has been tested against willingness-to-pay and observed that the latter is positively related to perceived price fairness. Further, awareness of potential fee benefits would positively increase recreationists' response to user fees (Chung et al., 2011). Perceived Price Fairness or independent variable 3 (IV – 3), in the setting of this study, is the perceived value of the destination in the mind of a tourist in contrast to the entrance fees charged on them. Hence, in the tourism industry, if a tourist's perception of performance or quality of a certain tourism product/service exceeds their expectations and the product/service represents good value for money, then tourists' perceptions of the quoted or listed price should be favorable (Asadi, Khazae, Pool, & Reza Jalilvand 2014).

Furthermore, if tourists perceive the benefits offered by the tourism product/service relative to the perceived sacrifice (i.e. the price to be paid) is favorable, then tourists will be more likely to perceive that the price is fair (Asadi et al., 2014).

Therefore, perceived price fairness has an impact on willingness-to-pay the entrance fees.

2.3.5 Visitor Expectations

Customer expectations are defined as pre-trial beliefs about a product that serve as standards or reference points against which the product performance is judged upon (Zeithaml et al., 1993). According to Kaczynski & Henderson (2008), understanding customer expectations and preferences and the benefits they seek is critical to marketers. Marketers and local businesses should aim to create on-site experiences that exceed expectations and delight tourists.

Khan (2003) has highlighted that some factors influence willingness-to-pay, for example, age, education level, and income; the desire to see, visit, and protect a particular park; and fulfillment of expectations. During the past decade, tourism received considerable attention in many aspects. As stated by Khan (2003), the global tourists flow often involves people from developed countries traveling to less developed countries or developing countries, to seek many experiences in traveling. Studies conducted in developing countries found that tourists have high expectations based on their travel needs (Cheung and Jim, 2013). Tourists' expectations of the type and quality of services to be offered in a particular destination are formed in their mindsets before the visit; the extent to which tourist expectations are met will eventually determine the level of tourist satisfaction (Akama and Kieti, 2003). Therefore, visitor expectations may have an impact on the willingness-to-pay the entrance fees.

Therefore, WTP considerably depends on Income, Knowledge, Perceived Price Fairness, and Visitor Expectations. These relationships (four hypotheses) are depicted in the conceptual framework (Figure 1).

2.4 Collection and Measures

2.4.1 Sampling Design

For this study, the sampling technique used was 'Purposive Sampling', following a mixed method deductive approach. As foreign tourists were surveyed using a questionnaire from key tourist attractions on the island selected based on the ease of access and approach. Latest information available on tourist arrivals to Sri Lanka

reveals that 1,913,702 foreign tourists have arrived in Sri Lanka in the year 2019 (SLTDA Annual Report, 2019), and given the decrease of tourist arrivals into the country during the period of which this study was carried out, it was decided to adhere to Convenient Sampling method. The number of subjects; the sample size was 150 elements. A considerable number of previous researches were identified to have used a sample size within a similar range of respondents.

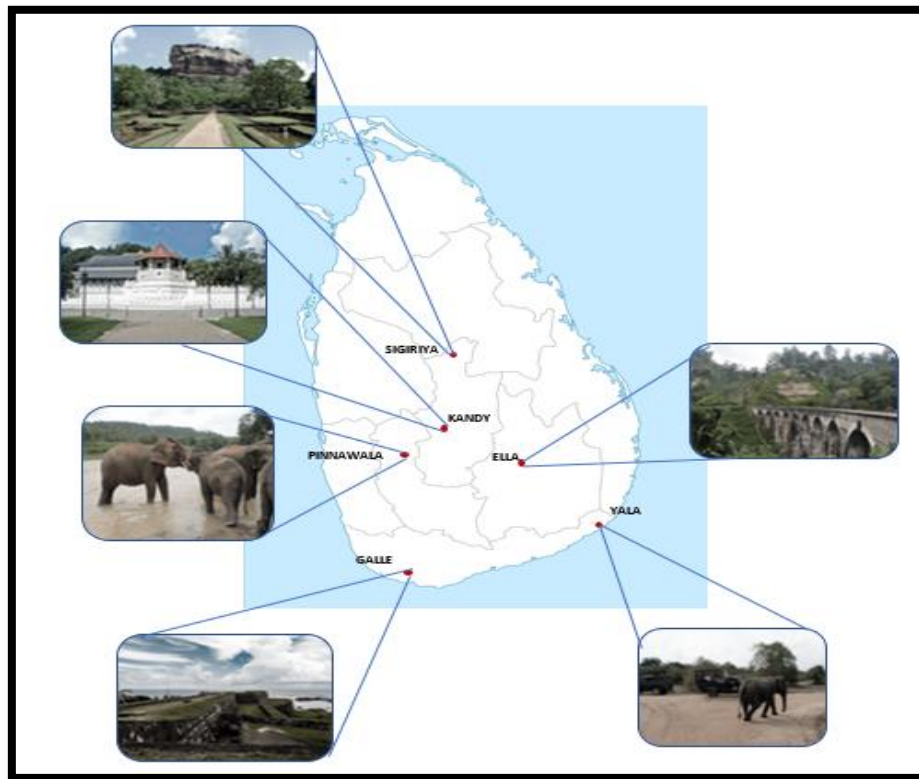


Figure 2. Data Collection Points

2.4.2 Method of Data Collection

The medium of collecting data was through the questionnaire distributed among the foreign tourists selected based on Convenience Sampling (availability and ease of access). However, to carry out the survey, locations where the availability of foreign tourists, is generally high were selected. These locations are shown in Figure 2.

2.4.3 Assessment of Reliability and Validity of the Constructs

This study involves four IVs that have been measured on a five-point Likert scale where a value of 1 represents 'Strongly Disagree' and value 5 indicates 'Strongly Agree' to the statement. The DV was measured separately as a monetary value. Thus, to establish the reliability and validity of the final data set, a Cronbach's Alpha test and factor analysis, 'Principal Component Extraction' were conducted for each IV.

Thus, internal consistency, adequate sampling, and an acceptable level of representation of variance were observed in all the constructs used, through reliability and validity testing. Therefore, all the variables (Income, Knowledge, Perceived Price Fairness, and Visitor Expectations) were used for further analysis in the study

3. Results

The profile of the respondents of the sample is given in Table 3. A large portion (67%) of foreign visitors of the sample is from the Western European countries and more than 50% in the sample belonged to the age category between 26 – 35 years whilst the scenic beauty of the country was the major reason for visiting the country representing 46% of the sample. The majority representing 29% of the sample belonged to the category of annual disposable income between US\$ 26,000 – 35,000 and the expected single site visit fee expected to pay was between US\$5-10 and US\$ 10 -15 by 30% and 28% respectively. A marginally higher percentage of females (53%) and 47% of males represented the sample.

Table 3. Respondent's profile

	Frequency	Percentage
Region		
North America	10	6.66%
South America	3	2.00%
Western Europe	100	66.66%
Eastern Europe	12	8.00%
Middle East	5	3.33%
South Asia	6	4.00%
East Asia	10	6.66%
Oceania	4	2.66%
Gender		
Male	71	47.33%
Female	79	52.66%
Age Category		
16 – 25	42	28.00%
26 – 35	79	53.00%
36 – 45	13	8.66%
46 – 55	6	4.00%
56-65	10	6.66%
Reason for choosing Sri Lanka as a Destination		
Affordability	17	11.33%
Scenic Beauty	69	46.00%
Culture & Tradition	33	22.00%
Exploration		
Sea, Sun & Sand	13	8.66%
Other	18	12.00%
Expected spending on a single site entrance fee		
1-4 USD	4	2.66%
5-10 USD	46	30.66%
11-15 USD	42	28.00%
16-20 USD	19	12.66%
21-25 USD	15	10.00%
26-30 USD	10	6.66%
31-35 USD	2	1.33%
36 USD	12	8.00%
Annual Disposable Income		
1000 - 5000 USD	17	11.33%
6000 - 15000 USD	15	10.00%
16000 - 25000 USD	21	14.00%
26000 - 35000 USD	44	29.33%
36000 - 45000 USD	17	11.33%
46000 - 55000 USD	13	8.66%
56000 - 65000 USD	10	6.66%
66000 ABOVE	13	8.66%

3.1 Correlation Analysis

To achieve the second objective of this study, which was 'to study the relationship between each variable with willingness-to-pay', a correlation analysis was conducted. A Pearson correlation coefficient was tested between each independent variable (Income; Knowledge; Perceived Price Fairness; Visitor Expectations) and the dependent variable (Willingness-to-pay) to test the validity of the hypothesis in this study. Table 4 below shows the Pearson Correlation results of the variables.

Table 4. Pearson Correlation Coefficients

WTP	Pearson Correlation	Income	Knowledge	PPF	VE
		Sig. (2-tailed)	.721**	.808**	.775**
	N	.000	.000	.000	.000
		150	150	150	150

Source: Author's calculation

3.1.1 Correlation between Income (IV-1) and Willingness-to-pay (DV)

Based on Table 4 representing coefficients extracted from SPSS output, Income, IV-1 is significant to predict Willingness-to-pay (DV) in this study. Statistical calculations show a p-value of .000 which is within the standard significance level of alpha ($p > .05$). Hence, the null hypothesis is rejected. Further, the results indicate that Pearson Correlation (R-value) is .721 which represents that there is a strong positive relationship between IV-1 and the DV.

3.1.2 Correlation between Knowledge (IV-2) and Willingness-to-pay (DV)

This study aims to uncover the relationship between Knowledge and WTP, therefore the following hypothesis was tested to assess the association among the two, i.e., IV-2 and DV in a dual-pricing situation.

Based on Table 4 (Coefficients), p-value of the relationship is .000 which is less than alpha value 0.05 [significant level of .040 ($p > 0.05$)]. Thus, Knowledge is a significant variable to predict Willingness-to-pay (DV). Since there is a relationship between Knowledge (IV-2), and Willingness-to-pay (DV). Moreover, the result shows that Pearson Correlation (R-value) is .808 indicating a strong positive relationship between this IV-2 and the DV.

3.1.3 Correlation between Perceived Price Fairness (IV-3) and Willingness-to-pay (DV)

Based on Table 4, Perceived Price Fairness (IV-3) shows a significance value of .000 when tested with the DV. Since the p-value falls within the permitted threshold of 0.05, it was concluded that IV-3 is a significant predictor of Willingness-to-pay (DV) in this study. Further, Pearson Correlation (R-value) of .775 indicates a strong positive relationship between IV-3 and the DV.

3.1.4 Correlation between Visitor Expectation (IV-4) and Willingness-to-pay (DV)

Based on Table 4 (Coefficients), Visitor Expectation proved to be a significant predictor of willingness-to-pay (DV) in this setting. This is because p-value is 0.032 which is lower than alpha value 0.05 [significant level of ($p > 0.05$)]. Therefore, H₀ will be rejected and H₁ is accepted since there is a relationship between Visitor Expectation and Willingness-to-pay. Pearson Correlation (R-value) of this association is .862 demonstrating a strong positive relationship.

3.2 Multiple Regression Analysis

Multiple Linear Regression analysis was used to achieve the third objective of this study. The objective aims to evaluate the impact of the identified variables on willingness-to-pay dual-priced entry fees of foreign travelers in Sri Lanka.

According to Uyanik and Guler (2013), regression models with one DV and several IVs are known as multivariate or multiple regression models. Assumptions of multiple regression analysis are such that, data to be free from extreme values, linearity, to have a normal distribution and have no multiple ties among the IVs.

Table 5. Results of Model Summary

Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	.892 ^a	.796	.790	2.37972

Predictors: (Constant), INCOME, KNOWLEDGE, PPF, VE

Dependent Variable: WTP

Source: Authors' calculation based on Survey data (2019)

As shown in Table 5, the adjusted R square value of the regression model is 0.790, hence 79% of the variations in willingness-to-pay (DV) is represented by the IVs, IV-1, IV-2, IV-3, and IV-4, respectively; Income, Knowledge, Perceived price fairness, and Visitor expectations in the dual-pricing condition.

Table 6. Results of ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3203.231	4	800.808	141.409	.000 ^b
	Residual	821.143	145	5.663		
	Total	4024.373	149			

Dependent Variable: WTP

Predictors: (Constant), VE, INCOME, PPF, Knowledge

According to the results shown in Table 6, the P-value of the model is 0.000, which is less than 0.001. The model appears to be significant with at least one independent variable in the model.

Table 7. Results of Regression Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	P-value
		B	Std. Error	Beta		
1	(Constant)	-8.267	.822		-10.056	.000
	INCOME	.826	.380	.128	2.171	.032
	Knowledge	.860	.480	.140	1.790	.076
	PPF	1.318	.388	.217	3.401	.001
	VE	3.300	.486	.491	6.783	.000

Source: Authors' calculation based on Survey data (2019)

As per Table 7, the regression model coefficients can be interpreted as follows. The significance level or P value of Income (IV-1) is 0.032 which is considered to be significant as it is below the accepted threshold of 0.05. The beta value of Income is 0.826, hence IV-1 holds a strong positive impact on willingness-to-pay, indicating that an increase of one unit in Income will result in a 0.826 increase in the willingness-to-pay.

P-value of Knowledge (IV-2) has proved to be an insignificant variable with 0.076 significance level, which is beyond the accepted threshold of 0.05. Although the beta value of 0.860 denotes a strong positive relationship between IV-2 and DV, the variable is deemed to be insignificant, thus, not a reliable predictor.

Perceived Price Fairness (IV-3) has proved to be a significant predictor with a P-value of 0.032, which is well within the accepted range. Further, the beta value of this IV is 1.318. Thus, PPF has a positive impact on willingness-to-pay. An increase in one unit of PPF will in turn generate a 1.318 increase in DV.

The P-value of Visitor expectations (IV-4) is at 0.000, hence, it is considered to be a highly significant variable. Beta value stands at 3.300, indicating a strong positive impact on the dependent variable in the regression model. The results demonstrate that Visitor Expectation has a high impact on willingness-to-pay in this context. As such, after the regression analysis, the following equation was derived.

$$WTP = - 8.267 + 0.826 (INC) + 1.318 (PPF) + 3.3 (VE)$$

3.3 Thematic Analysis

The fourth and final objective of the study was achieved through a thematic analysis. The objective was to understand the perceptions of foreign tourists on the dual-pricing concept and its' application. The qualitative study adopted a template-based theme for identification and discussion on the derived themes, in contrast with the research issue and literature. The analysis comprises of a template analysis – in which the idea is discussed with a template, or an order, in which the opinions were categorized.

- | |
|--|
| <ol style="list-style-type: none"> 1. Agree to pay a high price 2. Transparency and visibility of the information 3. Extremely high prices should not be charged 4. The dual-pricing gap should be reasonable 5. The invested amount should go into sustainable initiatives |
|--|

Figure 2. Template for thematic analysis

Source: Authors' compilation

3.3.1 Agree to Pay a Higher Price

Upon analyzing foreign visitors' consent to pay a higher price than the locals to visit the Sri Lankan tourist sites, the majority of the respondents agreed with the idea to accept a differentiated higher price for entrance. It was observed that these tourists were quite understanding of this factor based on several avenues. Firstly, they have identified that the Sri Lankan economy is not as strong as economies of their own home countries. Therefore, charging a different (Higher) price from the tourists can be easily justified.

A few responses are, "I understand the concept of dual pricing benefits the locals. I feel that the locals shouldn't have to pay what tourists pay. However, in my home country, we do not get a discount when visiting national parks or monuments. However, I agree with the concept but to a certain extent at the price gap" (Respondent 127). "I believe that this is a good thing because generally, the rupee is a lot cheaper for foreigners than it is when locals earn, therefore this gets balanced out" (Respondent #98).

"I understand the need for dual pricing; it creates benefits and promotes local tourism as well as increasing revenue via tourism" (Respondent #03). "In my opinion, it is reasonable to accept dual-pricing in a country such as Sri Lanka to help tourism" (Respondent #93).

3.3.2 Transparency and Visibility of the Information

When it comes to dual-pricing – although the majority of tourists have identified the need for this pricing concept to be in operation, they tend to expect better information. Mainly, information about the differential pricing mechanism is expected to be shared with the tourists. This is a key area where the respondents could be convinced that they are not being exploited.

Some responses are, "Dual pricing is okay. But it's better to have more information lockets with all the information about prices. So then there will be no arguments and misunderstanding about prices". (Respondent #134)

"I think it would be helpful if there was more information at each major site, explaining the difference between fees and why. It took me several days to learn that Sri Lankans pay less, and because it isn't explained upfront, it can make tourists feel like maybe they are being tricked or cheated" (Respondent #64).

3.3.3 Extreme Prices Should not Be Charged (Negative Perception)

Although the popular statement of the respondents was that they were willing to pay a higher price for the visits – they all emphasized the fact that there should not be a massive gap between the prices they pay and what is charged from locals. This is mainly stemmed when it comes to the developed countries – there are no discounted prices for the visitors, be it foreigners or locals – but a single flat rate system is provided. Hence, with these levels of standards – even though the tourists are willing to pay a higher price they are not willing to pay an extremely high fee.

With much concern, they stated their opinion on this unpopular practice: "I understand there is a gap between local and tourist, but it shouldn't be too big. However, I do think that some locations like Sigiriya Lion rock are overpriced which makes it less available to the foreign tourists with lower salaries" (Respondent #116).

3.3.4 The Dual-Pricing Gap Should Be Reasonable (Positive Perception)

On the other hand, there were discussions where some of the tourists felt that there should be dual pricing with a reasonable gap. They have not developed a negative perception about the country, regarding the high level of the gap between the locals and the tourist's entrance fees for tourists' sites. They tend to see it in a much more favorable manner as an issue to be addressed in terms of the development of the industry.

A few responses are, "To me as a foreigner, it's acceptable to pay more than the locals, especially at religious and cultural sites, which are important for locals. Sri Lankan people should be able to experience and learn about their culture and religion of their country no matter what their income is. And as tourists, I am more than okay to help to ensure this by paying more" (Respondent #105).

"I am unsure if I will do it due to the high cost of this attraction. Dual-pricing can be beneficial for the host country as long as it doesn't discourage the tourists from visiting the attractions" (Respondent #102).

3.3.5 The Invested Amount Should Go into Sustainable Initiatives

This was one of the most crucial opinions expressed by tourists. Considering the demography of the travelers, it was established that they are 'informed travelers'. Hence, paying an extra amount of money, and adhering to the dual pricing policy – they expect it to be reflected through tangibles, i.e., the revenue generated to be put into maintenance and systematic development of the destinations with time.

Thus, considering different opinions expressed by the foreigners – it is evident that there is a need for tourists to see that their fees are being used for a sustainable venture, especially in terms of building the country. One of the most observable traits was that the respondents were not thinking about the individual comfort but fees they pay will have to be utilized in improving facilities of at the tourist's sites.

According to opinions raised by these respondents: “I don't mind paying a little extra, two points to consider, 1. Do not make it a huge difference. 2. Tell me where my dollars are going and how it's helping” (Respondent #29). “Toilets, security, roads, traffic. All those things must be improved; also understand that the money generated by tourism will help the growth/ development of the attractions/ country in the long run” (Respondent #34).

4. Discussion

In evaluating the findings of the quantitative statistical analysis in this study, the literature review emphasizes the different relationships observed about Income, Knowledge, Perceived price fairness, Visitor expectation when testing willingness-to-pay in different contexts. Further, the same concept had been tested with many other explanatory variables and different frameworks at various instances leading to different results that were in line with respective samples and settings.

According to Sharifi-Tehrani et al. (2013), Income was a key determinant of willingness to pay in a dual-pricing condition, where a strong positive relationship was witnessed in a sample of 573 respondents (foreign and local) in Iran. As stated by Cheung and Jim (2013), significant positive relationships were found with Knowledge, Income, and Visitor expectations when tested for WTP among 1500 nature and general tourists in Hong Kong. In a study carried out by Chung et al. (2011) to evaluate attitudes towards user fees among tourists in the United States of America, 1310 respondents were tested for perceived price fairness with WTP. These scholars concluded that PPF was positively related to WTP.

4.1 Income

This study concluded that income and willingness-to-pay in the setting of a dual-priced entry fee was a key predictor with a positive impact on the latter. It was observed that foreigners from high-income nations or developed countries were not hesitant to pay differentiated high prices for entrance at tourists' sites, yet tourists from countries/regions similar to Sri Lanka were only willing to tolerate a lower level of the dual-pricing gap. Literature compiled for the research had proved that the income level is one of the most widely used predictors of WTP, but mixed results have been obtained (Young et al., 2011).

4.2 Knowledge

Knowledge tested in this study context was deemed to be aligned with the findings of previous studies, where the IV showed a strong positive correlation with WTP. According to Crompton (1987) and Reiling et al. (1998), proving a potential consumer with accurate and adequate information about costs related to a particular activity makes them more likely to accept a given price. As a result of becoming more knowledgeable about what they are charged for, thus, increases their WTP. Although, when tested for the impact on WTP together with the other three IVs, i.e. Income, Perceived price fairness, and Visitor Expectations; Knowledge (IV-2) turned out to be insignificant in predicting WTP, thus, it was dominated by IV-1, IV-3, and IV-4. The reason for this can be a change in the study context.

4.3 Perceived Price Fairness

The result related to Perceived Price Fairness was consistent with the findings of previous works by scholars. As stated by Asadi et al. (2014), if the benefits offered by the tourism services are highly relative to the perceived sacrifice (i.e. the price to be paid), then tourists will be more likely to perceive that the price is reasonable. Thus, this increases their WTP. Similar findings were observed in this study where tourists with a higher level of agreement to perceived price fairness showed higher willingness-to-pay dual-priced entrance fees.

4.4 Visitor Expectations

Visitor Expectations of foreign tourists with regards to tourists' destinations were a significant determinant of willingness to pay dual-priced entrance fees, according to this study. A high correlation was observed between the predictor and WTP. The findings are in agreement with previous studies, though the contexts are remarkably distinct. Cheung and Jim, (2013) have found that expectations of tourists indicated a significant positive relationship with the willingness-to-pay for entrance fees. Thus, tourists with high expectations of the destination are more willing-to-pay a higher enhanced fee despite price differentiation. In turn, these tourists expected a high-quality experience that is worth their monetary sacrifice.

4.5 Perception of the Visitors

Based on the findings the thematic analysis in this study, the main concerns identified were that while many foreign tourists have understood the fact that they have to pay a higher fee to enter tourists' sites, but if they were to pay the premium prices – in return, they would demand better and quality infrastructure. To avoid any unfair judgment, the availability of information and transparency of pricing was a key determinant. However, large dual-pricing gaps were driving tourists away, as large gaps were considered discriminatory and unfair. Therefore, the major contribution of this learning is to potentially reduce the negative perceptions of foreign tourists while adopting a dual-pricing policy, by paying attention to their concerns as visitors. Moreover, to propose amendments to the existing differential-pricing system to cancel-out any unreasonable discrimination towards the non-residents, to allow them a more satisfying experience within Sri Lanka as a top-notch tourist destination.

5. Limitations, Future Research, and Conclusion

5.1 Limitations

Certain constraints were encountered in carrying out this study. The main limitation was the coverage error, i.e. the data collection sites were limited to only six destinations due to certain constraints. Moreover, purposive sampling instead of stratified sampling that best serves the research purpose, had to be adopted for data collection. This was due to the unanticipated Easter Sunday terror attack (2019) in Sri Lanka that took place during the period in which this study was conducted, which led to a drastic reduction of the tourist inflow to the country.

Since the target population was foreigners, conversing with tourists from different countries was another difficulty faced due to language differences. Lack of competency in English on the part of tourists made some potential respondents unable to fill out survey forms, while another group of travelers disliked sacrificing their leisure time on filling a questionnaire, which was some hardships faced.

The above-discussed factors could be considered as limitations on data collection and interpreting the outcomes of the study. Even though with the existence of such barriers, required data collection was achieved through an adequate sample efficiently through the semi-structured questionnaire, for the analysis.

5.2 Further Research

The researchers identified certain avenues for future research from the findings and limitations of this study. This study was conducted to determine foreign traveler's willingness to pay dual-priced entry fees for any tourist site in Sri Lanka. The scope of a future study could be narrowed to a specific tourist attraction where a significant price-duality could be recognized. The results of such a study could find the best price that should be set as the entry fee at a particular site, which benefits both the travelers and relevant authorities. Moreover, there exists a vast range of determinants that predict the tested DV, apart from the ones used in this study, hence a different set of variables could be adopted for future research.

5.3 Conclusion

The primary focus of this paper is on the foreign tourist's willingness-to-pay (WTP) entrance fees at tourist destinations in Sri Lanka under the dual-pricing policy and to gain an understanding of tourist perception of adopting such a pricing mechanism in Sri Lanka. Hence the following objectives were identified and achieved through the research.

1. Determining the factors that affect foreign traveler's willingness-to-pay entrance fees at tourist attractions.
2. Identifying the relationship between each variable with willingness-to-pay.
3. Evaluating the impact of the identified variables on willingness-to-pay of foreign travelers.
4. Understanding the perception of foreign tourists on the dual-pricing concept and its application.

The four factors, Income, Perceived Price Fairness, Knowledge, and Visitor Expectations were identified and these four factors were significantly and positively co-related to WTP further, except Knowledge's other three factors had a significant impact on their WTP. The Visitor Expectation had the highest impact over willingness-to-pay in this context.

The price elasticity was different among visitors. Therefore, a combination of pricing and non-pricing strategies that accomplish expectations of foreign visitors at tourist sites will be favorably accepted by foreign travelers which ultimately creates a positive image about the country as a tourist destination around the world.

The act of price differentiation for local and foreign tourists requires attention from the authorities and various

business sectors related to the tourism industry of Sri Lanka. Negligence on this would create a negative ideology on foreign travelers that this practice is unethical and may ultimately affect a tourist's decision (adversely) to choose Sri Lanka as a travel destination. Successful strategy implementations that enhance the productivity of both the visitors and governing authorities will bring out the solutions for this existing issue. Outcomes of this study will be of value to implement policy decisions and propose amendments to existing policies for more sustainable tourism especially with the outbreak of COVID 19 epidemic and post COVID effect for countries like Sri Lanka which have a substantial contribution to their economies from the tourist industry. The tourism industry is the third-largest contributor to Sri Lanka's GDP, and the tourists' arrivals to the country have been increasing at an annual rate of 22% during the past five years. The area of focus in this study is expected to provide valuable insights into the many stakeholders of the said industry. The case of dual-pricing or discriminatory pricing for entrance tickets at tourists' sites is a topic discussed at the global level which has been criticized in public platforms by a majority of global travelers. Hence, the findings of this study would be useful for the relevant authorities and beneficiaries of the tourism sector, in dealing with any negative image/perception that may arise in the country due to this DP policy and therefore, to adopt a more sustainable pricing mechanism that tourists would prefer.

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Social Responsibility Activity Disclosure: The Case of Jordanian Banks

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Abstract

The current study aims to evaluate the level of social responsibility practices of Jordanian banks, and to trace certain bank characteristics that affect the level of social responsibility disclosure. A disclosure index with 32 items was used to test the annual reports of 13 Jordanian banks. Data analysis has revealed that the banks disclosed nearly 69% of the index's items, and six banks disclosed more than 80% of the items. The results have proved that there was an acceptable level of disclosure of Jordanian banks listed on the ASE. The results of the regression analysis have confirmed that size, earnings, age and number of branches were significantly and positively affected the level of social responsibility information disclosure.

Keywords: disclosure index, disclosure practices, Jordanian banks, social responsibility

1. Introduction

As a social structure, commercial banks are encountering many challenges nowadays, as they work in a complex environment that is rapidly changing economically, environmentally, politically, socially, and technically. With the abnormal earnings of returns on investments by the commercial banking sector being highly and evidently noticed by the social community, who is now being consider as aware of this dilemma, there is a belief that through social responsible activities, commercial banks should be returning back part of those abnormal earnings to the citizens (Akinpelu et al., 2013; Dai et al., 2018). Hence, a bank focusing on its economic goals only without giving the social goals an attention has become unacceptable. However, cooperate social responsibility (Henceforth, CSR) is denoted by Ruggie (2002) as a way to demonstrate the social authenticity and social commitment of the banking sector toward the society going beyond and afar from the financial and economical role of these banks.

In line with the legitimacy theory, which assumes that the bank as a firm has a contract with the whole society (cf. Dowling et al., 1975), there is a practical responsibility, or legitimacy, on the firms to reach the designated expectations drawn by the society (Ahmad & Sulaiman, 2004). Thus, if the firm reaches the expected legitimacy drawn by the society, then it is considered as legitimate, otherwise; and if the expected legitimacy is not reached, then the firm is risking its legitimacy (Deean and Jeffry, 2006). Therefore, it is crucial for banks to perform a social role and hold a major responsibility in achieving social development, taking into account their responsibilities towards many parties, such as shareholders, customers, workers, and the society as a whole, which in turn, support their growth, continuity and sustainability (Seibert et al., 2019).

In the developed countries, there has been an increased attention on the theoretical and empirical investigations regarding the social accounting. The purpose of the study is to observe the social disclosure practices as performed by Jordanian banks listed on the Jordan Stock Exchange (JSE) by analyzing their annual reports in an attempt to understand the effects of certain bank characteristics on the social disclosure practices. To the researcher's best knowledge, no single study has inspected the level of the determinants of social responsibility disclosure (SRD) in Jordanian banks from the context of a developing nation. The findings of this study might aid the government in putting suitable legislations for the banking sector to force it to make sufficient disclosure levels for its activity towards the designated society. These findings might also help the banks in developing areas like employment opportunities, environmental control and energy conservation with regards to the social and accounting reporting techniques (Akinpelu et al., 2013). All in all, tracing the disclosure levels of banks with regards to social responsibility activities provides enhances the means of social accounting quantification to the

researchers. The study sought to answer two related questions: 1-What are the nature and the extent of social responsibility disclosure in Jordanian banks? 2-What are the factors of social responsibility disclosure in Jordanian banks? The study is structured as follows: the second section discusses the concept of social responsibility accounting and disclosure levels, the third section analyzes the related literature and presents the research hypotheses, the fourth section presents the data collection methods and model development, the fifth section discusses the major findings, and finally, the concluding notions are mentioned in the conclusion section.

1.1 The Concept of Social Responsibility Accounting and Social Responsibility Disclosure (SRD).

The terminology of social responsibility disclosure (SRD) was defined by Gray et al (1996, P.3) as "the process of communicating the social and environmental effects of organizational economic actions to particular groups of interest within the society and to society at a larger concept of social responsibility". Whereas, CSR has been defined by (Chen, 2011, p.8) as "a process with the aim to embrace responsibility for the company's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered stakeholders".

Additionally, CSR has been viewed as a philosophy that designates the relationship between the company and the stakeholders (Maqbool et al., 2018). Holmes et al. (2002) have defined CSR as the on-going commitment that businesses act towards, in an ethical manner, in an attempt to contribute the economical development. This occurs in coordination with the increase of life quality of the business's workers and their families containing the local community and society. The World Bank (2005) has mentioned that CSR is an ethical commitment of business that contributes to the economical development that directly affects the life quality, both in business and development wise. CSR has a direct impact on the employees, their families, the local community and the whole society. Furthermore, CSR consists of four-dimensions: economic, legal, ethical and discretionary (cf. Carroll, 1979; Margolis et al., 2009). Through the CSR disclosure, the implementations of the company are reported and then by the annual reports or by a separate social report in the form of sustainability report, the CSR gets published (Dewi et al., 2017).

In Jordanian companies, and the banks as part of them, the reporting of social responsibility practices are more likely to be reflecting the company's own voluntary responses for a number of reasons. First, the enactment of the (1995) Environment Protection Law, the issuance of the (1998) Instructions of Disclosure, and publishing the Auditing Standards No. 1 display the highly aware public with regards to CSR in the country. Second, the majority of the related literature and previous studies on social responsibility discloser have been applied to the context of corporate annual reports of developed countries, whereas Jordan is a developing country. Third, and as an unregulated market, the ASE doesn't impose the listed companies to any disclosure requirements (Suwaidan, et al., 2004).

2. Literature Review

A good deal of literature has discussed social responsibility accounting, mainly, the direct association between the disclosure of social responsibility in commercial banks annual reports and their main characteristics.

Suwaidan et al. (2004) focused on Jordanian industrial companies in an attempt to assess the practices found in the annual reports relating to the social responsibility disclosure. They have also aimed at determining the effects of certain company characteristics that might have interfered in the illumination of the deviation in CSR information attested in the target companies' reports. A 37 item-disclosure index has been used on the annual reports for a total of 65 industrial companies. Results have indicated that companies have disclosed approximately 13% of the total items included in the index. Size, profitability and risk have been identified by the results of the regression analysis to be drastically and certainly related to the disclosure level of social responsibility information.

Ratanajongkol et al. (2006) have shed their attention to the largest forty Thai companies. Using the annual reports of these companies, the extent and nature of the CSR practices, in accordance to the number of words disclosed, have been examined and measured. According to five key themes, nature of the evidence, and the type of news disclosed, CSR disclosure was classified. The results, among Thai companies, have showed a tendency of rising levels of corporate social disclosure, and this discloser was found to be focusing on the theme of human resources, providing a "declarative" positive disclosure. In an attempt to present explanations for the attested trends, legitimacy theory, political economy theory and economic conditions were used.

Al-Shammari (2008) has traced down the voluntary disclosure level in relationship with the firm structures for a total of 82 non-financial firms registered in the Kuwaiti Stock Exchange. The relationship between the social responsibility disclosure and the firm's size has been denoted as positive. The study has concluded that the there is

a tendency for Kuwaiti firms to disclose the environment and social responsibility dimension than the financial one.

Wise et al. (2008) have investigated the reporting the social responsibility practices in Bangladesh's banking sector, in an attempt to determine the extent and nature of these cooperate responsibility practices. They have also evaluated the necessity to elevate the corporate social responsibility by such firms. In their analysis, an association between corporate social responsibility and corporate governance and ethical business procedure has been triggered. A total of three case studies belonging to the Bangladesh banking industry have been analyzed. The recruited results prove that there has been an emphasis on corporate social responsibility disclosures within enterprises that support the sectors of agriculture and SME, which are considered to be crucial for Bangladesh's economy.

Menassa (2010) has attempted to address the Lebanese commercial banks in terms of the type and quality of the disclosed social information. The study has also attempted to report on the extent of these disclosures and their relationship with size, financial performance, and other variables. To test a total of six hypotheses related to the nature of social discloser, the content of annual reports of 24 Lebanese commercial banks have been analyzed and these reports have been associated with selected variables. The findings have provided an evidence of the extensive use of CSR by such banks to communicate with the stakeholders. Moreover, results have shown that these banks give more attention to disclosing more information on the human resources and product and customer themes, whereas the theme of environmental discloser has been slightly neglected. Finally, a strong relationship between the disclosure themes and the size and the variables of financial performance has been found, but, the association between the bank age and the disclosure activity is rather weak.

Al-Farah et al. (2011) have collected data from a sample comprised of 72 Jordanian companies in the industrial sector that are listed in the ASE for the years of 2007 and 2008. The extent of disclosure of CSR elements has been examined as they were aiming at determining the impact of both asset size and sales volume on the degree of CSR disclosure. The results exposed that although there is a level of discloser of CSR among companies, the level is considered to be below the required norms by not exceeding (43%). The most disclosed dimension of CSR has been reported to be the protection of the environment that has reached a (73.6%) and a (69.4%) for the years of 2007 and 2008. Moreover, it has been found that the assets size and sales volume are not significant in correlation with the level of CSR disclosure.

Masud et al. (2012) has selected banks to check their CSR reporting practices while putting into consideration the finance acts of 2010 and 2011. The study's results have revealed that all banks have reported their CSR activities. Nevertheless, with a concerning rate, less than 60% of banks have disclosed their social responsibility practices in areas related to the act of finance.

Akinpelu et al. (2013) have traced the discloser activity by Nigerian commercial banks by highlighting the performed types of social responsibility activities and the aspects that determined the extent of discloser in their annual accounts and reports. The results have indicated that Nigerian commercial banks had a tendency to disclose practices relating to human resources and community involvement more than practices related to environmental and product quality and consumer relation information. The analysis's outcomes suggest that the total asset values and the level of corporate social responsibility activity discloser have a positive relationship and are statistically significant. Additionally, it has been asserted that there is a positive relationship between the gross earnings and the number of branches with the (CSR) level.

Sharma et al. (2013) have shed the light on Indian commercial banks highlighting their cooperate social responsibility activities. Recruited data has been based on the annual reports of these banks from year 2009 to 2012. Multiple variables have been taken into consideration including: community welfare, financial literacy, environment protection, rural branch expansion, women welfare, priority sector lending, new initiative related to CSR, education, and farmers' welfare. Results have proven that although the Indian bank's efforts in the field of CSR can be detected, it seemed that these efforts are not enough and need to become more expanded and emphasized. Results have also highlighted that private and foreign banks sector are not as active as the public bank sector with regards to the CSR activity reporting.

Sharif et al. (2014) have explored the CSR reporting information of Pakistani banks in the commercial sector. The probable effects of different corporate governance (CG) elements on CSR disclosures have also been explored. The bank's CSR practices have been analyzed by tracing the annual reports of the years 2005-2010. To determine the influence of CG elements on the banks' CSR reporting enterprises, elements of CG including non-executive and foreign directors have been considered, in addition to using various regression analyses. Results have revealed that regardless of having a voluntary CSR reporting option in Pakistan, it is found that

high numbers of Pakistani commercial banks are reporting their CSR activities.

Cornett et al. (2016) examined the recent era of financial crises highlighting the probable association between the banks' CSR and financial performance. Their results have approved that the financial performance is directly related to the CSR scores of the attested banks, in addition to denoting that banks are rewarded for being socially responsible.

Kiliç (2016) has examined the online reporting of CSR communications of the Turkish banking industry. The analysis has focused on four sub-dimensions: human resources, community involvement, environment and energy, and products and customers. A total of twenty-five banks have been divided into groups following standards: size, ownership structure, multiple exchange listing, and internationality. The study's results have demonstrated that the dimension of products and customers has been the most disclosed, and items of the environment and energy dimension have been the least disclosed. The findings of the study have revealed that in explaining the CSR disclosure level, size, ownership structure, and multiple exchange listing have been denoted as significant.

Chakroun et al. (2017) have investigated the voluntary corporate social responsibility disclosure's extents and trends. The study has analyzed annual reports and the information of determinates of 11 Tunisian listed banks from the period of 2007 to 2012. The results have proven that Tunisian banks resort to the narrative form to disclose their CSR information. With regards to the annual reports, the human resources have been the main focus, but with regards to the websites, the community involvement information has been the most widespread. In discussing determinants, it appeared that bank age, financial performance and state shareholding had the highest impact on the annual reports of Tunisian banks' CSR disclosure practices.

Maqbool et al. (2018) attempted to examine the probable association between CSR and the financial performance in the Indian banking sector. A total of twenty-eight commercial Indian banks listed in Bombay Stock Exchange from 2007 to 2017 have been analyzed. The results show that there is a positive implication of CSR on the overall financial performance. The finding of this study provides the management sector with information on combining their CSR practices with the strategic intentions of the business, in an attempt to alter the business's philosophy from being traditionally profit-oriented to socially responsible approach.

Orazalin (2019) has traced the level of CSR disclosure reporting practices in the banking sector of Kazakhstan. Data has been manually recruited from the commercial banks' annual reports that were listed in the Kazakhstan Stock Exchange (KASE) from 2010-2016. The audit financial statements located on the banks' websites were used to collect the target financial data. Empirical results have proven that there is a strong association between the gender diversity and the CSR reporting. Nevertheless, results have revealed that there is no impact of board size and board independence on the CSR disclosure levels. Furthermore, bank size and bank age have been proven to be significant factor affecting the CSR disclosures.

3. Methodology

3.1 Sample Size and Data Collection

The recruited data has been collected from a sample consisting of (13) banks licensed to work in Jordan by the Central Banks of Jordan. All of the banks are mentioned on the Amman Stock Exchange (ASE) by the end of 2018. In line with the prior studies, the annual reports and other forms of SRD media, like websites and stand-alone social responsibility report of Jordanian commercial banks for the year of 2018, have been the main sources of data collection.

3.2 Study Methodology

A content-based analysis was conducted on the annual reports, websites, and stand-alone social responsibility reports of the year 2018 to measure the social disclosure level. Also, the study was seeking to evaluate whether or not CSR information disclosed in the annual reports of Jordanian banks meet the target requirements of social responsibility practices. The analysis also aimed at presenting the determinates as indications on the level of social responsibility disclosure in Jordan. It is a common majority for studies in the field of accounting to resort to content analysis when dealing with the levels of social responsibility (cf. Gurthrie et al., 1990; Ratanajongkol et al., 2006; Ismail & Ibrahim, 2009). To collect details on the main four subjects of CSR, namely, environment, human resources, products, customers and community, the annual reports and other means of determiners of the target banks were surveyed. To determine the level of social disclosure in Jordanian banks listed on ASE, a disclosure index was used. A pilot study was applied, by the researcher, on the disclosure index containing a few of the firms' annual reports (Al-Ajmi et al., 2015).

3.3 Measuring Social Responsibility Disclosure

In line with previous studies like (kinpelu, 2013; Suwaidan, 2004; Branco & Rodrigues, 2008), an index is used in the current study to measure, evaluate, and assess the social responsibility disclosure activities in the annual reports of Jordanian commercial banks. After the collection of the probable items of CSR information which are anticipated to be present in the bank's disclosure information, the index can be used on the reports. To produce a list of items containing most of the aspect of social responsibility disclosure, as performed by the banks, an extended search within the literature and an examination of the Jordanian banks annual reports have been conducted. The index has been classified into four major themes including environment, human resources, community involvement and product/services to customers with a total of 32 items included in the index regarding the (SRD). Table (1) presents the main themes of the social responsibility disclosure activity and their corresponding indexes. After recognizing the list of items, the bank's annual reports have been examined in an attempt to figure out which items have been disclosed and which items have not. A point would be given to the bank if it disclosed an item, and zero points would be given if the bank did not disclose the item. The total points of the disclosed items are added and then divided by the total number of items in the designated index. Thus, the disclosure extent is measured by the disclosure score that each annual report has achieved as a percentage, ranging from 0% to 100%, with the former indicating zero disclosed items and with the latter indicating that all items have been disclosed. Appendix (A) shows the items included in the index that designate the aforementioned themes.

Table 1. Main categories and indexes

Category/ themes	Indexes
Environmental	7
Human resources	12
Product quality and consumer relation	5
Community involvement	8
Total	32

3.4 The Regression Model

The next regression model was developed to analyze the data and to test the study's hypotheses:

$$SRDI = \beta_0 + \beta_1 \text{ Size} + \beta_2 \text{ Earnings} + \beta_3 \text{ Age} + \beta_4 \text{ Branches} + E \quad (1)$$

Where

SRDI: social responsibility disclosure index

β_i : the regression coefficients, $i = 0, 1, \dots, 4$

Size: measured by the logarithm total sales of the bank at the end of the year 2018

Age: Number of years of the bank being working

Earnings: measured by Logarithm of total gross earnings during the year 2018

Branches: number of bank branches at the end of the year 2018

E: Standard Error

3.5 Hypotheses of the Study

The current section provides the null and alternative hypotheses of the study:

Hypothesis 1 (H1)

There is a positive and a significant association between the CSR information disclosure levels of Jordanian banks and their sizes.

Hypothesis 2 (H2)

There is a positive and a significant association between the CSR information disclosure levels of Jordanian banks and their gross earnings.

Hypothesis 3 (H3)

There is a positive and a significant association between the CSR information disclosure levels of Jordanian banks and the number of branches.

Hypothesis 4 (H4)

There is a positive and a significant association between the CSR information disclosure levels of Jordanian banks and their age.

4. Results

4.1 Evaluating the Disclosure Practices

Using a discloser index including 32 items of CSR information, the annual reports of 13 banks in Jordan have been evaluated and the level of CSR discloser for has been reported for each bank. Table 2 displays a summary of the bank's discloser scores including the mean, SD, median, minimum, and maximum scores. Table 3 presents the disclosure score frequencies of the attested banks. The tables show that the minimum discloser score is 0%, the maximum discloser score is 92%, and the mean number of items of social responsibility disclosed by banks is 68.75%. Further, it has been noticed that only five out of the 13 banks achieved disclosure scores of 80% or more in addition to the notion that no bank disclosed less than 40% of the target items of social responsibility activity. These results show that the CSR disclosure level in Jordanian banks is perceived as acceptable and high.

Table 2. The banks' disclosure scores

Mean (%)	SD (%)	Median (%)	Minimum (%)	Maximum (%)
68.75	21.92	76.92	0.0	92.00

Table 3. Frequency distribution of disclosure scores between banks

Disclosure scores (%)	No. of banks	%
Greater than 80	5	.38
60- 80	2	.15
40- 60	6	.46
Less than 40	0	0
Total	13	100

4.1.1 Disaggregated Level

In the aforementioned section, a proposition has been made clear that the social responsibility index contained a total of 32 items divided into four major themes, namely, environment, human resources, community involvement, and product/service to customers. In this section, a further investigation is carried out to assess the level of discloser according to the CSR information themes. Thus, the total score of disclosed items for each bank have been calculated to include the CSR information themes followed by calculating the ratio of the number of disclosed items to the total number of items included in the CSR information themes. Table 4 summarizes the banks' disclosure scores for the CSR information themes. Additional data have been recorded regarding the number of items disclosed according to the major themes.

n

$$\text{The actual disclosure of each item (\%)} = \left(\sum_{i=1}^n d_i/n \right) * 100\% \quad (2)$$

i=1

$d_i = 1$ if the item d_i is disclosed in the annual bank report, or 0 otherwise

n= 13 (total number of the banks' annual reports in the sample).

Table 4. CSR information types and their bank's discloser scores

Type of information	Mean (%)	SD (%)	Minimum (%)	Maximum (%)
Environmental	.64	4.06	.46	.69
Human resources	.70	4.48	.31	.77
Product/service to customers	.66	5.28	0	.85
Community involvement	.73	5.45	0	.92

Environmental information

The current theme of CSR disclosure information has a total of 7 items. The previous table demonstrates that the highest disclosure score is 69% and the lowest is 46 %, with a range of 23%. Thus, a bank disclosed 64% of the index's seven items. Finally, five items on this type were reported by nine banks (For the highest and lowest disclosure scores, (see Appendix A).

Human resources information

The current theme of CSR disclosure information has twelve items. As Table 4 demonstrates, the lowest disclosure score is 31% and the highest is 77%. On average, a bank disclosed 70% of the 12 items within this theme. A total of nine items were disclosed with scores of higher than 70% by ten banks, while two items were disclosed by more than 50% of the sample banks, and one item has been disclosed by 31% (see Appendix A).

Product/service to customers

The current CSR information has a total of five items. As Table 4 shows, the lowest disclosure is 0.0% and the highest is 85%, with a range of 85%. Standardly, a bank disclosed about 66% of the total items of this theme. Alternatively, four items had disclosure scores of more than 70% where three items were disclosed by more than ten banks. One item has not been disclosed by any bank (see Appendix A).

Community involvement information

The community involvement information has six items. Table 4 demonstrates that the lowest disclosure scores is 0.0% and the highest is 92%. The banks, on an average, have disclosed 73% of the eight index's items. Four items of this theme had disclosure scores of higher than 80%, while three items were disclosed by less than 80% of the target companies. One item has not been disclosed by any bank (see Appendix A).

The main drawn conclusion is that the level of disclosure is acceptable. Nevertheless, the disclosure levels of human resources, community involvement, and product quality and customer relations are noticed to be slightly higher than the results of environmental one. This is due to noting that banks are more considerate about their employers, product qualities, and customers when compared to the environmental items due banks not having a direct influence on the environment. In short, the results indicate that Jordanian banks are using the CSR annual reports to demonstrate their involvement within the community.

4.2 Testing Research Hypotheses

To test the research hypotheses, a multiple regression analysis has been used in this section which will conducted in two major levels, aggregated and disaggregated. In the aggregated level, the influence of the independent variables on the banks' variations in their overall CSR discloser will be examined. In the disaggregated level, the same examination is applied to the types of CSR information in an attempt to reveal whether or not the variables, that have an impact on the variations between banks at the aggregated level, will also have an impact on the types of CSR activities at the disaggregated level. The following table, Table 5, presents the values of the calculated statistics of the analysis's variables.

Table 5. Descriptive statistics

	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Standard deviation</i>
SRDI	13	0.00	.92	0.67	21.92
ASSETS	13	272,144,519	24,361,573,000	4,181,338,144	6,145,287,360
EARNINGS	13	37,369,398	976,231,000	181,295,271	244,677,892
AGE	13	10	88	42	20.76
BRANCHES	13	12	125	51.5	31.88

Before the analysis has been done, the presence of any multicollinearity problem in the independent variables has been checked in the regression model. All attested variables have not reached a correlation critical value of .80 demonstrating that the multicollinearity is not a serious issue as Naser et al. (2013) suggest. A correlation matrix with the attested variables was run to check the extent of the multicollinearity with regards to the given regression model (see Table 6). The created correlation matrix's result, as depicted in Table (6), prove the non-significant correlation coefficient rate of the independent variables, thus, multicollinearity has no effect on the results of the regression model. A variance inflation factor (VIF) for every variable has been conducted in an attempt to measure the level the multicollinearity variables.

Table 6. Correlation Analysis

<i>Variables</i>	SRDI	ASSETS	EARNINGS	AGE	Branches
SRDI	1.000				
ASSETS	.551*	1.000			
EARNINGS	.626	0.155	1.000		
Age	.672	.0257*	0.125	1.000	
Branches	.421	0.266*	0.162*	0.236	1.00

*Significant at the 0.05 level (2-tailed).

4.3 Regression Results

4.3.1 Aggregated Level

The attested results of the regression model for social responsibility disclosure index, as Table 7 shows, prove that the regression model is higher than the alpha significance level ($F=23.624$, $p=0.000$) with an adjusted R^2 of 0.625. Consequently, it can be stated that the four main independent variables can be depicted as justifications for, approximately, 63% of the variation in the CSR disclosure scores. All independent variables have been found to be statistically significant at the 5% significance level. As hypothesized, and since the variables' coefficient are positive, a positive correlation between the variables and the CSR disclosure activity levels in the banks' annual reports is found. As the statistical significance results show, all the attested (t-values) are lower than the alpha significance level, which means that the research hypotheses were supported. It should be noted that the size variable has been depicted as the most significant determinants of the CSR level by Jordanian banks.

The aforementioned notion is explained by denoting that larger firms have the tendency to be more visible to the public when compared to the smaller (Branco & Rodrigue, 2008). Also, it has been denoted that more scrutinized efforts are made towards the larger firms, by both the public and the interest groups (cf. Ayadi, 2004). The current study's results, regarding the size of the bank, are consistent with Menassa's (2010) study focusing on Lebanese banks, Kiliç's (2016) study addressing the Turkish banking sector, the study of Akinpelu et al. (2013) that shed lights on the Nigerian banks, Al-Basteki's (1997) study regarding the Bahraini banks, and the study of Al-Shammari (2008) that the Kuwaiti banking sector.

Nevertheless, such results are inconsistent with the results of Al-Farah's (2011) study regarding Jordanian banks who concluded the non-significance between the firm's size and CSR disclosure level. With regards to the results of the relationship between the earnings and the discloser of social responsibility level of Jordanian banks, the study's results are regarded as consistent with the results of Maqbool (2018), Saaydah (2005), and Hossain et al. (2006). These studies suggest high-earning firms are characterized by high CSR disclosure levels when compared to firms with low earnings. However, the study's results are inconsistent with the results of Galani et al. (2011) who concluded that there was no significant impact of the earnings on the CSR disclosure level in Greek banks. Additionally, the results of the age variable representing the corporation matures are consistent with the study of Akinpelu et al. (2013) shedding light on the Nigerian banks. Finally, the study's results of the number of branches variable are inconsistent with the results of Goodman's (2006) study.

Table 7. Regression model's results for social responsibility disclosure index

<i>$\beta 1$ Log size</i>	<i>$\beta 2$ Log earnings</i>	<i>$\beta 3$ age</i>	<i>$\beta 4$ branches</i>	<i>F-value</i>	<i>Adj. R2</i>
5.431*	3.752*	4.612*	3.023*	23.624*	0.626
(5.762)	(3.265)	(3.812)	(2.457)		

*Significant at 5%. T-values are in parentheses.

4.3.2 Disaggregated Level

The results of the regression of the independent variables of the CSR information themes are presented in Table 8. It can be seen that the four regression models representing the four main themes of social responsibility information including environmental information, human resources information, community involvement information, and goods/services to customer information are significant at the alpha significance level, $=.05$, with an explanatory power ranging from 33% for the environmental disclosure index, to 56% for goods/service to customers information disclosure index. As for the independent variables including size, earnings, age and number of branches, all variables have been found to be significant at the significance level with positive

coefficients in all the regression models between banks' disclosure level.

Table 8. Summary results of the regression models for each type of social responsibility information

	β_1 <i>Log assets</i>	β_2 <i>Log earnings</i>	β_3 <i>age</i>	β_4 <i>branches</i>	<i>F-value</i>	<i>Adj. R2</i>
environmental information	0.085* (4.334)	0.0621* (3.529)	0.158* (2.433)	0.0012 (1.421)	8.844*	0.330
Human resources information	0.145* (4.358)	0.152* (2.315)	0.212* (2.204)	0.0021* (1.652)	12.523*	0.542
Community involvement information	0.136* (5.145)	0.0106 (0.249)	0.0549* (0.521)	0.0016* (1.266)	13.254*	0.502
goods/service to customers information	0.0548* (3.256)	0.0972* (2.102)	0.002	0.0009 (0.957)	15.238*	0.568

*Significant at 5%. (*t*-values) are in parentheses.

5. Conclusion

The current study has aimed at tracing the CSR disclosure's extent and level in Jordanian banks annual reports. The study has set multiple objective to be met, and they are: to evaluate the CSR disclosure practices in the annual reports of Jordanian commercial banks, and find the significance of certain bank characteristics on the explanation of the possible variation in the CSR disclosed information found in the annual reports, namely, age, size, number of branches, and earnings. A discloser index with 32 items has been used on the annual reports of 13 Jordanian banks in an attempt to accomplish the aforementioned objectives. Analyzing the recruited data suggested that, on average; the attested Jordanian banks had a CSR disclosure rate of 67% of the index's items. Only three companies have achieved CSR disclosure scores higher than 30%. Such results show that there is an acceptable disclosure level in the annual reports of Jordanian banks. Moreover, a further analysis highlighting the degree to which different types of disclosed CSR information in the banks' annual reports, namely, environmental information, human resources information, community involvement information, and goods/services to customer information, was conducted. Using a multiple regression analysis, the study's hypotheses were tested, and it is identified that the independent variables, size, earnings, and age branches are statistically significant and they have a positive association with the CSR disclosure level. Furthermore, and based on the regression results of the social responsibility information types, the variation in the extent of CSR disclosure information between the CSR themes is dominated by the bank's size variable.

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Appendix

Appendix (1). Corporate Social Responsibility Disclosure items and Index

Item information	INDEXES	No. of companies disclosing the item	Extent of disclosure
(a) Environmental	1. Environmental policies of the bank	7	0.538
	2. Environmental management, system and audit	9	0.692
	3. Environmental awards	9	0.692
	4. Lending and investment policies	6	0.462
	5. Conservation of natural resources and recycling Activities	9	0.692
	6. Disclosure concerning energy efficiency	9	0.692
	7. Sustainability	10	0.769
(b) Human Resources	8. Employee numbers	10	0.769
	9. Employee remuneration	10	0.769
	10. Employee share ownership	7	0.538
	11. Employee consultation	10	0.769
	12. Employee training and education	10	0.769
	13. Employee of disable and special requirements	10	0.769
	14. Trade union activity information	10	0.769
	15. Employee health and safety	10	0.308
	16. Employee assistance benefit	4	0.769
	17. Employee recreational programmers outside working hours	10	0.769
(c) Product Quality and Consumer Relations	18. Employee insurance and pension	10	0.769
	19. Employee transportation	8	0.615
	20. Third party attestation	0	0.000
	21. Customer satisfaction of the quality of the bank product	11	0.846
	22. Customer feedback on product and service channels	10	0.769
	23. Customer complaint and suggestions channels	11	0.846
	24. goods and services in response to customers' needs	11	0.846
(d) Community Involvement	25. Charitable activities and donations	9	0.692
	26. Support for education	11	0.846
	27. Support for art and culture	12	0.923
	28. Support for public health	10	0.769
	29. Support for sporting or recreation project	10	0.769
	30. support program for reduce poverty, unemployment and illiteracy	12	0.923
	31. help in training university and college students	12	0.923
	32. carry out projects in poorer areas	0	0.000

Source: Adapted from Branco and Rodrigues (2006)

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Entrepreneurial Orientation and Firm Performance: Evidence from Argentina

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Abstract

This document aims to study the role played by the five dimensions of entrepreneurial orientation on corporate performance. To test our hypotheses, we used a sample of companies headquartered in Argentina. To collect the data, we used a questionnaire that was sent by e-mail to the owner and/or manager of the companies. At the end of the survey, 214 Argentine companies (21.4% of the sample) completed the questionnaire. The sampling was carried out with a stratified random approach to improve the efficiency of the estimates and ensure the representativeness of the extracted sample. To assess the reliability of the results, quantitative statistical tools were used. The analysis results show that not all variables have a significant influence on performance. In particular, three dimensions of the EO (innovation, proactivity, and risk) have a significant and positive influence on the performance of companies. Conversely, competitive aggressiveness and autonomy do not have a significant impact on performance or they are not relevant.

Keywords: entrepreneurial orientation, performance, strategy, innovation, Argentina

1. Introduction

Starting from the seminal paper of Miller (1983), subsequently developed and expanded by Covin and Slevin (1989) and Lumpkin and Dess (1996), the concept of entrepreneurial orientation (EO) has been much debated by literature (Covin et al., 2006; Rauch et al., 2009; Wales et al., 2011; Cavusgil and Knight, 2015; Gupta and Dutta, 2018; Ferreira et al., 2019). In this study, we use the concept of multidimensional entrepreneurial orientation based on its five elements: risk-taking, proactivity, innovation, competitive aggressiveness, and autonomy.

Although this approach to the study of entrepreneurial orientation has already been developed from the literature, the results are often conflicting (Stetz et al., 2000; Kreiser et al., 2002; Wiklund and Shepherd, 2005; Lechner and Gudmundsson, 2014; Engelen et al., 2015). Furthermore, as demonstrated by some scholars, different cultural contexts can produce different results (Lee and Peterson, 2000; Kreiser et al., 2010). Therefore, this paper aims to expand the literature on the subject, studying the effect of entrepreneurial orientation on company performance in Argentina, a context not yet explored by literature (Shirokova et al., 2016; Ferreira et al., 2019). In this perspective, the specific cultural and social environment of a country can influence the different dimensions of the EO, making some aspects prevail over others. (Lumpkin and Dess, 1996). Therefore, the national context can moderate the effect of entrepreneurial orientation on company performance, acting as a moderator.

Following an approach suggested by the literature (Covin et al., 2006; Lumpkin and Dess, 1996), this study uses a multidimensional construct of the EO, where the influence of each dimension is connected to the performance of the company and can have a different impact on the latter. To this aim, we assume that there is a positive relationship between each dimension of the EO and business performance.

To test our hypotheses, we used a sample of companies headquartered in Argentina. In line with other empirical research (Kreiser et al., 2002; Rigtering et al., 2017), a questionnaire that was sent by e-mail to the owner and/or manager of the companies was used to collect data. Initially, 287 companies agreed to participate in the research (28.7% of the sample). At the end of the survey, 214 Argentine companies (21.4% of the sample) completed the questionnaire.

The sampling was carried out on the whole reference population, following a stratified random approach. This

setting made it possible to improve the efficiency of the estimates and to guarantee the representativeness of the extracted sample, also reducing the variability of the estimates with respect to the use of a random sample. Considering the high territorial extension of Argentina, we used a geographical and economic criterion to guarantee the representativeness of the sample. To evaluate the reliability of the results, quantitative statistical tools were used. In particular, we used generalized regression analysis as it provides more reliable estimates.

The results of the analysis show that not all variables have a significant influence on performance. In particular, three dimensions of the EO (innovation, proactivity, and risk) have a significant and positive influence on the performance companies. Conversely, competitive aggressiveness and autonomy do not have an impact on performance or they are not relevant.

The paper is organized as follows. Section 2 analyzes the literature on the topic and develops the research hypotheses. The research design and the methods of sample formation are highlighted in section 3. Section 4 shows the results of the research and the last section reports the concluding remarks.

2. Literature Review and Research Hypotheses

The concept of EO, initially introduced by Mintzberg (1973), was subsequently better specified by Miller (1983), who stressed that the entrepreneurial approach aims to innovate and aggressively enter new markets, accepting the risks associated with the search for new opportunities. Miller's seminal approach (1983) was later taken up and developed by Covin and Slevin (1989) who introduced a 9-item measuring scale, that was widely used by the literature (Kropp et al., 2006; Rauch et al., 2009; Wales et al., 2013; Rigtering et al., 2017; Hernandez-Perlines et al., 2019).

Over the years, literature has developed several approaches to address the problem of entrepreneurial orientation. Among the different approaches, there are two dominant perspectives. The first perspective is based on a one-dimensional approach (Covin and Slevin, 1989, Knight, 1997) which considers the EO as a unitary construct characterized by the simultaneous presence of risk-taking, innovation, and proactivity. In this perspective, the EO can only be analyzed as a whole and therefore it does not make sense to consider every single part that composes it (Gupta and Gupta, 2015).

The second perspective is based on a multidimensional approach, which considers the EO as a construct characterized by numerous independent elements: risk, innovation, proactivity, competitive aggressiveness, and autonomy (Lumpkin and Dess, 1996). This approach qualifies the entrepreneur on the basis of the different presence of each of the characterizing elements (Lumpkin and Dess, 1996; Hughes and Morgan, 2007; Polites et al., 2012).

Despite the common matrix of the two perspectives, the two approaches are distinct and can lead to conflicting results on the qualification of the entrepreneurial orientation (Covin and Wales, 2019).

Although the debate on the advantages and disadvantages of the two approaches is still very heated (Rauch et al., 2009, Rosenbusch et al., 2013, Gupta and Dutta, 2018; Wales et al., 2013; Anderson et al., 2015; Rigtering et al., 2017), in this document we use the multidimensional perspective. According to this approach, the five dimensions that characterize the entrepreneurial orientation are: risk-taking, proactivity, innovation, competitive aggressiveness, and autonomy and can be briefly defined as below. Risk-takings requires the ability to take bold actions in conditions of uncertainty (Kraus et al., 2012, Lumpkin and Dess, 1996, Rigtering et al., 2017).

Proactivity implies an active attitude towards competition and customers, which requires the ability to launch new products/services and predict and/or stimulate customer needs (Covin and Slevin, 1989; Lumpkin and Dess, 1996; Rigtering et al., 2017).

Innovation requires a creative path to support the birth, development, and testing of new ideas that can promote the survival and development of the company (Miller and Friesen, 1983; Kropp et al., 2006; Chandra et al., 2009; De Jong and Freel, 2010; Covin et al., 2016).

Competitive aggressiveness is the combative attitude of a company aimed at increasing its market share and surpassing competitors (Lumpkin and Dess, 1996). Finally, independence indicates the freedom to act without external influences and the autonomy of employees in proposing and developing new ideas and new projects (Covin and Slevin, 1996).

In the context outlined, the relationship between EO and corporate performance has given rise to a broad debate in the literature. However, the results are discordant. On the one hand, some authors have suggested that companies with a strong presence of the five dimensions that characterize EO perform better than other companies (Wales et al., 2013; Filser et al., 2014; Saeed et al., 2014; Shirokova et al., 2016; Hernandez-Perlines,

2018; Rauch et al., 2009; Covin and Slevin, 1991; Lumpkin and Dess, 2001; Wiklund and Shepherd, 2005). On the other hand, other studies have shown that the dimensions of the EO do not have a positive effect on corporate performance (Zainol and Ayadurai, 2011; Mahmood and Hanafi, 2013; Arshad et al., 2014; Ojewumi and Fagbenro, 2019). Finally, further studies have shown an inconclusive relationship, highlighting the moderating role that environmental variables can play (Arshad et al., 2014; Kosa et al., 2018).

In this latter regard, the literature has suggested that the reference context influences the entrepreneurial orientation and therefore the performance of the company (Miller, 1983; Covin and Slevin, 1989; Stetz et al., 2000; Lomberg et al., 2017). In this perspective, the company's behavior is mainly conditioned by the value system of the person responsible for the decision-making process, and therefore by the cultural and social values of its community (Huggins & Thompson, 2014). Therefore, the behavior of companies is also conditioned by the institutional reference environment, and therefore by the system of rules present in a given context (Fayolle et al., 2010; Lee et al., 2011; Ma & Todorovic, 2012; among others).

Consequently, the reference context can have an impact on entrepreneurial orientation and this impact varies according to the country analyzed (Kreiser et al., 2010; Lomberg et al., 2017).

In this perspective, the EO must be conceived as a multidimensional construct (Covin et al., 2006) in which the influence of each dimension is connected to the performance of the company and can be conditioned by contextual factors (Lumpkin & Dess, 1996).

In the context outlined, in this document we agree with the literature which suggests a positive relationship between EO and performance, however recognizing that each dimension of EO will have a different impact on performance (Rigtering et al., 2017).

Therefore, our research hypotheses are as follows:

H1: proactivity and performance are positively correlated.

H2: risk-taking and performance are positively correlated

H3: innovation and performance are positively correlated.

H4: competitive aggressiveness and performance are positively correlated.

H5: autonomy and performance are positively correlated.

3. Research Design and Sample

The sample of our study is made up of companies headquartered in Argentina. For the collection of data, a questionnaire was sent by e-mail to the owner and/or manager of the companies.

The sampling was carried out in a probabilistic way on the whole reference population. Subsequently, in line with the literature (Cochran, 1977), we performed a stratified random sampling. This approach allowed to improve the efficiency of the estimates and to guarantee the representativeness of the extracted sample (Amendola et al., 2020). Furthermore, this approach has made it possible to reduce the variability of the estimates compared to the use of a random sample. To ensure the representativeness of the sample, the elements of interest were identified on the basis of a geographical and economic criterion.

From a geographical point of view, this approach has made it possible to consider the differences existing in a very vast territory such as Argentina. From an economic point of view, this approach has allowed us to consider that the behavior and strategies of companies are strongly influenced by the size of their organization.

The sample size was set to 1000 units, to ensure an error $|d| \leq 0.055$ with a probability of 0.95 based on the following:

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

where N is the population size and n0 is given by:

$$n_0 = \frac{z^2(0.975)p(1-p)}{\varepsilon^2}$$

The p level was set assuming a maximum level of variability, reached for $p = 0.5$. The sample units belonging to each stratum were selected based on the incidence of each subgroup within the population. The questionnaire

was initially tested on a small sample of companies to verify the quality of the structure. Based on what emerged from this first analysis, we improved the questionnaire to prevent the distortion of data and information (Rong and Wilkinson, 2011, Woodside, 2013). After the test phase, we sent an email to all companies explaining the purpose of the study and providing other general information. Overall, 287 companies agreed to participate in the research (28.7% of the sample). Subsequently, we sent the questionnaire to all the companies that had joined. The structure of the questionnaire is modular and is divided into 3 sections. The first section contained general data about the company, the owner, and the manager. The second section included questions needed to measure the five dimensions of the EO and the firm's performance. Finally, the third section explored the perception of the reference context.

At the end of the survey, 214 Argentine companies (21.4% of the sample) completed the questionnaire.

The questionnaire was prepared first in English and then translated into Spanish, using the reverse translation technique. To evaluate the reliability of the results, quantitative statistical tools were used.

In particular, we used generalized regression analysis as it provides more reliable estimates. The main results are highlighted in the next section and the regression model used in the present study is as follows:

$$FPERFit = \beta_0 + \beta_1PRO + \beta_2INN + \beta_3RT + \beta_4CA + \beta_5AU + eit.$$

Where:

FPERF, Firm Performance;

β_0 , coefficient of the explanatory variable;

β_1PRO , Proactiveness;

β_2INN , Innovation;

β_3RT , Risk-taking;

β_4CA , Competitive Aggressiveness;

β_5AU , Autonomy;

eit, Error term.

4. Results and Discussion

The main characteristics of the companies that participated in the research are highlighted in table 1.

Table 1. General sample information

		N.	%
Sectors	Primary	34	15.9
	Industry	138	64.5
	Services	42	19.6
Size	Small	69	32.2
	Medium	118	55.2
	Larger	27	12.6
Age	< 25	148	69.2
	> 25	66	30.8
Gender	Male	168	78.5
	Female	46	21.5
Studies	No University	151	70.6
	University	63	29.4

The sample is made up of a large prevalence of companies in the industrial sector (64.5%) and small (32.2%) and medium-sized enterprises (55.2%). Most companies (69.2%) have been founded for less than 25 years. The owner and/or manager are predominantly male (78.5%) without a university degree (70.6%).

The results of the descriptive statistics are shown in table 2.

Table 2. Descriptive statistics

Variables	Mean	Median	Std. Dev.	Observations
Risk-taking (RT)	0.28	0.67	0.24	214
Proactiveness (PRO)	0.94	0.43	0.25	214
Innovation (INN)	0.06	0.87	0.47	214
Competitive aggressiveness (CA)	0.46	0.86	0.34	214
Autonomy (AU)	0.99	0.66	0.78	214
Performance (PERF)	0.71	0.66	0.67	214

To test the reliability of the questionnaire and its internal consistency, we used Cronbach's alpha coefficient. The coefficient was equal to 0.77, therefore the instrument used must be considered statistically reliable as it is greater than 0.7.

To test the regression analysis we conducted collinearity tests for the possible presence of misleading results. The results highlight the absence of multicollinearity, as shown in table 3.

Consequently, it must be assumed that all variables are appropriate and fit well in the model.

Table 3. VIF Test

Variables	VIF
Risk-taking	1.09
Proactiveness	2.12
Innovation	2.28
Competitive aggressiveness	1.07
Autonomy	1.14
Mean VIF	1.54

Table 4 highlights the correlation analysis of the variables considered in this study.

Table 4. Correlation Matrix

Variables	PERF	RT	PRO	INN	CA	AU
Performance	1					
Risk-taking	0.561	1				
Proactiveness	0.256	0.148	1			
Innovation	0.312	-0.235	0.164	1		
Competitive aggressiveness	0.134	0.236	0.731	0.059	1	
Autonomy	0.193	0.523	0.059	0.398	0.412	1

The results show that the relationship between corporate performance and risk-taking is significant at 0.561, the proactivity ratio is 0.256, the innovation ratio is 0.312, while the competitive aggressiveness ratio is 0.134 and the autonomy ratio is 0.193.

To verify the validity of the regression model, we performed the checks highlighted in table 5.

Table 5. Model Summary

Multiple R	0.651
R Square	0.468
Adjusted R Square	0.416
Heteroscedasticity test	0.0712
Observations	214

As is evident, the model is devoid of heteroscedasticity ($0.0712 > 0.05$) and the data are normally distributed. The R square value is 0.468, therefore the five dimensions analyzed were significant in 46.8% of cases.

Table 6 highlights the influence of relationships between the five dimensions of EO and corporate performance.

Table 6. Regression Result

Variables	Beta	P-value
Risk-taking	0.037	0.003
Proactiveness	0.131	0.009
Innovation	0.112	0.007
Competitive aggressiveness	0.019	0.482
Autonomy	0.273	0.000

The highest coefficient is equal to 0.273 for autonomy, with a P-value equal to 0.000. Proactivity has a positive beta of 0.121, with a significance of 0.009. The innovation has a positive coefficient of 0.112 and is significant at 0.007. Risk-taking has a positive coefficient of 0.037 and is significant at 0.003. Finally, competitive aggressiveness has a beta of 0.019 and a p-value of 0.482. Consequently, competitive aggressiveness is not significant for business performance.

Therefore, based on the analysis performed, hypotheses 1, 2, and 3 must be accepted, while hypotheses 4 and 5 cannot be accepted or are not significant.

5. Concluding Remarks

This paper aims to study the role played by the five dimensions of entrepreneurial orientation on the performance of Argentinian companies. In this perspective, we hypothesized a positive relationship between each dimension of the EO and business performance.

To test our hypotheses, we used a sample of companies headquartered in Argentina. To collect the data, we used a questionnaire that was sent by e-mail to the owner and/or manager of the companies. Initially, 287 companies agreed to participate in the research (28.7% of the sample). At the end of the survey, 214 Argentine companies (21.4% of the sample) completed the questionnaire.

The sampling was carried out on the whole reference population, following a stratified random approach to improve the efficiency of the estimates and ensure the representativeness of the extracted sample. Considering the high territorial extension of Argentina, we used a geographical and economic criterion to guarantee the representativeness of the sample.

To assess the reliability of the results, quantitative statistical tools were used.

The results of the analysis show that not all variables have a significant influence on performance. In particular, three dimensions of the EO (innovation, proactivity, and risk) have a significant and positive influence on the performance of companies. Therefore, hypotheses 1, 2, and 3 of this study must be accepted. Conversely, competitive aggressiveness and autonomy do not have an impact on performance or they are not relevant.

Therefore, given that not all dimensions of the EO have the same influence on performance, Argentinian companies should focus attention only on the relevant variables compatible with their objectives.

The results of this study may be useful for entrepreneurs to improve the elements of the EO that affect business performance. Furthermore, the results can provide useful indications to policy-makers on what factors to incentivize to encourage the birth and development of entrepreneurship. The results of this study have some limitations in that they focus on a limited set of variables. In addition, the small size of the sample can affect the results. Subsequent research could consider further variables, such as human capital and the context of reference, and consider a larger sample.

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Authorship contribution Statement

Diaz E.: Data curation, Data Analysis, Results and Discussion, Concluding Remarks.

Sensini L.: Conceptualization, Methodology, Data Analysis, Results and Discussion; Concluding Remarks.

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The Relevance of the Economic Environment to the Development and Growth of Academic Spin-Offs. A Panel Approach

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Abstract

The importance of academic research ("AR") to economic growth is widely accepted but quantification of incremental impacts, and their attribution to any one country's expenditures, is difficult. Yet quantitative justification of government AR funding is highly desirable. We therefore attempt to quantify one impact which can be directly and causally attributed to one country's funding: spin-off companies.

Although there is great interest in the new knowledge economy, less favoured regions seem permanently disadvantaged because they lack a critical mass of knowledge capital to initiate accumulation, growth and economic development processes. This is a problem for policy-makers seeking to promote economic growth and territorial cohesion in such regions. This paper seeks to develop four empirical models of how Academic spin-off companies can improve their economic performances. The economic benefits that such companies bring are explored, to identify those elements which can potentially upgrade regional economies through knowledge accumulation, which are termed 'building up territorial knowledge pools'.

We argue that the impacts of valid and ongoing policies in support of the Third Mission represent incremental contributions to the ROI of academic spin-offs, much greater (also on a updated base). The impacts therefore provide a quantitative justification for public investment, allowing much more important (but less quantifiable) long-term benefits be considered as a "free" bonus.

Keywords: innovation, entrepreneurship, technology transfer, econometric approach, panel model, academic spin-off

1. Introduction

1.1 Introduce the Problem

The pursuit of territorial development goals is strongly anchored to the ability to create, by the institutions present, a fertile environment for contamination between public and private bodies with the same purpose: territorial competitiveness. The scientific contributions drawn up on the connection among technology transfer, entrepreneurship and territorial competitiveness date back to the late 1980s. In this context, several publications have been developed concerning the National Innovation System (Lundvall, 1992). The concept of the National Innovation System is based on the premise that understanding the links between the actors involved in innovation is the key to improving technology performance. Innovation and technical progress are the result of a complex set of relationships between the actors who produce, distribute and apply various types of knowledge. Participation in innovation networks helps research institutions and universities to obtain funding, improve their position and expand their professional networks, while providing participating academic staff with opportunities for further qualifications (Shultz et al., 2018). The innovative performance of a country depends, largely, on how these actors relate to each other, as elements of a collective system of knowledge creation and use, as well as the technologies they use. These actors are mainly private companies, universities and public research institutes and the people within them. The links can take the form of joint research, staff exchanges, crosspatenting, purchase of equipment and a variety of other channels. There is no single accepted definition of the National Innovation System (OECD, 1997). Innovation is a systemic process, no company innovates without the need to share certain elements of its innovation. It does so, therefore, in collaboration and interdependence with other subjects that can be both businesses (suppliers, customers, partners, etc.) and subjects other than businesses (universities, public

bodies, non-profit organizations, etc.). The policies implemented in recent years have tried to accompany these processes of change towards models of smart communities. The dialogue between administrations and public and private bodies in charge of industrial policies and policies for R&D and innovation (MIUR, MISE, first of all), as reported in many studies, has become essential. This need is increasingly leading to experimenting models of collaborations and consultations, in line with the objectives set EU.

1.2 State Hypothesis and the Correspondence to Research Design

The importance of academic research (“AR”) to long-term economic growth is widely accepted but difficult to quantify. Demonstrating causal connections and incrementality is challenging, and the often-long delays between basic research and substantial commercialization exacerbate the problems.

AR creates other very important but usually less spectacular impacts that do clearly require national investments in AR, and go to the heart of critically important national capabilities: to absorb outside knowledge, to inspire and educate the next generation, to benefit from technological spillovers (Salter and Martin, 2001), to encourage private R&D (Jaffe, 1989), and to create new companies and vibrant intellectual and economic communities. These imply strongly that basic research is crucial for the strategic position of a nation in the world economy and that “no nation can free ride on the world scientific system”. Nonetheless, while these benefits are almost certainly very large, it is usually very hard to say how large.

Rather than studying AR’s largest impacts, we investigate an impact that can be attributed to a single firm, is quantifiable, has a clear causal connection to AR, and which can be argued to be incremental: companies spun-off to directly exploit university-created IP based on science or technology. Such impacts represent only a fraction of AR’s benefits but, if they significantly exceed the government funding, they may single-handedly justify it.

Based on statements like these just reported, actually to the research hypothesis, the present study will develop on the following hypothesis:

H1: the policies in support of the Third Mission have a positive and statistically significant impact on the ROI, a variable dependent on the models that will subsequently be performed.

2. What Can Be the Triggers to Feed Innovative Entrepreneurship Processes?

The relationships that are created between innovation players at local, regional and national levels contribute to the creation of a profitable environmental context for the indirect improvement of business performance. Feeding the national and regional innovation system represents a perfect solution to implement the innovation network and multiply its fruits in terms of transversal benefits to businesses in the area. Among the first objectives is the spread of an 'entrepreneurial culture' (Keats and Abercrombie, 1991) which has also induced the university world to support this rediscovered interest, requiring an in-depth research activity on the factors that lead to becoming entrepreneurs and on how to convey these entrepreneurial characteristics (Alberti, 1999). A condition that facilitates the sustainability of any business project is given by the innovativeness of the product / service offered or the proposed process. Innovation refers to a company's efforts to find new opportunities and new solutions. It involves creativity and experimentation, which translate into new products, new services or improved technological processes. Innovation is one of the main components of an entrepreneurial strategy. The task of managing innovation, however, can be quite stimulating. Innovation requires that companies move away from existing technologies and practices and go beyond the current state of technology. The entrepreneurial mindset allows individuals to seek opportunities, take risks beyond security, tolerate bankruptcies, creatively exploit resources and overcome obstacles to push an idea to realization (Morris, Kuratko, 2014). As Fetters, Greene, Rice and Butler (2010) recall, universities are at the center of economic development around the world, providing infrastructure, resources and means to develop business communities. They also believe that entrepreneurial ecosystems evolve and expand through the specialization of knowledge and innovation. According to Aulet (2008), the relevant aspects of entrepreneurship ecosystems are the alignment of institutional objectives, access to universities and other regional resources, the coordination of research initiatives and the participation of the business community and local government. They suggest that the necessary dimensions of an entrepreneurial system are governance, innovation, infrastructure and culture. In addition, the experiential nature of many entrepreneurship programs attracts students interested in real world involvement rather than lesson-based classroom education (Antal et al., 2014).

2.1 The University Third Mission as Accelerator of Innovation Processes for SMEs

The idea that scientific research is central to economic and social development is certainly not new. However, what appears clear as a central address at university level (Anvur, 2013) is the driving role that each university is

called to play on its territory: universities, in addition to producing new knowledge, must take on a more direct and entrepreneurial role (Etzkowitz, 2008). In the Anglo-Saxon world, the relationships between universities and industry are intense and well structured, with strategic alliances based on solid foundations and cultivated by a proactive behavior of university structures. In continental Europe, on the contrary, these relations appear very weak and in many cases non-existent. This has prompted the European Union to encourage the development of a university "third mission", oriented to the projection of scientific research in the industrial context and its enhancement through tools aimed at the technological transfer of innovation. We could interpret this "third mission" as a role of service to society, with implications in three areas of application (Montesinos, 2008). A first based on the ability to create internally interesting innovations for specific industrial sectors, with more defined application purposes. A second linked to the offer of services with high value added to the community, supporting students and researchers in the delicate work of disseminating their research results in concrete application contexts (businesses and public administrations). Finally, a third connected to the university's entrepreneurial role, which activates professional consultancy and mentoring services for the birth of newco (academic start-ups and spin-offs) or for the acceleration of their development. An "entrepreneurial university" builds a privileged ground for initiating an all-round dialogue with the political and entrepreneurial world to direct progress towards more fruitful terrains, in line with the resources and skills of a given territory. A university that balances theoretical knowledge and business practices in a technology transfer mechanism driven by entrepreneurship (Garzoni, 2014). In recent years, greater attention has been paid by universities to Third Mission activities and, in particular, there has been an increase in third party contracts, patents granted, spin-o accredited companies and other Third Mission activities.

2.2 Technology Transfer as a Third Mission Tool

Universities also differ on the basis of their ability to monetize research results through the establishment and maintenance of relations with businesses also through technology transfer activities. A fundamental vehicle of technology transfer has always been constituted by direct relations between universities and businesses, built around joint research projects or contract financing of academic research (Balconi et al., 2002). The term Technology Transfer (TT) is intended to define the process of converting scientific discoveries into products and processes that companies can market. The general concept of technology transfer and commercialization is defined as "activities and processes to create added value through the transfer, exchange, expansion and application of technologies developed from the point of view of technological innovation throughout the period" (Koo, 2014). Various resources are needed to conduct research and development. Since one of the factors considered as a source of competitive advantage is innovation through technology, investing in research and development is a strategically important decision-making process (Lee and Yang, 2015). Support for innovation and technology transfer was mainly provided through the granting of research and innovation funding (both with national and regional laws) and through the creation and support of centers for TT, generally created with the support of regional bodies and other public and private actors. To understand how universities or research centers can become effective partners in supporting the competitiveness of the industrial system, one must consider the fact that in companies the innovation process is generated, in the majority of cases, by the perception of a competitiveness differential on the market, which will require interventions in the company to maintain an advantageous position or to bridge the gap with its competitors. If this factor derives from commercial aspects, the innovation will, in all probability, affect the processes, organization and sales networks. Sometimes, however, the determining factor is of a technological nature and requires companies to take a path to generate or acquire knowledge or technologies and to make them profitable. This path, at least in part, can be guided. Technologies, methodologies and their transfer often represent the main structure of these processes. Some of them can guide innovation by placing themselves along the trajectories of the process, others can enable this process by distributing themselves transversely to multiple processes. In summary, the technology transfer process can be schematized as illustrated in the following figure (Campodall'Orto, Vercesi, 2002).

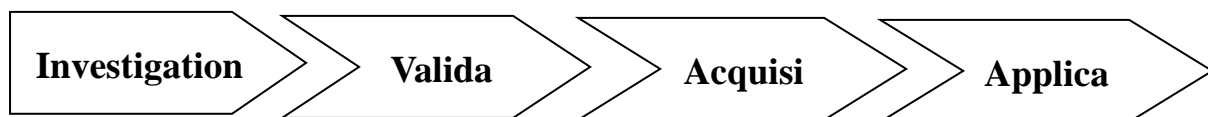


Figure 1. The technology transfer process (Campodall'Orto, Vercesi, 2002)

The process schematization follows 4 main steps that start from the investigation of the information available. Once the information has been collected, the potential strategic value that it can have in relation to its objectives is identified. In the next step we move on to the "acquisition" phase where the information deemed useful for the innovative process is assimilated and finally we will move on to the "application" phase where the organization applies the technological solutions and methodologies to obtain its competitive advantage. The application is substantiated, in many cases, with the creation of academic spinoffs. The EPR through their offices in charge of technology transfer have set up activities and structures to support the path of creation of new businesses. The growing interest in this phenomenon both from the universities that implement them and from governments that, through the issue of ad hoc measures, seek to incentivize them, finds its foundation in the importance they play in the economic and non-economic spheres. Like all entrepreneurial initiatives, spin-offs promote economic development through the creation of new jobs, as well as being able to attract investments in innovative technologies and to favor their development and application. Furthermore, the creation of spin-offs guarantees an innovation deriving from businesses created on the basis of the results of scientific research and therefore oriented towards the improvement of processes, products and services. Technology transfer management has been defined differently by different academics and professionals. Some consider it the way in which organizations' physical, financial and human resources are integrated into reliable work systems to achieve specific objectives (Osman-Ghani, 1993). This definition is complete as it includes knowledge transfer. Others prefer to separate between technology transfer and knowledge transfer. They argue that technology refers more to tools, methods, processes and products (Sen and Rubenstein, 1989) and therefore is a tangible tool that can influence economic results if used properly and efficiently.

2.3 The Role of Academic Spin-Offs as Engine for Innovation

Considering what has been expressed in the previous paragraph, it is clear how relevant the management of such an important process as technology transfer is. University institutes (business incubators, technology parks, TTOs, etc.) dedicated to supporting the spin-offs also have the task of transferring the necessary skills to the teams for managing the TT processes as well as feeding the environmental context to the of which the spin-offs are created also favoring their performances. The exploitation of the results of scientific research in the business world occurs mainly through the establishment of academic spinoffs. Through these tools, universities can play a role in creating qualified job opportunities and economic wealth linked to highly innovative activities. The opportunities related to this tool are many, from the creation of a network or cluster of companies connected to the University (opportunities for collaborations and research contracts) to a useful contribution to the development of the territory. So the university becomes a "knowledge factory", a factory specializing in human capital, a factory dedicated to technology transfer, as well as a factory with a territorial development mission, through the promotion and management of projects for territorial innovation (Lazzeroni & Piccaluga, 2003). Technology entrepreneurship implies the creation of new companies that exploit opportunities provided by technological innovation. Fostering technology entrepreneurship has become a major topic for (regional) public policy makers, as a means to release currently unexploited opportunities hidden in individuals, shelved technologies and resource combinations. Researchers in the field of technology entrepreneurship have conducted detailed studies of, for example, the factors fostering (successful) technology-based university spin-offs (Rothaermel et al., 2007; Shane, 2004), corporate spin-off creation (e.g., Tubke, 2005; Zahra et al., 2007), spin-off creation from research institutions (e.g., Clarysse et al., 2005; Hindle and Yencken, 2004; Lockett et al., 2005), and the role of science parks and incubators (e.g., Bergek and Norrman, 2008; Lofsten and Lindelof, 2005; Phan et al., 2005).

3. Empirical Analysis

3.1 Sample

For the selection of the sample of this study, the 1244 academic spin-offs in Italy from 2015 to 2019 were screened. The Italian platform used for research is Spin-off Italy, the only Italian portal containing updated information on the spin-offs of Italian public research. Through the portal, it was possible to obtain detailed information on the characteristics of the spin-offs, both at the registry level and at the economic-financial level.

The aim of the project is to highlight entrepreneurship born from the enhancement of research successes. The portal provides a database on the spin-offs of public research containing company name, legal form, university / public research body (from now EPR) of origin, region of origin, sector and various economic-financial indicators. Furthermore, this information was implemented by additional data extracted from the Aida Bureau Van Dijk platform.

For the purposes of econometric research, it was decided to consider only the Italian spin-offs of public research

currently active; for our final representative sample of the phenomenon of academic spin-offs therefore, from our reference sample, it was necessary to eliminate the companies registered on the dataset as discontinued or in liquidation.

3.2 Methodology

In this study it was performed a fixed panel model. When we deal with the issue of longitudinal data we mean a structure like the one illustrated by the matrix in which generally the number of individuals is high, while that relative to the temporal dimension is rather contained. Note that if the assumptions about the variance and covariance matrix Ω and the constant (if any) respect those of the pooled time series models, they automatically become can be used in this context simply by exchanging indices relating to individuals and time.

Considering the i -th individual, the fixed effects model is configured as follows

$$y_i = \alpha_i + \beta x_i + \varepsilon_i$$

where y_i and ε_i have dimension $(T \times 1)$, x_i has dimension $(T \times k)$ and β is the vector containing k parameters from to estimate. The peculiarity of this function concerns the constant which is configured as a vector of T constant elements equal to α_i : this characteristic indicates first of all that for each individual only one value has to be estimated of the constant and that, if $\alpha_i \neq \alpha_j$ for every $i \neq j$, this constant measures the individual effect, i.e. that set specific characteristics of each individual which however remain unchanged over time. In practice, in model there are in all $k + N$ parameters to estimate, k contained in the vector β and N constants for the different ones individuals. These constants represent the characteristic heterogeneity between individuals in the system peculiar to panel data.

By generalizing the function described above, rewriting it in matrix form, it is possible to write

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_{N-1} \\ y_N \end{bmatrix} = \begin{bmatrix} \iota_T & 0 & \dots & 0 & X_1 \\ 0 & \iota_T & \dots & 0 & X_2 \\ \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & \dots & 0 & X_{N-1} \\ 0 & 0 & \dots & \iota_T & X_N \end{bmatrix} \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_N \\ \beta \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_{N-1} \\ \varepsilon_N \end{bmatrix}, \tag{1}$$

where ι_T is a vector containing T elements equal to 1. In compact form we have therefore

$$Y = [(I_N \otimes \iota_T) \quad X] \begin{bmatrix} \alpha \\ \beta \end{bmatrix} + \varepsilon \tag{2}$$

or

$$Y_{(NT \times 1)} = (I_N \otimes \iota_T)_{(NT \times N)} \alpha_{(N \times 1)} + X_{(NT \times k)} \beta_{(k \times 1)} + \varepsilon_{(NT \times 1)} \tag{3}$$

Since the values of the vector α are not observable they would fully enter the error of the model but, if so, they could be correlated with the explanatory variables X_i and the estimate would result distorted.

This function allows you to estimate the model through the OLS as all the classic hypotheses are respected. The model is called a dummy variable model because it is necessary to construct N (nuerosity) of individual effects) dummy variables to be inserted within the regressors matrix. The estimator you are gets undistorted, consistent and BLUE. Given that for the properties of the product of Kronecker it holds

$$(IN \otimes \iota T)'(IN \otimes \iota T) = IN \otimes \iota' T \iota T = T IN \tag{4}$$

it turns out

$$\begin{bmatrix} \hat{\alpha} \\ \hat{\beta} \end{bmatrix} = \begin{bmatrix} T I_N & (I_N \otimes \iota_T)' X \\ X' (I_N \otimes \iota_T) & X' X \end{bmatrix}^{-1} \begin{bmatrix} (I_N \otimes \iota_T)' Y \\ X' Y \end{bmatrix}. \tag{5}$$

To invert the matrix contained within the expression of the OLS estimator, a known result is used on partitioned

matrices and, after some calculations you get to

$$\begin{bmatrix} \hat{\alpha} \\ \hat{\beta} \end{bmatrix} = \begin{bmatrix} \frac{1}{T}(I_N \otimes \iota_T)'(Y - X\hat{\beta}) \\ (X'MX)^{-1}X'MY \end{bmatrix}, \quad (6)$$

where $M = INT - P$ is the projection matrix which, applied to a variable, for each individual returns to deviation from the time arithmetic mean. This matrix, by definition, turns out to be square ($NT \times NT$), diagonal block, symmetrical and idempotent.

3.3 Results and Discussion

The object of analysis, as well as the dependent variable of our model, is represented by the ROI, by which we mean the profitability and the economic efficiency of the characteristic management regardless of the sources used: that is, it expresses what makes the capital invested in that 'company.

The quantitative variables observed for the econometric model are:

- EMPLOYEES, expresses the average number of employees assigned during the three-year period;
- ASSETS, expressed in thousands of euros the average amount of tangible, intangible and financial fixed assets exploited by the company;
- VALUED_ADDED, expresses in thousands of euros the average down payment of the increase in the value of resources acquired through the performance of the production activity;
- PATENT, indicates the average cash flow deriving from the possession of a patent, software or industrial property right in thousands of euro;
- SHARE_CAPITAL, indicates the average amount of financial resources in thousands of euros compared to the shareholders in favor of the company;
- REVENUE, indicates in thousands of euro the average amount of economic utility that an enterprise achieves in its sales and services;
- EBITDA, gross operating profit expressed in thousands of euros, the income from the operational management of a company excluded from the calculation of the financial decisions and the tax context
- ROE, return on equity capital expressed as a percentage of the ratio between Net Income and Equity;
- PFN, solvency index, expressed in thousands of euros the average amount of the algebraic sum of all corporate financial debt net of cash and cash equivalents and financial assets that can be readily disposed.

The Dummy variables taken into consideration are:

- ZONE, used to indicate the geographical area in which the company is located, it takes on value 1 if it is located in the Islands, 2 in the South, 3 in the Center, 4 if it is located in the North-East and finally 5 in the Northwest;
- SECTOR, used to indicate the economic sector of reference, assumes value 1 in the case the activity is inherent in Agriculture / Fishing, 2 in the case of Industry / Crafts, 3 for Services, 4 for Trade and finally 5 if it operates in Tourism;
- LEGAL_FORM, used to indicate the type of legal form adopted, assumes value 1 in the case of S.r.l or S.r.l with sole shareholder, value 2 in the case of simplified S.r.l, 3 if constituted in the form of S.p.A. o S.p.A. a sole shareholder and finally 4 in the remaining cases (S.C.A.R.L., S.C.A.R.L.P.A, limited liability consortium company, joint stock consortium company, consortium cooperative company).

In the first analysis, we proceeded with the study of descriptive statistics and the correlation matrix. Regarding to the approach, it was decided to insert a classical structure of the descriptive statistics rather than the panel approach which provides for the analysis of different indicators with overall structures (which coincides with what was declared) between and within. This was possible because there were no significant differences among the different approaches. In these analyzes, dichotomous variables were excluded.

Table 1. Descriptive statistics and correlation matrix

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1 ROI	1.89	3.85	1										
2 Valued_Added	142.49	7.89	0.85	1									
3 EBITDA	21.35	41.31	0.87	0.90	1								
4 Patent	8.54	14.87	-0.46	-0.39	-0.62	1							
5 Third Mission	2.65	8.23	0.16	0.38	0.24	0.36	1						
6 ROE	4.85	5.78	0.23	0.19	0.21	-0.15	0.45	1					
7 Share_Capital	37.61	2.98	-0.56	-0.11	-0.39	0.23	-0.00	-0.14	1				
8 Revenues	327.30	7.22	0.26	0.85	0.61	0.12	0.13	0.06	0.15	1			
9 PFN	-17.67	24.88	-0.04	-0.08	-0.07	0.06	0.01	-0.02	0.15	-0.11	1		
10 Employees	3.62	2.97	0.01	0.66	0.31	0.28	0.14	0.04	0.41	0.78	0.04	1	
11 Assets	157.88	5.82	-0.54	-0.08	-0.08	0.89	0.00	-0.18	0.73	0.31	0.19	0.59	1

Finally, innovation actors in emerging countries now make meaningful contributions to local and global innovation. Despite the endogenous variable PATENT has a very strong negative correlation with ROI, after a series of analyzes and reflections carried out, it was decided not to omit it for research purposes, as the industrial patent right represents for the spin-offs of public research one of the main balance sheet items. But what does this right entail? The industrial patent right is an intangible asset which attributes the exclusive right to use an invention within the time limits established by law; in fact, its entry in the balance sheet assets allows not only to exploit ownership, but at the same time implies the possibility of recovering costs through the exploitation of the patent itself. Two independent variables had to be omitted: EBITDA, VALUE_ADDED. These variables have a correlation very strong with the dependent variable ROI, equal to 0.85 and 0.87 respectively; in fact, their presence could create distortions on the econometric model which would invalidate its correctness. After omitting from the research those variables strongly correlated with the profit generated by the academic spin-offs, the investigation continued with the construction of econometric models in order to analyze in depth the impact exerted by the remaining variables considered. Also in this case, for the purpose of a better understanding of the phenomenon, it was necessary to combine the previously classified variables that had a low presence within the dataset; in fact, their use would have compromised the correctness of the model, creating an alteration in the interpretation of the analysis. In particular, the Sector variable has undergone a substantial change: the sectors that have a lower frequency (Nanotechnology, Cultural Heritage and Aerospace) have been compressed into a single variable called Other; while, the Legal_Form variable now is represented by: Srl and OtherLF (the addition of "LF" was necessary to distinguish it from the Other variable inherent to the sector to which it belongs).

Table 2. Multiple Fixed effect Models

Dependent Variable	ROI			
	1	2	3	4
Revenues	0.19 **	0.34	0.28	0.11 **
Third Mission	3.29**	3.42***	2.89**	2.92**
ROE	1.34 **	1.28 **	1.32 **	1.35 **
Share_Capital	1.05 **	0.89 *	0.76 **	0.79
Employees	0.74	0.53*	0.51	1.13
PFN	0.41 **	0.31 **	0.40 ***	0.39 **
Assets	0.51	0.39	0.42	0.36
Patent	5.98 ***	6.29 **	7.01 **	7.13 *
Srl_Life		79.98		
AltroLF ICT		367.95*		
Srl_Biomedical		74.48 *		
Center_Biomedical			9.23	
North_East_Energy			65.67 **	
South ICT			34.32	
North_West_Life			48.34 *	
South_Srl				98.39 *
Center_Srl				9.01
North_West_OtherLF				69.36 *
Years	YES	YES	YES	YES
R-squared	0.79	0.74	0.87	0.83

The first econometric model built has the objective of verifying the impact that the different continuous variables have on the dependent variable; in fact, the specific economic and financial characteristics of the academic spin-offs were examined. The analysis shows that the ROI of an academic spin-off increases with the unitary increase in revenues, employees and its net financial position while, conversely, it decreases with the unitary increase in its share capital and costs recorded in the financial statements (Fixed assets and industrial patent law). In this case, the members of the research team not only represent a cost but also an added value for the company as only through their intuition and their genius will it be possible to arrive at a discovery that will increase the profit and return of the spin-off. In addition, the capital endowment is not vital for the continuation of the business activity because (often) the spin-offs are set up on a fixed-term basis to achieve a specific objective. The regression shows an excellent value of the goodness index of the corrected R squared model equal to (0.79). This so high result is probably due to the presence of the Patent variable which, for the reasons already listed, was not omitted from the analysis. Given that the linear variables just observed are re-proposed in the following econometric models, presenting, at the same time, a significance, a sign and an always similar coefficient between the models, it is considered appropriate not to comment further in order to underline only the impact of the new variables examined. From the second multiple regression it is decided to introduce the interaction variables. In particular, in the second econometric model the combined effect exerted by the dichotomous variables Sector and Legal_Form was explored in order to quantify the impact that they jointly exert on the economic-financial performances of the research spin-offs. For this purpose, first of all, investigations were carried out in order to verify which interaction variables reached a level of significance capable of explaining the phenomenon being analyzed. As a result, 3 variables emerged from the searches performed: Srl_Life, OtherLF_ICT and Srl_Biomedical. The following regression highlights two significant variables:

- OtherLF_ICT, 10% significant, has a positive relationship with the exogenous variable so that the joint possession of the two characteristics leads on average to a significant increase in the ROI of the spin-off. This very high figure derives from the low presence of companies possessing these requirements and therefore, will no longer be considered later;
- Srl_Biomedical, 10% significant, has a positive relationship with the dependent variable so that the joint possession of these two characteristics leads on average to an increase in ROI of (+ 74.48). Also in this case, the companies that present these requirements are not very present in the dataset, which is why this variable will not be considered in the final analysis.

Based on the foregoing, despite the momentary lack of significance, the only variable that will be used in subsequent analyzes is the Srl_Life interaction variable.

Similarly, interaction variables have also been introduced in the third econometric model in order to verify the joint impact generated by the Zone and Sector categorical variables on the study objective of the work. The interaction variables included are: Center_Biomedical, North_East_Energy, South_ICT and North_West_Life.

The analysis showed that only two of the four variables introduced are significant for the purpose of our investigation (North_East_Energy and North_West_Life); in fact, these variables will be reused in subsequent analyzes. While previous research has provided important information on the role of the two interactions Legal_Form and Sector and Zone and Sector, the fourth and final linear model studies the impact that generates the joint effect of the dichotomous variables Legal_Form and Zone on the dependent variable.

The regression line shows that two of the three variables introduced positively affect the average increase in the dependent variable and both have the S.r.l requirement; the third variable (North_West_OtherLF), unlike the two previous ones, has a negative impact on the exogenous variable but, despite its significance, it will be discarded by subsequent analyzes, considering that it is scarcely present in the elaborated dataset. The only variable subject to subsequent analysis is South_Srl.

Regarding to our main independent variable, the policy relating to the Third Mission, it is possible to see how the impact of this variable is always positive and statistically significant in all the models developed, this confirming the fact that these aspects are extremely fundamental for the m improving the performance of academic spin-offs.

4. Conclusion

It is now common wisdom that science and innovation are more internationalized and collaborative than ever before. All stand to gain from global innovation. First, more innovation investments are conducted today than at any other time. Second, through international openness, the potential for global knowledge spillovers are on the rise. Finally, innovation actors in emerging countries now make meaningful contributions to local and global

innovation.

In this study it was possible to ascertain how important it is to have constant and valid government support that can be found in the policies in support of the Third Mission. This is also evident from the positive impact generated by the Employees variable; in fact, in the spin-offs the employees, or rather the members of the research team, they represent Intellectual Capital, which, if enhanced, is able to represent a real key to success for the company.

Secondly, the results achieved by the research contributed to the understanding of the sectoral dynamics of the spin-offs, with particular regard to the reasons why certain sectors impact more on profit or loss than others. In fact, it has been found that belonging to a more popular and more current sector such as the energy sector, in which large investments are required to reap the fruits of research from the short term, increase the company's profit on average. On the other hand, belonging to sectors such as Life Sciences, in which the research results require a greater period of time to obtain appreciable benefits, on average entails a drop in profit. Therefore, a second success factor for the spin-offs is represented by the choice of the sector to which it belongs.

Thirdly, the results obtained from the analysis make it possible to ascertain how, even in the specific case of the spin-offs of public research, the adoption of the legal form Srl, regardless of the sector and the area in which it is placed, determines an increase on average profit by virtue of its advantageous characteristics for these small companies.

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A Longitudinal Study of American and Canadian Convenience Store Marketing Strategies

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Abstract

Convenience stores are part of the Canadian and American landscape. Consumers depend on them for fuel, coffee, tobacco, snacks, fast-food, bathrooms, and more. Convenience stores account for more than one third of the retail brick-and-mortar sales. Yet, there is a paucity of marketing research on this retail format. The present study examines the marketing strategies of convenience stores in 2008 and 2018, assessing the changes in strategy over a decade in the U.S. and Canada. The findings indicate that convenience stores in both regions have been able to offer products and services that will bring about repeat sales and increase their profitability. Convenience stores offer customers time saving while providing what they value most: fast service, expedient locations, quality customer service and an adapted marketing mix. Although there were more similarities than differences in marketing strategies in both regions, Quebec convenience stores were the most effective in implementing their marketing mix and adapting their strategy. Implications for convenience stores are discussed.

Keywords: convenience store, marketing strategy, Canada, US, longitudinal

1. Introduction

The National Association of Convenience Stores (National Association of Convenience Stores, 2020), defines a convenience store as "...a retail business with primary emphasis placed on providing the public a convenient location to quickly purchase from a wide array of consumable products (predominantly food or food and gasoline) and services." Three minutes 33 seconds. That is the average length of time that it takes consumers to leave their car, shop and purchase something in a convenience store, and return to their cars (The State Journal, 2011).

There are 152 720 convenience stores in the United States—or one for about every 2100 people—and they account for more than one-third (35%) the retail brick-and-mortar universe tracked by Nielsen in the United States (NACS, 2020). According to this source, an average convenience store selling fuel has around 1100 customers per day, or more than 400 000 per year, and cumulatively, the U.S. convenience store industry alone serves nearly 165 million customers per day, and 58 billion customers every year. These retailers sell an estimated 80% of all the fuel purchased in the country.

There are over 26 000 convenience stores throughout Canada, which collectively employ over 227 000 and serve 10 million customers every day (3.65 billion customers per year) in communities across the country (Canadian Convenience Store Association, 2017). According to this source, this represents a contribution of more than \$56 billion per year to the Canadian economy and collecting over \$21 billion in taxes that support vital public services.

Convenience stores typically have the following characteristic: less than 5000 square feet in size, off-street parking and/or convenient pedestrian access, extended hours of operation (many open 24 hours 7 days a week), stocking at least 500 stock keeping units and have a product mix including beverages, snacks, tobacco and fuel/gasoline. C-stores, as industry insiders call them, can be categorized according to six formats (NACS, 2020):

- **Kiosk:** less than 800 sq. ft., mostly gas, tobacco, beverages and snacks;
- **Mini convenience store:** 800-1200 sq. ft.; popular with oil companies, thin selection of grocery and foodservice;

- **Limited selection convenience store:** 1500-2200 sq. ft., similar to Mini C-store but with broader assortment of grocery and limited foodservice (e.g., hot dogs, nachos, etc.);
- **Traditional convenience store:** 2400-2500 sq. ft., product mix includes dairy, bakery, snack foods, beverages, tobacco, grocery, health and beauty aids, confectionary, prepared foods-to-go, fresh/frozen meats, gasoline, various services and produce items;
- **Expanded convenience store:** 2800-3600 sq. feet; and have more shelving for grocery products or space for fast food service and seating;
- **Hyper convenience store:** 4000-5000 sq. ft., offer array of products and services arranged in departments, such as a bakery, a sit-down restaurant, or a pharmacy.

Convenience stores are also places where North Americans do as much as 40% of their food shopping, leading grocery stores to fight to reclaim the grocery territory (Preville, 2014), while dollar stores are expanding their offerings to infringe upon the traditional c-store territory. Convenience store expansion to maintain one's competitive advantage does not always assure success; service innovation has become the key strategy to stay in the lead (Wu, Huang, Tsai & Chen, 2009). Innovation should meet your customers' needs.

2. Literature Review

2.1 A Brief History

Graves (2017) explores the evolution of convenience store operations in the context of consumers' ever-increasing sense of entitlement to time-efficient conveniences across a broad spectrum of daily practices. He posits that the rate at which conveniences become necessities appears to have increased over time, and the convenience store has evolved to serve this growing need. The combined effect of dual income families and longer working hours has led to a time-scarcity epidemic: a phenomenon that has been observed in North America, Europe, Asia and Australia (Hamermesh & Lee, 2007). It should come as no surprise that a common theme that underlies many successful retail innovations is their ability to make the shopping experience more convenient (Reimers, 2013). Yet, despite an increasingly convenience-oriented society, very few empirical studies have identified convenience as a salient determinant of store patronage (Reimers, 2013). Virtually nothing has been written about c-stores outside of industry publications, crime journals, and public health research (Graves, 2017). According to this author, undermining their appeal as a subject for study is their lack of romantic appeal: They do not reflect American wanderlust, like motels, nor do they evoke nostalgia, like old gas stations. They are, to some, signifiers of cultural decay and urban degeneracy—staffed by immigrant employees, and constantly robbed at gunpoint.

However, convenience stores are part of our lifestyle and we give them little thought or consideration. The convenience store concept is nearly 100 years old. Jefferson Green, the operator of "Uncle Johnny's Ice Dock", is credited with inventing the convenience store formula in 1927 (NACS, 2005a). He began stocking staple food items like milk and bread to offset declining sales of ice in colder months, and extended operating hours to differentiate his store from the competitors. The latter served an emerging class of workers with nontraditional schedules. Recognizing the popularity of this concept, the parent company of Green's operation, Southland Ice Company, began copying his formula. With the repeal of prohibition, beer was added to the mix of products with great success. The company's chain of "Tote'm's" c-stores grew to sixty, and was copied by the competition. The chain later renamed its franchise "7-Eleven".

Widespread car ownership, expansion of suburbs, booming factory work, and the explosion of the tourism industry aided the growth and diffusion of c-stores during the 1950's (Graves, 2017). According to this author, the c-store design changed dramatically in the 1970's due to competition, car ownership, rising demands on time and the rising expectation of convenience, leading to novelties such as drive-through and curbside service, as well as self-serve gasoline retailing. He notes that the economic policies of the 1980's further accelerated the compression of time and space for many Americans who found the pressures on their time and disposable income increased, especially for working women who were often faced with a double "shift", thus expanding the industry faster than any other retail sectors. However, at this time, the oil industry started to offer convenience kiosks at their service stations to compete. Since the 1990's, co-branding, a business strategy that added fast food to the oil and groceries, grew in popularity, proved more profitable than most traditional stores due to shared site maintenance costs and property taxes (Graves, 2017). More recently, hyper-convenience stores, with several retail themes under one roof (e.g., c-store or mini-market, burger restaurant, ice cream shop, dry cleaner, etc.), were added to the typology of store design (NACS, 2005b) and represent the latest growth sector in this industry.

2.2 The Convenience Store Consumer

It is often said that 80 percent of a convenience store's sales come from just 20 percent of its customers. "Core" customers were defined as those who make frequent visits to c-stores on a daily or weekly basis, and those who indicate they buy in-store items "every time" or "almost every time" after purchasing gas at a c-store (Hanson, 2016). According to this research, consumers aged 35-44 are significantly more likely to be daily or weekly c-store shoppers, and those aged 25-34 are significantly more likely to buy in-store merchandise after purchasing gas. Older customers, aged 55 and up, are significantly less likely to make daily or weekly c-store visits, or to stop in for a post-gas merchandise purchase. Whether their shopping trips are to get a take-home meal for the family or to indulge the kids with a special treat, parents have great potential to be core shoppers.

The 2018 Convenience Store Industry Report segments customers not along demographics but along their priorities and pain points. Customer segments include the Value Shopper, the Convenience Seeker, the Price Checker, and the Healthy Shopper. When choosing a convenience store, consumers' top three priorities are location, safety and gas prices. Alternately, Peterson (2010) identified four convenience store consumer segments according to their "need states", or their motivation for walking into and out of a c-store. They are: Mr. Jones—in the c-store because of life's simple addictions (tobacco, soda or snack); The Neighbor—the c-store is their community center, a ritualistic part of their day; The Last Minute Shopper—stops at the c-store on the way home on a mission for a very specific item; The Thrillseeker—want products that tap into their desire for emotion and will try anything once.

2.3 Public Health Research

In recent years, a stream of research has been published in the public health literature concerning the dietary impact of food selections offered by convenience stores. Since product offerings and location are an integral part of a company's marketing strategy, it is relevant to outline the social issues that may affect future strategic decisions of convenience stores. Convenience stores generally provide a greater assortment of less-healthy compared with healthier foods and beverages (Sharkey et al., 2012). Horner and Wood (2014) measure the accessibility people have to local food shopping opportunities given their activity patterns and available time budgets. They find that possible 'deserts' or areas of inaccessibility to grocery stores and supermarkets may force more reliance on convenience stores that carry less selection of healthy foods (Sharkey, Dean, Nalty & Xu, 2013). Convenience stores in high-poverty communities were less likely to carry prepared salads than those in low-poverty communities (Zenk, Powel, Isgor, Rimkus, Baker & Chaloupka, 2015). Greater availability of neighborhood convenience stores was associated with lower diet quality for participants with lower individual-level income, while associations at higher individual-income were weaker (Rummo et al., 2015).

In the case of adolescent obesity in the U.S., ease of access to convenience stores surrounding urban schools in the US is being associated with higher risk for obesity (Gebauer & Laska, 2011). Nearly half of adolescents reported visiting convenience stores at least weekly. Significant risk factors for frequent visits were age, being African American, living in rural areas with higher levels of neighborhood deprivation (Sanders-Jackson, Parikh, Schleicher, Fortmann & Henriksen, 2016). A regulatory mechanism is needed to reduce youth access to e-cigarettes and tobacco in convenience stores (Henriksen, Schleicher, Johnson & Lee (2019). In a Canadian study of young adults aged 16-30, participants who reported better health made fewer purchases at convenience stores. The findings lend evidence to the idea that convenience stores, which commonly sell prepared and packaged foods, are not currently equipped to help shoppers maintain nutritious diets (Widener et al., 2018). Four studies, three in the U.S. and one in Canada, examined the impact of healthy corner store intervention (Beckelman et al., 2020; Caspi et al., 2017; Houghtaling et al., 2019; Minaker, Lynch, Cook & Mah, 2017). They found that customers who shop at corner stores with more health promoting features (e.g., higher ration of shelf-space devoted to healthier products; greater variety of produce; produce visible from the store entrance) make healthier purchases, and creative strategies to increase sales of fresh vegetables and fruits seemed to substantially increase revenue from these product categories.

2.4 Convenience Store Marketing Strategy Industry Trends

Growth in healthy food and beverages sales led to positive overall sales at convenience stores in 2017, and retailers expect the momentum to continue according to a survey of retailers released by the National Association of Convenience Stores (NACS). The survey also predicted emerging trends for 2018: Kombucha drinks will continue to grow, as will new programs for home delivery (e.g., Uber), new payment methods (e.g., mobile payments, biometrics), healthier meal replacements, and the lunch daypart.

Loyal c-store shoppers respond more strongly to digital marketing: mobile app offers, promotions or messages on social media, and text messages are all significantly more likely to influence their decision to visit a c-store

compared to other shoppers (Hanson, 2016). Positive word-of-mouth also influences c-store loyalty program success (Wishaw, Abulashesh & Sumadi, 2019). Industry specialists recommend the use of point-of-sale software that includes a loyalty program for offering promos targeting frequent buyers; search engine optimization so that the c-store shows up in local search results; customers reviews of your business; use of TV inside your store to showcase promotions, and at the pump (Dizon, 2018).

Retail services such as drive-through and curbside service will complement mobile ordering (Lewis, 2015). According to this author, in-store alcohol service and seating for hanging out and enjoying expanded food service are growing in popularity, as are vending machines for fast self-service (e.g., lottery tickets). She also states that seasonal merchandising, nostalgia for discontinued products, local specialties; smaller portions for tasting or side dishes are increasingly appealing to consumers.

Convenience store brand differentiation can be accomplished through four critical differentiating attributes that result in attracting twice as much customer spending than those that do not: differentiators (highly valued but perceived as rare, such as cleanliness); essentials (product/service offerings are expected); delighters (welcomed but not expected, such as fresh food); and low priorities (not highly valued, such as toys) (Lutz et al., 2014). Wu and Lin (2014) posit that the perception of ethical responsibility of a convenience store chain increases Generation X consumers' satisfaction levels and purchase intentions. This can be an influential differentiation factor in attracting these loyal consumers.

As noted earlier, although convenience stores play an important role in the retail industry and the lives of consumers, there is a scarcity of scholarly research on this form of distribution channel.

3. Purpose of the Study

The successful marketing strategy of convenience stores requires the identification of a target market and development of a marketing mix (product/service, place, price and promotion) that will best satisfy the needs of this target market. This research was first conducted in 2008 to investigate marketing strategies *implemented* by convenience stores and whether differences are found in Canada and the United States. The research was replicated ten years later to monitor marketing strategy developments in this industry.

4. Methodology

Following a methodology established in several studies (Heroux, 2002; Heroux & Csipak, 2001, 2005; Heroux & Burns, 2000), this exploratory study, using 24 case studies, was undertaken in 2008 and replicated in 2018 in the contiguous regions of southwestern Quebec and northern New York. There is substantial economic integration and cross-border traffic between the two countries in this region, and the hospitality industry targets business and leisure travelers of both nationalities (Church & Heroux, 1999). For this reason, many similarities have been observed in these studies of the hospitality industry in these two countries.

A census of the convenience stores in two communities in this cross-border region was included in this research. The online Yellow Pages directory for the United States and Canada was used to identify the sampling frame of convenience stores in the contiguous geographic regions along the border. The region under study was expanded until 24 retail establishments were identified, representing the regions as follows: 12 from Quebec and 12 from New York. The typical convenience store in this study was an independently owned and operated family business that thus controlled its marketing strategy. The same convenience stores were revisited and data recorded 10 years later, following the same methodology described below. One interesting development in both regions is the conversion of the independent convenience store into a chain store, three establishments in Quebec, and two in New York.

Marketing strategy refers to the target market of the establishment and the marketing mix variables designed to attract these customers. The marketing mix variables are categorized according to the popular 4P framework (McCarthy & Perreault, 2000): Product; Place; Price; and Promotion. A more detailed marketing strategy evaluation grid was developed from the commonly accepted variables in the marketing strategy literature (McCarthy & Perreault, 2000; Kotler & Armstrong, 2013; Jain, 2010; Pride & Ferrell, 2014; Perreault et al., 2013, 2014; Lamb et al., 2012). Three of these categories of variables are subdivided in this study to capture the breadth of the categories: Product consists of product variety variables and service-related variables; Place refers to the location of the establishment as well as store atmospherics; and Promotion includes advertising variables and personal selling variables. This instrument was used to collect detailed qualitative observational descriptions and quantitative data of the convenience store marketing strategy variables. The comparison framework therefore consists of two cultural/geographic regions by eight marketing variable ratings. (See table 1).

The observational research was conducted by international marketing students who were familiar with the marketing concepts. Observers received training on a variety of dimensions of the research process. They received a detailed explanation of each of the variables in the Marketing Strategy evaluation grid and how each variable is operationalized. They were shown how to find and approach their assigned convenience store, how to record their qualitative observations, and how to determine a quantitative score (on a scale of 1 to 5, 5 being superior implementation) for each variable. For example, for breadth of product line, students would look at the assortment of products on the premises and make a judgment on the rating scale as to its appeal to consumers (5 would represent an outstanding assortment, beyond expectations; 3 would represent an average assortment usually found in convenience stores; and 1 would be the minimum one would expect). The trainer and trainees performed a “walk-through” of the research process prior to visiting the convenience store to ensure their understanding and consistent implementation of the data collection. Observation and listening were usually sufficient to gather information about each variable. For example, for the target market, they could look at license plates in the parking lot and see how many cars came from what state or province. They could tell what language, French or English, the customers spoke. They could ascertain if they were repeat customers if they appeared familiar with the establishment when they arrived, when they referred to past purchases, or when they were on first name basis with the staff. However, if some variables were difficult to observe, students were given guidelines for asking questions of the staff.

Table 1. Summary of the Marketing Strategy Variables Evaluation Grid (Heroux, 2002)

Marketing Mix (4Ps)

Product:

Product variety variables: Breadth of product line, assortment of accompanying products, size variations, quality, private labels/brands, special features, overall evaluation. (6 variables, maximum score of 30)

Service variables: customer services, customized/standardized, credit cards, empathy, reservations (computerization), hours of operation, guarantees, customer satisfaction (complaint handling), overall evaluation. (8 variables, maximum score of 40)

Place:

Location variables: Primary/secondary road (visibility), site evaluation (nearness to target market), outside appearance, private/public parking availability, detached building versus strip, general ease of access, overall evaluation. (6 variables, maximum score of 30)

Establishment atmospherics: Interior layout (free form, grid, racetrack); atmospherics—scent, lighting, color, mirrors, music, noise, signage; fixtures; cleanliness; size of crowds; type of clientele; access to disabled; overall evaluation. (12 variables, maximum score of 60)

Price:

Pricing variables: Relative high/low prices, competitive in region, group reductions, coupons/rebates, bundle or value pricing (packages offered), variety of payment options, overall evaluation. (6 variables, maximum score of 30)

Promotion:

Advertising variables: Newspapers, magazines, trade publications, television, radio, telemarketing, direct mail, internet, special promotions (sales, coupons, contests), outdoor ad and/or signage, advertising theme—testimonial, comparison, informative, humorous, etc., overall evaluation. (11 variables, maximum score of 55)

Personal selling variables: Approaching the customers, helpfulness, presenting product/service, making the sale, knowledgeable, art of listening, verbal/non-verbal cues, general appearance of staff, overall evaluation. (8 variables, maximum score of 40)

Summary rating:

Overall marketing strategy evaluation: addition of the overall rating in the eight categories.

Three trained observers visited each establishment together in both regions, spending 4-5 hours in each location to record detailed notes of how each marketing strategy variable was implemented. Then, the three observers had to discuss and come to an agreement on a score (on a scale of 1 to 5, 5 representing superior implementation of the strategy) for each variable in an attempt to quantify the observational data. Since this process resulted in one rating for each variable, inter-judge reliability measures were not relevant. Each item within a variable category

was weighted equally in this research. The data collection thus consisted of qualitative data, the recorded observations, and quantitative data, the assigned scores for each variable. This methodology was effectively applied in other rural tourism marketing contexts (Heroux, 2002; Heroux & Csipak, 2001, 2005; Heroux & Burns, 2000).

5. Results

The findings are discussed below in terms of quantitative results and qualitative results. Tables 2 and 3 present the quantitative results of the scale ratings for each of the eight variable categories. Although tests of significance cannot be performed because of the small number of cases, inspection of the table reveals that there are more similarities than differences in marketing strategy variables in the two regions.

5.1 Product Variety

In 2008, convenience stores carried a wider assortment of products in the United States than in than in Canada. The majority of products in American establishments can be classified in terms of percentage of sales as fuel (60-70%), cigarettes (15%) groceries including candy soft drinks, snacks, and dairy products (15%) and beer (5%) with many stores offering meals and lottery tickets for sale. Ten years later, the assortment of products increased in both regions, the Canadian region surpassing the American region.

Depth of product line was higher in Canadian convenience stores in 2008, and reached a higher level in 2018. The American convenience stores have caught up over the last 10 years. Both regions continue to place a greater emphasis on fuel rather than the products offered in the store, although the store's supplement to the profits gained from customers is increasing. Canadians also continue to place greater emphasis on product quality than in the United States, resulting in lower inclination to purchase groceries at convenience stores. As such, convenience stores in Canada attract customers by having quality fuel and maintaining fuel price parity with the region. However, stores do sell a smaller variety of products such as coffee (68% of location), wrapped sandwiches (61% of locations), wrapped pastries (57%) and fountain drinks (21% of locations). In addition, an estimated 40% of sales can be attributed to the cigarette purchases. This high percentage of sales includes a higher level of taxation on this product category than in the United States. Branded products are similar in both regions but have decreased over the years, allowing for private labels and local products. Canadian convenience stores offered more special features in 2008 but this trend reversed over the past 10 years, with American convenience stores now offering more special features.

Table 2. Summary of Marketing Strategy Ratings

Marketing Strategy Variable Ratings	New York 2008 N=12		Quebec 2008 N=12		New York 2018 N=12		Quebec 2018 N=12	
	Mean*	%**	Mean*	%**	Mean*	%**	Mean*	%**
Product Variety	19.2	63.9	20.5	68.3	22.2	74.0	22.0	73.3
Services	22.4	56.0	22.4	56.0	22.8	57.0	23.3	58.3
Location	20.3	67.8	22.3	74.2	26.4	88.0	26.0	86.7
Establishment Design	34.9	58.2	37.8	59.6	40.4	67.3	41.1	68.5
Pricing	12.5	41.7	12.3	41.1	18.2	60.7	18.8	62.7
Promotion	11.8	21.5	12.6	22.9	13.0	23.6	13.8	25.1
Personal Selling	21.2	52.9	22.1	50.2	26.7	66.8	29.1	72.8
Overall Strategy	142.3	51.7	149.9	53.2	170.3	59.8	174.4	61.2

*Mean: Average of the sum of ratings for all variables in the category.

**%: The mean results are represented as a percentage of the maximum score that could be achieved for the variable category.

Table 3. Quebec and New York Convenience Stores Marketing Strategy Variables Ratings

Variable	New York	New York	Quebec	Quebec	Overall	Overall
	2008	2018	2008	2018	2008	2018
	Mean	Mean	Mean	Mean	Mean	Mean
	St Dev	St Dev	St Dev	St Dev	St Dev	St Dev
Product:						
Product line depth	3.33	4.20	3.75	4.30	3.51	4.25
	1.07	0.79	0.75	1.06	0.88	0.91
Assortment	3.50	4.00	3.08	4.20	3.21	4.10
	1.00	1.15	0.99	0.79	1.01	1.07
Sizes	3.08	3.70	3.33	3.60	3.22	3.65
	1.16	1.16	0.98	0.97	0.91	1.04
Quality	3.50	4.00	3.91	4.20	3.48	4.10
	0.79	1.15	0.99	1.03	0.95	1.07
Brands	2.83	2.50	2.91	2.30	2.82	2.40
	1.33	1.65	1.16	1.50	1.29	1.54
Special features	2.91	3.70	3.50	3.40	3.17	3.55
	1.50	1.06	1.56	1.35	1.40	1.19
Service:						
Guest Services	3.66	3.40	3.25	4.40	3.37	3.90
	1.30	1.51	1.48	1.07	1.30	1.37
Customization	2.91	3.70	3.00	3.90	3.08	3.80
	1.08	1.06	1.41	0.88	1.24	0.95
Credit	3.50	3.90	3.41	4.00	3.08	3.95
	1.73	1.59	1.67	1.33	1.72	1.43
Empathy	2.91	4.30	2.83	4.60	2.94	4.45
	1.16	0.67	1.26	0.69	1.21	0.69
Hours	3.75	3.40	4.41	2.90	4.02	3.15
	1.05	1.43	0.79	1.45	0.89	1.42
Guarantees	1.83	4.20	2.33	4.20	2.00	4.20
	1.26	0.92	1.30	1.14	1.21	1.00
Satisfaction	2.83	4.00	3.16	3.90	3.00	3.95
	1.52	1.49	1.52	1.66	1.49	1.54
Place-Location						
Visibility	3.33	4.00	4.25	3.90	3.60	3.95
	1.72	1.49	0.86	1.66	1.33	1.54
Site evaluation	3.66	4.30	4.00	4.50	3.68	4.40
	1.37	0.82	0.60	0.71	1.07	0.75
Appearance	3.25	3.20	3.41	3.50	3.14	3.35
	1.05	1.32	1.37	1.51	1.24	1.39
Parking	3.25	4.00	3.33	3.50	3.17	3.75
	1.21	1.05	1.30	1.51	1.22	1.29
Building type	3.16	3.60	3.58	3.30	3.20	3.45
	1.33	1.51	1.08	1.38	1.20	1.39
Accessibility	3.66	4.50	3.66	4.20	3.60	4.35
	1.30	0.85	1.23	1.14	1.28	0.99
Place-Atmosphere:						
Layout	3.25	4.20	3.66	4.00	3.42	4.10
	0.86	0.92	0.88	1.33	0.85	1.12
Scent	2.83	4.10	3.25	4.20	3.05	4.15
	1.19	1.37	1.13	1.32	1.18	1.31
Lighting	3.75	3.70	3.66	4.10	3.48	3.90
	1.35	1.25	1.55	1.10	1.35	1.17
Color	2.91	3.80	3.33	3.60	2.91	3.70
	1.24	1.03	1.30	1.65	1.31	1.34
Music	1.50	2.00	2.50	2.90	2.02	2.45
	0.90	1.07	1.44	1.27	1.27	1.17
Noise	2.66	3.80	3.16	4.00	3.02	3.90
	1.23	1.40	1.33	0.94	1.27	1.17
Signage	3.50	3.60	3.00	3.30	2.90	3.45
	1.31	0.97	1.59	1.57	1.50	1.28
Fixtures	3.08	4.10	3.33	3.50	3.00	3.80
	1.31	1.37	1.37	1.08	1.23	1.24
Cleanliness	3.33	4.10	3.58	3.90	3.20	4.00
	1.07	1.37	1.31	1.60	1.23	1.45
Crowdedness	3.08	3.50	3.41	3.60	3.02	3.55
	1.37	1.18	1.24	1.17	1.22	1.15

Registers	2.41	3.60	2.16	3.50	2.17	3.55
	1.31	1.65	1.40	1.58	1.27	1.57
Disable access	2.58	3.40	2.66	3.00	2.48	3.20
	1.16	1.51	1.82	1.49	1.50	1.48
Price:						
Price level	3.33	3.50	3.33	3.60	3.31	3.55
	0.77	1.51	0.49	1.17	0.71	1.32
Competitive	3.00	3.10	3.00	3.60	2.91	3.35
	1.04	0.99	1.20	1.17	1.14	1.09
Group discount	1.66	1.30	1.58	1.50	1.60	1.40
	1.07	0.67	0.90	1.08	0.97	0.89
Coupons	2.16	1.90	2.16	2.30	2.00	2.10
	1.46	1.29	1.19	1.77	1.18	1.52
Value bundling	2.33	3.20	2.25	3.40	2.22	3.30
	1.43	1.81	1.35	1.51	1.33	1.63
Promotion-Ad:						
Print ads	1.50	1.80	2.08	1.70	1.82	1.75
	1.00	1.14	1.24	1.47	1.09	1.29
Broadcast ads	1.58	1.80	1.50	1.80	1.45	1.80
	0.99	1.39	1.00	1.48	0.88	1.39
Other ads/web	1.25	2.30	1.41	2.60	1.34	2.45
	0.62	1.42	0.79	2.06	0.68	1.73
Special promos	2.58	2.30	2.33	2.60	2.31	2.45
	1.56	1.34	1.07	1.84	1.23	1.57
Outdoor sign	3.33	1.40	2.91	1.80	2.88	1.60
	1.37	0.84	0.99	0.92	1.18	0.88
Ad theme	1.58	2.70	2.33	2.80	1.82	2.75
	1.08	1.83	1.23	1.75	1.12	1.74
Promotion-Selling:						
Approach	2.58	3.10	2.41	3.30	2.48	3.20
	1.31	1.45	0.99	1.64	1.17	1.51
Helpfulness	2.91	3.30	2.83	3.90	3.00	3.60
	1.44	1.57	1.58	1.66	1.41	1.60
Food presentation	2.16	3.00	2.91	3.20	2.22	3.10
	1.26	1.15	1.67	1.32	1.39	1.21
Making a sale	2.16	3.20	2.41	2.90	2.31	3.05
	1.40	1.32	1.50	1.37	1.34	1.32
Knowledge	2.75	3.70	2.75	3.70	2.80	3.70
	1.48	1.25	1.42	1.64	1.40	1.42
Listening	3.08	3.60	2.91	4.00	3.22	3.80
	1.37	1.50	1.37	1.15	1.26	1.32
Nonverbal cues	2.66	3.00	2.58	3.50	2.82	3.25
	1.55	1.56	1.37	1.27	1.42	1.41
Appearance	2.83	3.80	3.25	4.20	3.14	4.00
	0.71	1.48	1.05	1.23	0.91	1.34

5.2 Services

Services are standardized for convenience stores for both regions. As a result, many convenience stores are open 24 hours a day, 7 days a week with limited service offering such as ATM usage, newspaper stands, credit card and debit card payment options and lottery ticket distribution. Guest services have improved in both regions over the past 10 years, as have the express guarantees stated by the stores. Employee training has increased the level of empathy of store employees and the resulting handling of customers complaints to achieve customer satisfaction.

5.3 Location

Given the nature of the type of retail establishment, (convenience stores selling products for the convenience of consumers), the majority of companies are located in convenient high traffic areas. This is especially true of stores located off major interstate highways whose aim is to attract truckers and other travelers. In densely populated neighborhoods, stores are likely to be located near high traffic intersections since their long-term viability depends on customers within a two to six mile shopping radius. Convenience stores in all regions appear to be equally accessible. The Quebec location still has superior ratings on store appearance but parking facilities are now better at the American convenience stores.

5.4 Establishment Design

Most of the convenience stores in the two regions followed a grid design similar to what would be found in a supermarket. Quebec stores generally had better layouts, scent, color, music, fixtures, and the space felt less crowded. They also had better access for the disabled, and were the cleanest establishments, which is important in a food environment. The American establishments had better signage and lighting to make the products stand out. Ten years later, all variables had improved in both regions. American store layouts, color scheme, fixtures, cleanliness and disabled access had improved and surpassed the Canadian establishments. Scent, lighting, music, noise, and crowdedness continue to be superior in Canadian convenience stores (Table 4).

Table 4. Convenience Store Atmospherics

<i>Atmospherics</i>	<i>American</i>	<i>Quebec</i>
Scent	Brewed Coffee/Products for Sale	Coffee or None
Lighting	Very bright	Bright
Music	From local radio	French radio
Signage	Visible outside/promotions Inside	Visible signs on refrigerators, for lotto
Noise	From traffic, people talking	None

5.5 Price

Although convenience stores offer customers the opportunity to access groceries and other necessities more readily, this convenience comes at a higher cost to the customers. The findings indicate that pricing of goods was medium to high as compared to similar prices at supermarkets and other shopping centers. This was consistent in both regions. In addition, there were limited opportunities for customers to get group rates, value bundles or coupons due to distributor policies. However, because gas sales are the driving force for store traffic, companies tend to price gas competitively. Ten years later, Canadian prices were slightly more competitive as did coupon usage. Value bundling had increased in both regions (e.g., 2 for \$3, meal combos, etc.).

5.6 Promotion

Because price and location are the primary driving forces for convenience stores, there is a general lack of promotion in both regions from 2008 to 2018. Companies do not try to attract customers through direct mail, Internet, telemarketing, radio, television or trade publications. Rather, customers are able to gain awareness of these convenience stores through the usage of the Yellow Pages directories, outdoor signage and special promotions. These include reduced gas prices, participation in loyalty program, or limited time offers on products in the store. Overall, there is more promotion done by Canadian than by the American convenience stores. The only change in the past 10 years has been the increased use of web advertising, but this is still at a low level.

5.7 Personal Selling

In 2008, customers were more likely to receive a greeting from an employee when entering the American convenience stores than when entering a Canadian convenience store. However, Quebec convenience stores had a higher rating for employees attempting to make a sale, while employees in American convenience stores were well versed in the art of listening and their broad knowledge about the products available. Ten years later, Canadian store employees gave more greetings, were more helpful, were better listeners and better versed in non-verbal cues, and had a more professional appearance. Employee knowledge had increased similarly in both regions, but the American employees were more likely to make the sale. In both regions, employee training appears to have improved significantly in the past 10 years with a successful outcome.

6. Discussion

As seen by the data presented above, convenience stores have gradually continued to adapt their marketing mix to their target market. As a result, convenience stores in both regions have been able to offer products and services that will bring about repeat sales and increase their profitability, for the convenience that is worth the higher prices to consumers. Convenience stores offer customers time saving while offering what they value most: fast service, expedient locations, quality customer service and an adapted marketing mix.

Although there were more similarities than differences in marketing strategies in both regions, Quebec convenience stores were the most effective in implementing their marketing mix and adapting their strategy. Convenience store marketing strategies have improved in both regions in the past 10 years. Product assortment and depth of product lines have improved, as have the size options and quality of products. Although generally

standard, services have improved with respect to payment options, guarantees, complaint handling and employee empathy toward customers. Availability of parking and accessibility from the road have also improved. Although the outside of the building have not changed over time, the interior atmosphere has been upgraded through renovations. In both regions, the interior layout, scent management, color scheme, signage, fixtures, cleanliness crowdedness and access to the disabled have improved. Price levels have become more competitive and value bundling more popular. Promotion is still the weakest marketing strategy variable, with some increase in web advertising in both regions. On the other hand, the personal selling effort has improved through training, with employees approaching the customers, being more knowledgeable, listening to customers, making the sale, having a more professional appearance. However, in both regions, there is room for improvement.

In both regions, there are opportunities for convenience stores to offer special features that draw repeat customers, such as a loyalty program or special beverage or fresh food products. Hours of operation can be expanded, store outside appearance improved. There is also room for improvement for indoor signage, and access for the disabled. Price discounts through loyalty programs may be considered. Promotion through social media and mobile marketing applications, and training employees to make the sale or upsell may also be considered. In addition, Canadian convenience stores can improve parking and stores fixtures while American convenience stores can improve lighting, music, employee helpfulness to customers, and their professional appearance.

7. Conclusion

This research has highlighted the changes that have evolved in convenience store marketing strategies over a decade, and identified areas of strength and weaknesses to guide practitioners to improve their strategies for the future. The above findings are limited in sample size and in scope, and generalization beyond the regions under observation should be undertaken with caution. More research is needed in other Canadian provinces and American states.

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Banking Market Structure and Cost of Credit in the WAEMU

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Abstract

This paper provides an empirical assessment of the relationship between the structure of the banking market and the cost of credit in the WAEMU. The analysis focuses on WAEMU countries except for Guinea-Bissau due to the lack of sufficiently long series. The study covers the period from 1996 to 2017. Using the fully modified ordinary least squares (FMOLS) method, we show that the banking market concentration ratio has a double effect on the cost of credit. First, the concentration ratio increases the cost of credit, and second, it decreases the cost of credit after reaching a threshold of 70 percent. Moreover, the results highlight the positive impact of the money market interest rate on the cost of credit. On the other hand, the inflation rate unexpectedly lowers the cost of credit in the WAEMU.

Keywords: market structure, bank concentration, cost of credit, DOLS, WAEMU

1. Introduction

Financing is an important pillar of any economic activity. In the absence of adequate financing, the investment needs of companies are not covered. Also, the creation of new businesses is stagnating, established businesses are struggling to develop an economic growth is slowing down. The role of finance in economic development has long divided economists. For Robinson (1952), "where business leads, finance follows" and for Lucas (1988), finance is an overestimated determinant of economic growth. Since growth is only the product of the real sector, finance only responds to real phenomena and, in this sense, would have no impact in itself on economic development. However, other economists recognize the impact of finance on economic growth as early as the end of the 19th century with Bagehot (1873) or at the beginning of the 20th century with Schumpeter (1912). For the latter, the banking system plays a central role in economic growth, by allocating savings to productive projects. For Levine (2005), more recent research on the link between growth and finance suggests that «(1) countries with better-functioning banks and markets develop more rapidly; (2) the simultaneity bias does not seem to affect these conclusions; and (3) increased efficiency of financial systems reduces constraints on the external financing of firms, indicating that this is one of the mechanisms by which the development of financial markets influences growth ». King and Levine (1993) argue that financial development has a positive impact on economic growth through a variety of channels, including reducing the cost of external financing to firms and increasing the efficiency of resource allocation. Based on this work, subsequent studies have shown that the plurality of banking institutions in a financial system is a much more important factor. According to Simpasa (2013), effective competition in the banking sector can reduce the cost of financial intermediation, improve the provision of high-quality services and, in turn, improve consumer welfare. Besides, Claessens and Laeven (2003) and Anginer et al. (2014) indicate that banking competition generally reduces the costs of financial intermediation and improves firms' access to external financing. Competition can be seen as an incentive to reduce the costs of banking services or products, and to innovate, especially to improve technological infrastructure (Nickell, 1996). Banking competition is therefore desirable for borrowers. But concentration in the banking market also has positive effects, at least from a theoretical point of view. Indeed, in the absence of competition, large and well-established banks in the banking market can offer lower interest rates to their customer's thanks to economies of scale, thus attracting young companies. In this sense, Diagne (2011) finds that access to finance for small firms has remained very low despite the entry of several new banks into the banking market in Senegal. Similar results were observed in the United States by Petersen and Rajan (1995) who concluded that increased competition in the local credit market is negatively associated with access to small business finance. Overall, this brief review shows that the structure of the market influences the cost of bank

credit.

In the WAEMU zone, the number of banks has changed considerably in recent years, rising from 55 in 1995 to 126 in 2017 (WAEMU Banking Commission Report, 2018). The state of the banking market structure, as measured by the banking concentration ratio (CR3), fell from 80% to 75% between 2000 and 2006, a reduction of 5 percentage points. Over the same period, the cost of bank lending declined from 12.8% to 11.4%. Based on these two developments, it could be assumed that competition between banks in the area is reducing the cost of bank lending. In contrast, between 2010 and 2016 competition among banks continued to intensify, with the bank concentration ratio declining by 20 percentage points to 58%, while the cost of credit increased from 9.6% to 10.02%. Of the latter two relationships, banking competition appears to increase the cost of credit. Given these various developments, the relationship between the cost of credit and the structure of the banking market appears ambiguous. Thus, the central issue of this study revolves around the following fundamental question: to what extent does the structure of the banking market influence the cost of credit in the WAEMU zone?

Thus, the main objective of this study is to empirically analyze the effect of the structure of the banking market on the cost of credit in the WAEMU. Specifically, it is:

- (i) analyze the impact of banking market concentration on the cost of credit in the WAEMU;
- (ii) to examine the influence of the increase in the money market interest rate on the cost of credit in the WAEMU.

To achieve these objectives, we assume the following two hypotheses. First, there is a threshold beyond which bank market concentration increases the cost of bank credit. Second, an increase in the money market interest rate increases the cost of bank credit.

There is no lack of interest in this study. Indeed, very few studies have focused on the link between the structure of the banking market and the cost of credit in the WAEMU. This study, therefore, makes an empirical contribution to this subject in the WAEMU zone. Moreover, the banking structure is of particular interest to the BCEAO in terms of the transmission of key rates to the interest rates applied by banks. The results of this study could, therefore, help the monetary authorities of the union to put in place adequate financial reforms.

Methodologically, the study is based on the FMOLS estimator developed by Pedroni (1996) and Philips and Moon (1999). The Fully Modified Least Squares Method (FMOLS) is based on a non-parametric approach that takes into account the effect of serial correlation while solving the problem of regressor endogeneity. Also, this method produces reliable estimates on small samples and provides robust results. The study uses annual data covering the period 1996 to 2017 and the choice of this period is dictated by data availability. Our data are drawn primarily from three major sources: the Central Bank of West African States (BCEAO, 2019), the World Bank's Global Financial Development Data (GFDD, 2018), and the World Development Indicator (WDI, 2018).

This article is organized as follows: Section 2 is devoted to a review of the literature on the relationship between the structure of the banking market and the cost of credit. Section 3 presents the methodology of the study. Section 4 presents the data source and the description of the variables. Section 5 will discuss the empirical results, particularly the econometric analysis of the relationship between the structure of the banking market and the cost of credit. Section 6 is reserved for the conclusion of the study.

2. Literature Review

This section reviews the theoretical and empirical literature on the link between the structure of the banking market and the cost of credit. For the sake of clarity, we first present a review of the theoretical literature and second, a review of the empirical literature.

2.1 Review of Theoretical Literature

At the theoretical level, the theoretical basis of the relationship between the structure of the banking market and the cost of credit lines in the opposition between the Structure-Behavior-Performance (SCP) and the Structure-Efficiency (ES) hypothesis. Concerning the Structure-Behaviour-Performance (SCP) hypothesis, formulated by Bain (1959), the fundamental idea of SCP is based on the fact that banking behavior is determined by the structure of the market, whose key factors are the number, size, and concentration of suppliers (Dietsch, 1992). Depending on the structure, the quantities offered, prices, and bank profits are immediately determined. Thus, from the SCP perspective, bank concentration tends to bring the market closer to an oligopoly equilibrium, or even a monopoly. The pricing of banking products in a situation of concentration in the sector is then characterized, in contrast to a situation of perfect competition, by higher lending rates and lower deposit rates. Thus, in imperfectly competitive markets, prices are less favorable to consumers, with high lending rates and

relatively low deposit rates (Bourke, 1989). From this perspective, Hannan (1991) shows that the more concentrated the market, the higher the banks' profits. Thus, a concentrated market provides banks with higher profits. In such a market, banks can merge and take advantage of higher interest rate margins. This merger behavior increases as market share become concentrated in the hands of a few companies (Samad, 2008). Thus, firms in a concentrated market will make higher profits than those operating in a less concentrated market, regardless of their efficiency. Furthermore, it is interesting to note that a concentrated market contributes to the reduction of information asymmetries. Indeed, in non-competitive markets, banks build long-term relationships with their customers, which helps them to better know the profile of each customer, and ultimately reduces the risk of default. Marquez (2002) argues that borrower-specific information becomes more dispersed in competitive banking markets, leading to a less efficient selection of borrowers, and most likely higher interest rates. However, banking competition could improve the stability of the banking sector by mitigating the risks taken by banks (Acharya et al 2016) and by reducing systemic risk in the banking sector (Anginer et al 2014). A priori, a competitive market structure should encourage banks to reduce their bank margins in order to increase market share, or at least to preserve their customer base. The SCP model has yielded important results on the understanding of bank behavior. However, this approach has its limitations. First, it focuses on market power to explain the behavior of the banking firm. However, changes in interest rates also depend on the conditions of competition in the sector (Klein, 1971). Second, in concentrated markets, banks are likely to be less efficient in collecting deposits, offer less credit and, all other things being equal, be more profitable. As a result, greater concentration is not necessarily beneficial and may even be an impediment to business financing. This is one of the reasons for adopting another approach known as the Efficient Structure (ES) hypothesis. Founded by Demsetz (1973), the Efficient Structure Hypothesis (ES) states that the increase in profits is not due to collusion but rather to the efficiency of firms in the market. Indeed, cost efficiencies achieved through economies of scale and scope allow banks to increase their market share. For example, firms with management technologies, higher production capacity, or economies of scale have lower operating costs and higher profits. To illustrate this idea, Berger and Hannan (1989) find that the most efficient firms produce and price closer to marginal cost. From this finding, it appears that market concentration is the result of bank efficiency. From a general perspective, efficient structure theory is based on two main axes: X-efficiency and scale efficiency. The first argues that market concentration results from the efficiency of the firm. Indeed, companies with superior management technologies or production have lower costs and therefore higher profits. As a result, the increase in market power and profitability of banks is attributable to operational efficiency and not to collusive behavior as indicated by the SCP paradigm (Athanasoglou et al. 2006). The second efficiency of scale hypothesis indicates that the effectiveness of banks depends on their ability to achieve economies of scale, allowing them to reduce costs and achieve higher profits (Thoraneenitayan 2010). As a result, efficient and competitive banks grow to become larger to achieve greater market share and also greater profits. These theoretical links have been the subject of empirical studies.

2.2 Review of Empirical Literature

To achieve coherence in the presentation of the studies, we start first with those that focus on developed countries, then on emerging countries and finally on African countries. Concerning developed countries, De Young and Noll (1996) conducted a study on a small sample of small and large banks present on the American banking market. The results of the study indicate that bank concentration positively influences lending to small firms in urban areas but negatively influences lending to those in rural areas. Moreover, the authors find that the pricing of banking products in a concentrated banking environment is characterized by higher lending rates and lower lending rates compared with a perfectly competitive environment. Based on a sample of 53 developing countries, Love and Peria (2012) analyzed the effect of bank concentration on access to corporate finance. The results of the study show that firms have very little access to bank finance in a highly competitive banking environment, giving support for the market power view. Ryan et al (2014) examined the effect of the market power of banks on SME credit constraints, using panel data from more than 118,000 SMEs in 20 European countries over the period 2005-2008. The results support the market power hypothesis that increases in market power lead to increased financing constraints for SMEs. Furthermore, they find that the effect of bank market power on financing constraints increases in bank-dominated financial systems. For their part, Ryan et al. (2014) examine the effect of bank market power on SME credit constraints, using panel data from more than 118,000 SMEs in 20 European countries over the period 2005-2008. The results show that banking market power can have negative effects, as it increases the financing constraints on small and medium-sized enterprises. Furthermore, they find that the effect of bank market power on financing constraints increases in financial systems that are more dependent on banks. Using a panel of firms from 20 European countries, covering the period 2001-2011, Fungáčová et al. (2017) find that bank competition increases the cost of credit, especially for

small firms. Such results indicate that in a situation of bank concentration, banks are willing to invest in information, which helps them to know borrowers better and thus lower the cost of credit. In contrast, Canta et al (2018) studied the relationship between competition and risk-taking in banking markets in Norway. The results indicate that increased competition leads to greater risk exposure. Moreover, by examining the effects of banking competition on the availability of loans, they concluded that increased competition leads to lower interest rates and higher loan volumes for small and newly established businesses. Concerning emerging countries, some studies exist. Using a survey on the financing of small and medium-sized enterprises in China, combined with detailed bank branch information, Chong et al (2013) investigate how concentration in the local banking market affects the availability of credit. They find that lower market concentration alleviates financing constraints. Turk-Ariss (2010) examines the effect of market power on the efficiency and stability of banks in developing economies. The results indicate that an increase in market power leads to greater banking stability and improved profitability. Such results confirm the traditional view that increased competition can undermine the stability of banks and can have important implications for banking systems in developing economies. As a result, efficiency could be one channel through which the effects of market power can be diffused. Indeed, Schaeck and Cihak (2014) reach these conclusions. Concerning the studies conducted in Africa, it is possible to list only a few. Ephraim and Montfort (2004) examine the effect of financial sector reforms on bank interest rate spreads in Malawi. They find that interest rate spreads increased significantly after liberalization and that the observed spreads can be attributed to high lending rates, monopoly power, high reserve requirements, high policy rates, and high inflation.

For Ghana, Adoah (2015) studies the determinants of bank lending rates. The author finds that the policy rate, the treasury bill rate, inflation, GDP, bank size, and the HHI concentration index are the main determinants of lending rates in Ghana. In Kenya, Itimu and Abdul (2018) examines the determinants of average commercial bank lending rates, based on a sample of 11 publicly traded commercial banks. The results indicate that specific factors such as capital adequacy, liquidity risk, bank size, non-performing loans determine the average lending rates of commercial banks in Kenya. For WAEMU countries, over the period from 1991 to 2009, Ouédraogo (2012) analyzed the relationship between bank competition and profitability. Using four different measures of bank concentration, the number of banks, the CR3 and CR2 ratios, and the HHI index, he was able to establish that concentration positively affects financial profitability (ROE) and bank economic performance (ROA) but limits the development of the banking sector.

3. Empirical Strategy

In this section, we present, first, the model specification and, second, the estimation method.

3.1 Model Specification

Our model is based on that of Fungacová et al (2017) with some modifications. Thus, the model to be estimated in this study is specified as follows:

$$CC_{it} = \alpha_0 + \alpha_1 CR3_{it} + \alpha_2 CR3_{it}^2 + \alpha_3 CREDIT_{it} + \alpha_4 GDP_{it} + \alpha_5 TMM_{it} + \alpha_6 INF_{it} + \alpha_7 STP_{it} + \varepsilon_{it} \quad (1)$$

Where CC represents the cost of bank credit granted to economic agents. The cost of bank credit, commonly referred to as the lending rate, is obtained by a functional aggregation, expressed as an annual average, of the individual rates charged by banks. CR3 is the bank concentration ratio and CR3² is the banking concentration ratio squared to capture a threshold effect. The CR3 concentration ratio is defined as the aggregate assets of the three largest commercial banks as a percentage of total commercial bank assets. When the banking market in a country or area is highly concentrated, this means that a small number of banks can change the market environment to the detriment of other banks. CREDIT represents bank credit to the economy. Also, GDP represents the ratio of gross domestic product to the total population. It is an indicator of a country's level of wealth. An increase in GDP per capita increases the ability of borrowers to meet their commitments. MMR is the money market interest rate. Also called the interbank market rate, it is the rate at which commercial banks borrow and lend short-term money to each other. INF is the rate of inflation, which is measured here by the growth rate of the consumer price index (CPI). STP is the political stability index. It is an assessment of the government's ability to carry out its stated program and its ability to stay in power. It varies between -2.5 and +2.5. A score closer to -2.5 corresponds to more political instability in the country, a score closer to +2.5 corresponds to less political instability. Lower political instability reduces market uncertainty. Finally, α_{it} represents the coefficients of the explanatory variables to be estimated; ε_{it} the error term; i the country index and t the time index.

3.2 Method of Estimation

In the following lines, we first present the preliminary econometric tests and the estimation technique.

3.2.1 Preliminary Economic Tests

Before using any time series to perform econometric regressions, it is essential to test the stationarity of the variables. Note that a time series is said to be stationary when its statistical properties do not vary over time. To test the stationarity of these series, it is possible to use two tests, namely the Augmented Dickey-Fuller (ADF) test, and the Phillips-Perron test. The first is more efficient in the presence of autocorrelation of errors and the second is recommended in the presence of heteroskedastic errors (Kuma, 2018). Several tests allow testing the stationarity of variables with panel data. In our study, we use the second generation unit root tests of Pesaran (2007) and Breitung de Das (2005) because of the interdependence between the individuals in our study. After the unit root test, if it turns out that the studied series are non-stationary, then the cointegration tests can be performed. Two series are said to be cointegrated if one or more long-term equilibrium relationships exist between them. To verify whether the series studied are cointegrated, the econometric literature provides several tests or approaches, including the Engel and Granger (1987), Johansen (1988), Johansen and Juselius (1990) and Pesaran al. (2001) tests. The first two help to verify cointegration only between similar integrated series, which is not always the case in practice. They are not suitable for cases where series are not integrated into the same order and where there are more than two variables. Johansen's (1988) and Johansen's (1991) paper was designed to test cointegration on more than two variables. However, it is also limited insofar as it is not suitable for situations where series are integrated in a different order (I(0), I(1)). It is also important to check the non-dependence between individuals in the panel. We then test the hypothesis of non-dependence between individuals using the Breusch-Pagan test. As a result, given the possible interdependence between individuals in the panel, we opt for the Pedroni (1999) test, which solves this problem.

3.2.2 The Estimation Technique

The choice of the estimation technique depends on the conditions of the econometric tests presented above. Thus, if the conditions of the unit-root and cointegration tests are met, then it will be possible to use the Fully Modified (FM) method initially proposed by Phillips and Hansen (1990), then extended by Phillips (1995), which is a semi-parametric procedure for estimating the parameters of a cointegrating relationship that corrects for the long-run endogeneity bias. Indeed, the use of the Ordinary Least Square Method (OLS) results in biased estimates in the estimation of long-run equations on panel data (Pedroni, 2001). To overcome this problem, Pedroni (2001) proposes the Fully Modified Ordinary Least Square Estimator (FMOLS). The distribution of the estimators obtained by this method is independent of the nuisance parameters present in the OLS distribution. Therefore, the statistics of the usual tests applied to modified least squares estimators follow standard distributions identical to those used in a stationary universe. The main advantage of this method lies in its ease of implementation. Modified least squares simply involve applying OLS to a transformed model. The transformation used is obtained from a convergent estimator of the long-run variance-covariance matrix of the residuals and the innovations of the non-stationary variables. The intuition of the chosen transformation is very simple. The goal is to orthogonalize the residual of the cointegrating relationship concerning the innovations of the non-stationary variables. Once the system has been rewritten so that the residual of the cointegrating relation is orthogonal to the innovations of the I (1) regressors, then OLS can be applied.

The distribution of the estimators is in this case independent of the nuisance parameters, centered and symmetrical. In our study, we use the FMOLS method because it produces reliable estimates on small sample sizes and allows us to verify the robustness of the results. However, since we are working on panel data, it is necessary to ensure the homogeneous or heterogeneous specification of the data generating process. This amounts to testing the equality of the coefficients of the model studied in the individual dimension. From an economic point of view, the specification test makes it possible to determine whether the theoretical model is perfectly identical for all countries or whether there are country-specificities. There are several specification tests. In this study, we use Fisher's test, which consists of choosing between a homogeneous model and a specific effects model. It is a test that makes it possible to justify whether it is appropriate to estimate the model on panel data or whether it is more appropriate to estimate the model on a country-by-country basis. The principle of the test is as follows: H_0 : the homogeneous model versus H_1 : the individual effect model.

4. Data and Descriptive Evidence

In this section, we present the data source and descriptive statistics for the variables in the model.

4.1 Data

The empirical study is based on a panel of 7 WAEMU countries over the period 1996-2017. The data used for the estimates come essentially from three major sources: the Central Bank of West African States (BCEAO, 2019), the World Bank's Global Financial Development Data (GFDD, 2018), and the World Development Indicator (WDI, 2018). Table 1 below provides information on the variables used, the expected effects, and the sources of the data.

Table 1. Variables and Expected Effects

EXOGENOUS VARIABLES	ABBREVIATION	EXPECTED SIGN
Banking market concentration ratio	CR3	-
Banking market concentration ratio squared	CR3 ²	+
Credit to the economy	CREDIT	-
GDP per capita	GDP	-
Inflation rate	INF	+
Money market rates	TMM	+
Political Stability	STP	-

Source: Author, based on economic literature.

To describe our variables properly, we adopt a dependent and independent variable categorization. The endogenous variable is the cost of credit (CC), which here represents the lending rate obtained by functionally aggregating, expressed as an annual average, the individual rates charged by banks. For De Bock and Demyanets (2012), it is the price that a borrower pays for the use of the money he borrows from a lender/financial institution or fees paid on borrowed assets. The lending rate charged by banks differs from one economic agent to another depending on the creditworthiness or degree of risk incurred by the borrower.

Regarding the explanatory variables, let us start with the interest variable, the bank concentration ratio (CR3), defined as the total assets of the three largest commercial banks as a percentage of the total assets of commercial banks. When the banking market in a country or area is highly concentrated, it means that a small number of banks can change the market environment to the detriment of other banks. In theory, market concentration reduces competition between institutions, thereby facilitating cartels and anti-competitive practices. Thus, the expected sign for this variable and its square are negative and positive, respectively.

Regarding the control variables, we select five for their potential explanatory power of our dependent variable. First, we have credit granted to the economy, measured by the volume of total credit granted to the economy as a ratio of GDP. This ratio underlines the importance of the role played by the financial sector, in particular the deposit banks, in financing the economy. Thus, the expected sign for this variable is negative. Next, GDP per capita (GDP), which is an indicator of the level of economic activity in a country. An increase in GDP per capita enables borrowers to better honor their commitments. Therefore, the expected sign for this variable is negative. We also have the inflation rate, which refers to the generalized and continuous increase in prices and is generally expressed as an annual percentage change in the consumer price index. It contributes to currency depreciation.

Inflation affects banks because they generally trade in nominal financial instruments that make up the bulk of banks' assets and liabilities. The expected sign for this variable is positive. The money market rate, also known as the interbank market rate, is defined as the rate at which commercial banks lend each other central bank money or foreign exchange in the short term. It plays an important role in economic activity and fluctuates in response to inflation, unemployment, or international conjecture. An increase in the cost of refinancing, and thus in the money market rate, can have a positive impact on the cost of bank credit. The sign expected here is positive. Finally, the political stability index reflects a country's political situation. It is an assessment of the government's ability to carry out its stated program and its ability to remain in power. It varies between -2.5 and +2.5. A score closer to -2.5 corresponds to more political instability in the country, a score closer to +2.5 corresponds to less political instability. Lower political instability reduces uncertainty. The expected sign for this variable is therefore negative.

4.2 Descriptive Statistics

The descriptive analysis consists of making a synthetic and explicit description of the observed data in order to

better analyze them. Thus, for this work, the variables will be studied in terms of their mean, standard deviation, minimum, and maximum. The descriptive statistics of the data are recorded in Table 2 below. The examination of this table provides information on the cost of credit in the WAEMU zone. The average cost of bank credit over the period 1996-2017 is 11.70 percent. At the same time, the bank concentration ratio stands at 76.15 percent, highlighting a highly concentrated banking sector in the zone. Moreover, the average GDP per capita is USD 723.13, with a standard deviation of 310.599. The high value of the standard deviation of income shows that the increase in income in the WAEMU over the period 1996-2017 did not benefit all social classes. The low inflation rate (2.26 percent) is explained by the price stability policy constantly pursued by the BCEAO. In addition, the average money market rate is 4.08 percent. Finally, the political stability index has an average of -0.37 percent, which means that WAEMU countries regularly face socio-political crises.

Table 2. Descriptive Statistics of Variables

Variables	Observations	Moyenne	Ecart-type	Min	Max
CC	154	11.694	2.627	2.532	18.779
CR3	154	76.146	15.719	40.015	100.000
TMM	154	4.083	0.928	2.510	5.34
GDP	154	723.133	310.599	322.149	1632.677
INF	154	2.281	2.607	-3.099	11.305
STP	154	-0.377	0.703	-2.264	1.049

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

Descriptive statistics will be complete if the correlations between the variables are studied to avoid the risk of multicollinearity. The results reported in Table 2 indicate that the cost of credit is positively related to bank concentration. In Table 3, the correlation coefficients between the explained variable and the explanatory variables are almost all significant at the 5 percent level. In addition, the correlations between the explanatory variables are moderate and low. Of all the explanatory variables, the pair of bank concentration ratio (CR3) and money market rate (TMM) has the highest correlation coefficient (0.365), but well below 0.8. Therefore, the impact of multicollinearity is not significant and all the explanatory variables in the model can be retained for analysis.

Table 3. Correlation Matrix between Pearson Variables

	CC	cR3	TMM	GDP	INF	stp
CC	1.000					
Cr3	0.235*	1.000				
TMM	0.622*	0.365*	1.000			
GDP	-0.154*	-0.182*	-0.135*	1.000		
INF	-0.009*	0.241*	0.234*	0.092*	1.000	
Stp	0.123	0.283*	0.298*	0.136*	0.075	1.000

Note: * refers to the significance of the parameters at the 5% threshold

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

After these various descriptive statistics, we can now present the results of our estimates.

5. Empirical Results

The empirical analysis takes the following approach. First, we present the results of the homogeneity and dependence tests. Second, we present the results of the stationarity of the variables. Thirdly, we present the long-term coefficients from the estimates.

5.1 Homogeneity and Dependency Test

The test results are presented in Table 4. The p-value associated with the test statistic is less than 1%, so the null hypothesis of no specific effects at the 1% threshold is rejected. After the homogeneity test, we performed the dependency test.

Table 4. Homogeneity Test Results

F (6.147) =	19.12
Prob > F =	0.000

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

The hypothesis of non-dependence between individuals is tested using the Breusch-Pagan test. The results of the test are presented in Table 5.

Table 5. Dependency test results

Variable	T-statistic	P-value
Res	20.70	0.000

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

The p-value associated with the test statistic is less than 1%, then the null hypothesis of independence is rejected. This indicates that the individuals in the study are dependent on each other. The second generation tests used will be those of Breitung and Das (2005) and Pesaran (2007).

5.2 Unit Root and Cointegration Test Results

One of the first steps in the time series modeling approach is to check the stationarity of the data generating process. This is because most analyses are done on a long series. These series are subject to perturbations of various origins that tend to modify the variance of the data, which sometimes biases the estimation results. In this study, the order of integration of the variables is tested following the second-generation tests of Pesaran (2007) and Breitung and Das (2005). The choice of the second generation tests is because, unlike the first generation test, they take into account the interdependence between individuals in the panel. The results of the test summarised in Table 6 show that at the 5% threshold, the null hypothesis confirming the presence of unit root cannot be rejected for all level variables. The variables are all stationary after taking the first difference. Thus, there is a presumption of a cointegrating relationship between the different variables.

Table 6. Stationarity Test Results

Variables	At Level		In First Difference		Decision
	Pesaran	Breitung & Das	Pesaran	Breitung & Das	
CC	-4.029** (0.000)	-2.285* (0.011)	-	-	I(0)
CR3	-0.669 (0.251)	-3.069** (0.001)	-8.675** (0.000)	-4.425** (0.000)	I(1)
CR3 ²	-1.888* (0.030)	-3.117** (0.000)	-	-	I(0)
TMM	-0.327 (0.371)	1.742 (0.959)	-3.272** (0.000)	-3.669** (0.000)	I(1)
GDP	4.885 (1.000)	2.111 (0.982)	-5.414* (0.000)	-5.261** (0.000)	I(1)
INF	-6.147** (0.000)	-7.486** (0.000)	-	-	I(0)
STP	-2.076* (0.019)	-1.172 (0.120)	-2.686** (0.003)	-7.366** (0.000)	I(1)

Note: The values in brackets are the p-values * (***) means that the series is stationary at the threshold of 5 % (1 %).

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

Table 7 presents the results of Pedroni's (1999) cointegration test. The choice of Pedroni's (1999) test is because, unlike Kao's (1999) cointegration test, it takes into account the interdependence between individuals in the panel. It appears that all three statistics in the test are in favour of the existence of a long-term relationship between the variables. We can therefore conclude that the variables are cointegrated and an error-correction model will be used to estimate the long-term relationship.

Table 7. Result of Pedroni's (1999) Cointegration Test

	T-statistique	P-value
Phillips-Perron Modifié	3.134**	0.000
Phillips-Perron t	-2.964**	0.001
Dickey-Fuller Augmenté	-3.404**	0.000

Note : The asterisk** indicates significance at the 1 % levels.

Source: Author, based on data from GFDD (2018), WDI (2018) and BCEAO (2019).

At present, we can present and interpret the econometric and economic results of the long-term parameters by the FMOLS method.

5.3 Results of Parameter Estimation by the FMOLS Method

The results are recorded in Table 8 below. The estimation results show that all the coefficients of the variables are significant at the 5% threshold except for the CREDIT variable which is significant at the 10% threshold. Also, it is noted that the bank concentration ratio (CR3) and the money market rate (MMR) positively affect the cost of bank lending, while the concentration squared ratio (CR3²), the credit supply (CREDIT) and the inflation rate (INF) negatively affect the cost of credit.

In terms of interpreting the results, we find that bank concentration increases the cost of bank credit. This could be explained by the fact that the more market power the banks have, the more they can charge higher lending rates and lower deposit rates to take advantage of higher annuities. These results are consistent with those of Beck et al. (2003), who find that bank concentration increases barriers to financing and decreases the likelihood of receiving bank credit. In the long run, however, the effect of concentration is not the same. The positive effect initially observed turns into a negative effect above a certain threshold (70%), giving rise to an inverted U-shaped curve. This negative aspect could be explained by the advantage of a non-competitive market in building customer relationships. These different relationships allow the bank to facilitate monitoring, filtering and overcoming the problems of informational asymmetries they may face.

Thus, based on this information, they can offer low-interest rates to borrowers with a low risk of default, as well as to small businesses seeking financing. This is consistent with the study by Berger and Udell (1995), who admits that small firms entering into banking relationships pay lower interest rates. Similarly, Marquez (2002) has shown that borrower-specific information becomes more dispersed in competitive banking markets, leading to a less profitable selection of borrowers with higher interest rates.

Table 8. Estimation Results for Long-term parameters using the FMOLS method

Endogenous variable: COST OF CREDIT

Variables	Coefficient	Standard deviation	T-statistics	P-value
CR3	0.126**	0.050	2.501	0.013
CR3 ²	-0.9.10 ^{-3*}	0.3.10 ⁻³	-2.968	0.003
CREDIT	-0.043*	0.025	-1.696	0.092
GDP	-0.015	0.023	-0.670	0.503
TMM	1.235*	0.156	7.911	0.000
INF	-0.200*	0.024	-8.148	0.000
STP	-0.271	0.180	-1.507	0.134

Note: The asterisk * (**) indicates significance at the 1 % (5 %) levels.

Source: Author, based on data from GFDD (2018) and WDI (2018).

As regards the negative effect of the credit supply on the cost of credit, this is explained by the equilibrium that is emerging in the market for loanable funds. An increase in the supply of credit increases the availability of cash, which reduces its opportunity cost. Thus, it will reduce the cost of borrowing. In recent years, the very accommodating monetary policy of the Central Bank of West African States (BCEAO) could explain this fall in lending rates.

As for the money market rate, its increase leads to an increase in the cost of credit. The more expensive refinancing is, the more commercial banks raise the cost of the credit they provide. This shows that the interest rate can be used as an instrument of monetary policy. Indeed, in the economic literature, the interest rate is a powerful channel for monetary policy.

As for the inflation rate, the results show that it hurts the cost of credit. This result is counter-intuitive, as higher inflation is expected to raise banks' operating costs and increase the cost of credit. However, this negative effect could be explained by the low inflation rate in the WAEMU zone (average inflation rate is 2.26% between 1996 and 2017), which does not affect banks' real activity. Our results are in contradiction with that of Omondi (2014), who, in his study on the effects of inflation on commercial bank lending in Kenya, found that inflation had a positive and significant effect on the borrowing rate of commercial banks.

In terms of hypothesis validation, it should be recalled that this study tested two hypotheses. The first hypothesis stated that a concentrated banking market has a positive effect on the cost of credit in the WAEMU. Our results provided evidence that, indeed, when banking activity is dominated by a small number of providers, as in the WAEMU, the cost of credit increases. But above a threshold of bank concentration (70 percent), banks get to know their customers better, allowing them to offer bank credit at lower rates. Our first hypothesis that bank concentration has a positive effect on the cost of credit is therefore partially verified. Under our second assumption, the money market rate has a positive influence on the cost of credit. Indeed, when banks refinance at a high rate, they tend to implement this increase in lending rates in order to achieve high-interest margins. Thus, our second hypothesis is verified.

6. Concluding Remarks

The general objective of this study was to analyze the effect of the structure of the banking market on the cost of credit in the WAEMU area over the period 1996-2017. Our study focuses on WAEMU countries, with the exception of Guinea-Bissau, for which some data are missing during the study period. Two objectives were assigned. The first objective was to analyze the impact of banking market concentration on the cost of credit. The second objective was to examine the influence of the increase in the money market interest rate on the cost of credit. Methodologically, the study is based on the FMOLS estimator developed by Pedroni (1996) and Philips and Moon (1999). Our results indicate that there is an inverted "U"-shaped, or bell-shaped, the relationship between market structure and the cost of credit. It follows that bank concentration leads to high lending rates in the first instance, and to lower lending rates in the second instance, above a certain threshold (70%). The study also notes that the money market rate positively affects the cost of credit. A rise in the cost of refinancing increases the cost of credit in the WAEMU zone. Our results indicate that, like the supply of credit, inflation negatively affects the cost of credit.

Our results may lead to some economic policy implications. The first stems from the non-linear relationship between bank concentration and the cost of credit. The existence of a threshold at which banking concentration benefits borrowers requires that monetary authorities determine the minimum level of banking competition to be encouraged. Banking activity, with its singular characteristics, requires the supervisory authorities to provide a framework for the banking sector to play its role in financing the economy of the zone. The second is that the increase in the money market rate, which most often reflects a liquidity problem on the interbank market, is not favorable to the cost of credit in the WAEMU. The BCEAO must revise its refinancing rates downwards when the economy is in decline because of the cost of refinancing conditions the supply of bank credit in the WAEMU zone. Moreover, the study shows that an increase in the supply of credit is associated with very low costs of obtaining credit. States could support monetary authorities by setting up information systems, in particular private information registers, in order to reduce information asymmetries, which are one of the causes of high lending rates.

This study found that the effect of bank concentration on the cost of credit is non-linear. The effect of banking concentration on the cost of credit may depend on the banking regulations in place or on the quality of the institutions... For this reason, further studies could be carried out to deepen the relationship between banking concentration and the cost of credit by considering the interaction of new variables with the variable of interest.

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The Impact of Business Intelligence on Strategic Performance in Commercial Banks Operating in the State of Kuwait

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Abstract

This study aimed to identify the impact of business intelligence on strategic performance in commercial banks operating in the State of Kuwait the researcher used the descriptive analytical approach to introduce both business intelligence and strategic performance. The study population consisted of employees working in top and middle management in commercial banks operating in State of Kuwait. Stratified random sample amounting 363 subjects was used. 270 questionnaires were collected representing 74.3% of the total sample.

The study concluded that business intelligence system ensures data processing using data storage techniques and data extraction to obtain consistent and qualified information, thus providing the required knowledge to achieve the strategic goals and objectives by end users and executives in the future. The researcher recommends that Kuwaiti banks should keep pace with developments in the field of business intelligence to be employed in a better way in enhancing its strategic performance, in addition to conduct future studies that follow the analytical approach to deepen its utilization in Kuwaiti commercial banking sector.

Keywords: business intelligence, performance, strategic performance, commercial banks

1. Introduction

Information and communication technologies have changed the way most industries and institutions have used in dealing with companies to meet their customers increasing demands. Recently, banking industry is one of the main businesses that have been greatly affected by technology, since operations have been advanced from mere exchange of cash, checks and other negotiable methods to application of information technology (IT) in dealing with business in banking industry.

The concept of business intelligence is widely used to help organizations' decision-making bodies manage data and make realistic decisions. This is because of its capabilities to mitigate risk and increase certainty in the midst of latest global economic disturbances, and this in its turn is applied to banking sector.

The researchers worked to show the strategic performance since it is necessary to define and use banks strategic capabilities. Strategic performance can be evaluated by many bank departments according to its work conditions, which leads to many different interpretations of "successful performance". It can also be said that each of strategic performance perspectives may be unique. Moreover, each bank has a unique set of circumstances, which makes measuring performance a difficult process sometimes .

Within this approach, many banks have tried to use many methods to achieve their strategic success as a result of great technological progress and technical practices in order to achieve strategic success at industry and market level together. Among these methods the use of business intelligence by focusing on business intelligence technology dissemination, culture of business intelligence and finding practiced structure among the various departments and divisions of business intelligence in the bank, so that this method is a tool that helps in achieving strategic success at the bank, market and industry levels. And given that business intelligence is a new business-driven phenomenon that can add value to institutions. It is an umbrella for systems and procedures by which raw data is converted into useful information for managers to make better decisions. So this study aims to highlight the impact of business intelligence on strategic performance in Commercial banks operating in the State of Kuwait.

Problem Statement

The study problem arises in light of great variation in strategic performance level between Kuwaiti commercial banks, which may be due to intensive competition with foreign banks and the variation in financial and credit capabilities between different banks. This makes it necessary to highlight the importance of information provided by business intelligence that enhances the competitiveness of commercial banks in the State of Kuwait. In light of lack of previous studies that deal with this topic, this theoretical study aims to answer the following main question:

What is the Impact of Business Intelligence on Strategic Performance in Commercial Banks operating in the State of Kuwait?

The Study Importance

- **Scientific Importance:**

This study is an important scientific addition in the field of business intelligence research and studies and its link to strategic performance.

- **Practical importance:**

The recommendations of this study will contribute to establish a foundation for future studies that use descriptive analytical approach to deepen the benefit of this issue in Kuwaiti commercial banking sector.

Study Objectives

This study seeks to achieve the following goals:

- To clarify the concept of business intelligence.
- To explain the concept of strategic performance
- To study the impact of business intelligence on strategic performance in commercial banks operating in the State of Kuwait

Study Hypotheses

Main hypothesis

Ho: There is no statistically significant impact at significance level ($\alpha \leq 0.05$) of business intelligence on strategic performance in commercial banks operating in the State of Kuwait.

The following sub-hypotheses are derived:

H01: There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on financial dimension of strategic performance in commercial banks operating in the State of Kuwait.

H02: There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on customer dimension of strategic performance in commercial banks operating in the State of Kuwait

H03 There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on internal operation dimension of strategic performance in commercial banks operating in the State of Kuwait:

H04: There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on learning and growth dimension of strategic performance in commercial banks operating in the State of Kuwait

Study methodology:

The researcher used the descriptive analytical approach to achieve study goals, as well as the method of quantitative data collection in order to test the impact of business intelligence on strategic performance, as this approach is appropriate to the nature of the study and appropriate for achieving its goals

Study population

The study population consisted of employees who are working in top and middle management in commercial banks operating in the State of Kuwait, amounting 6462 administrative individual. Stratified random sample consisted of 363 subjects was selected from employees working in top and middle management in commercial banks operating in the State of Kuwait (Al-Najjar, Al-Najjar, and Al-Zoubi, 2013, 109). 270 questionnaires were collected, representing 74.3% of the total sample.

Data collection:

This study used two methods of data collection:

•**Secondary sources:** The researcher reviewed number of previous studies related to the current study by visiting university libraries and databases in digital libraries, in addition to the Internet, annual reports and yearly newsletters that are related to study topic and its variables.

•**Primary Sources:** The researcher has developed a questionnaire that measures study variables to include a set of questions through which information can be collected from study sample.

Study instrument Validity and Reliability

The researcher displayed the study questionnaire to a group of universities staff from Jordan and the State of Kuwait, in order to express an opinion regarding questionnaire paragraphs and extent of their clarity, and coherence.

As for tool reliability, the researcher used the Cronbach Alpha in order to verify the study reliability. The alpha value = 0.883, which is an excellent ratio, being higher than the acceptable percentage 0.60 (Gujarati, 2004)

2. Theoretical Framework

Business intelligence

Many companies and organizations today still depend on historical data analytics and reporting tools to carry out their key operations. Despite the rapid gains in business intelligence systems and decision support systems. Most companies and organizations continue to depend on old systems. These systems are usually not integrated with other systems and sometimes do not have predictive and analytical capabilities. According to (Rahman (2011) studies indicate that less than twenty percent (20%) of any specific analytical applications are frequently used within a workflow viewpoint. Business intelligence refers to a set of tools and techniques that help in transforming large amount of data from different sources to meaningful information to support decision-making and improve organizational performance.

Business intelligence tools have emerged in the past decade as a major driving force for enhancing organizational performance (Ramakrishnan et al., 2012)...Business intelligence also means collecting data from each of Internal and external data resources, in addition to store, and analyze it to make it more reliable To help make better decisions (Negash, 2004), the demand for business intelligence applications continues to grow even while the demand for most IT products is weak, therefore industries such as banking industry that have approved the use of computer-based systems apply intelligence works in their activities to make them more efficient and effective. (Azvine, Cui & Nauck, 2005).

Business intelligence technologies and tools are relatively considered new concepts, and they have contributed to the design of the work of many organizations due to their ability to benefit from large amounts of data through improved analysis, reporting and improved inquiry. The technologies and programs features are classified into three main categories, such as: • Predictive Modeling Tools (which are usually used to analyze potential future scenarios). • Reporting and trend analysis (used for both historical and emerging). • Analyzing customer behavior. According to it, business intelligence requires three major classes of technology, such as data storages, analytical tools, and reports preparing tools. Where business intelligence accomplishes decision-making tasks in institutions through the use of methods of data extraction and storage and online analytical processing (OLAP). (Azvine, et al., 2005)

To improve the bank's strategic orientation and competitiveness, managers need to use some specific tools to support their decisions throughout decision-making process. Business intelligence can be useful by providing special results to enhance decision-making capabilities from different point of view (Isik et al., 2013) . These tools cover a wide range of technologies used to collect, provide, access and analyze data from various sources to assist bank managers to make more effective management decisions (Cheung and Li, 2011; Delen and Demirkan, 2013).

Moreover, the strategic use of business intelligence in the bank has been classified in three important areas as follows: performance management, business activity monitoring, and reports preparing (Negash, 2004). Likewise, Petrini and Pozzebon (2009) grouped business intelligence functions into three core categories including analysis (data extraction), monitoring (information boards, performance sheets, and alarm systems) and reports preparing

3. Strategic Performance

Strategic performance represents the competitive organization that adopts specific competition strategy striving to achieve the best strategic performance in the sector in which it operates (Abdallah et al., 2009)

There are two ways to deal with performance: financial, “sales-based,” and non-financial, or “company-based”.

While finances are measured by dimensions such as profitability, growth, productivity, level of sales revenue, market share, product, return on investment, and product value added. Non-financial are measured through employee development, customer satisfaction, job satisfaction and effective internal organizational processes (Eniola & Ektebang, 2014). Measuring performance is therefore necessary because it is a way to determine whether an organization is achieving its goals (Makanga & Paul, 2017).

Kaplan & Norton (1992) outlined four main areas represented in the financial field, customers, internal operations, learning and growth. Organizations can focus on, and these areas include a variety of goals, measures, goals, and initiatives. From this standpoint, these indicators provide a comprehensive and clear picture of the organizations' performance through the following four perspectives:

1-Financial: The financial perspective takes into account the final outcome or economic outcomes resulting from activities that were previously accomplished by organization. It focuses on measures related to profitability through which shareholders can verify the profitability of their investments, as the following question arises: How to succeed financially should we appear in front of shareholders? It is worth noting that financial measures represent the traditional method of analyzing organizational success. As for organizations in which tangible assets constitute a large part of their market value, these measures are appropriate to measure the performance of this type of organization. Kaplan & Atkinson believe that these measures reflect comprehensive financial performance, as well as the ability to predict organization's ability to pay off its debt in the long run

2-The customers through which organization can be viewed is represented by customers. Therefore, adopting this perspective requires identifying customers and market sectors in which organization can compete, and then the means that are used to provide customers and markets with value. So, there is a need to find specific scales that help in answering the following question: In order to achieve our vision, how should we appear in the eyes of our customers? Accordingly, the choice of this type of scales depends mainly on the type of customer and the target value that organization seeks to provide to this customer.

3-Internal Operations: This perspective focuses on identifying the operations needed to accomplish the goals that were included in the previous two perspectives. From this standpoint, it is necessary for the organizations administration to answer the following question: In order to achieve the satisfaction of customers and shareholders, what are the operations and activities that we should be distinguished with? The goal of internal operations perspective is materialized in defining the basic processes necessary to equip customers with products or services that they desire, and then developing scales that help in ensuring that these operations are performed well, as they help managers to focus on important internal processes that ultimately enable them to meet customer expectations. According to Kaplan & Norton (1992), the focus on critical internal operations enables organizations to deliver the proposed value to customers in the targeted market sectors and to meet shareholders expectations in achieving high financial returns

4-Learning and growth: It focuses on what is required for achieving objectives of the previous three perspectives. Under this perspective, the organization's management is required to answer the following question: In order to achieve our vision, how can we sustain our capabilities through change and improvement? Thus, the main focus of the aforementioned perspective is to ensure that organization can develop its own capabilities in a way that enables it to accomplish important activities and events. Accordingly, it is assumed that the learning and growth perspective directs the other three perspectives in the right direction, and in a way that supports the overall orientation of the organization.

From the foregoing it is clear that the previous four perspectives are as an approach to measure strategic performance that was designed to combine financial and non-financial measures related to main success factors in organization's strategy. It helps organizations managers to balance between short-term performance measures and long-term goals that are linked with vision, mission and core values needed to implement strategies at business and organizational unit's level. So it represents a system of management rather than a system of measurement

4. Statistical Analysis

Study sample description:

Frequencies and percent have been extracted for study sample description. Researcher found that the largest percent of the study sample (60%) are males. It was found that 64.1% of the sample have bachelor's degree, and it also showed that high percent are youth, 49.6 % of the sample their ages ranged between 30 - less than 40 years, and it was found that 47.4% of the sample had experience ranging between 15 - less than 25 years.

Descriptive statistics:

Means and standard deviations have been calculated to describe the sample responses towards the following resolution paragraphs:

Table 1. Means and standard deviations of sample's responses regarding Business Intelligence

Question	Mean	S.D.
1. The bank management attracts distinguished competencies in banking	4.26	.560
2. The administration is keen to collect all the data necessary for banking operations	4.32	.521
3. The bank's internal systems are developed periodically	4.25	.520
4. The administration is interested in reading the work environment accurately	4.46	.643
5. The administration is keen to provide modern banking systems that increase work efficiency	4.34	.592
6. Customer data is kept confidential	4.40	.527
7. All available information is analyzed before making a decision.	4.20	.686
8. Risks sources of the to which the bank is exposed are monitored to avoid their occurrence	4.30	.681
9. Attention is paid to updating the bank's intranet	4.35	.583
10. An advanced electronic archiving system is followed at the bank	4.33	.571
General Mean	4.32	.329

Table 1 shows means of sample subjects' responses on statements that measure the Business Intelligence. It was found that there are positive attitudes toward above statements because their means are greater than mean of the scale.

Table 2. Means and standard deviations of sample's responses regarding Strategic Performance

Question	Mean	S.D.
1. There is a continuous improvement in the financial performance of the bank	4.40	.505
2. There is an improvement in the services that increase the profitability of the bank	4.44	.554
3. There is an improvement in services that increase the return on investment of the bank	4.56	.560
4. There is an interest in improving the level of operational efficiency of the bank	4.45	.527
5. The bank's management is keen to increase its share in the targeted banking market	4.46	.521
6. The bank adopts different policies to attract new customers to the bank	4.52	.529
7. The Bank is keen to maintain its existing customers	4.44	.554
8. The bank is keen to encourage its customers to increase their profits by increasing the size of their deposits with	4.40	.547
9. There is an interest in handling customer feedback and complaints	4.28	.566
10. The focus is on diversification of banking services provided to customers	4.29	.549
11. There is interest in developing the bank's internal operations	4.23	.573
12. There is compliance with all standards and procedures established by the Central Bank	4.40	.630
13. The services provided to customers are characterized by a high level of quality	4.27	.581
14. There is an interest in developing various services provided to clients	4.34	.568
15. The services provided in the bank are distinguished from the services provided by the competing banks	4.22	.599
16. There is an interest in training bank employees periodically	4.25	.600
17. Employees are encouraged to be creative at work	4.33	.577
18. Special policies are adopted to motivate employees to raise their level of performance in the bank	4.34	.665
19. The employee's promotion is linked to the efficiency of his work	4.21	.602
20. The bank's management is keen to keep its qualified employees	4.19	.616
General Mean	4.35	.290

Table 2 shows means of sample subjects' responses on statements that measure the Strategic Performance. It is found that there are positive attitudes toward above statements because their means are greater than mean of the scale.

Hypothesis Testing

Main hypothesis

Ho: There is no statistically significant impact at significance level ($\alpha \leq 0.05$) of business intelligence on strategic performance in commercial banks operating in the State of Kuwait.

Table 3. Ho test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.639 ^a	.409	.407	.22325		
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	9.235	1	9.235	185.280	.000 ^b
	Residual	13.358	268	.050		
	Total	22.592	269			
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.920	.179		10.724	.000
	intell	.563	.041	.639	13.612	.000

Simple regression test was used to test the above hypothesis. T value =13.612 which is statistically significant at level 0.05, R value = 0.639 reflects the strength of the relationship between the independent variable and the dependent variable, and therefore it can be concluded that there is a statistically significant impact at significance level ($\alpha \leq 0.05$) for business intelligence in strategic performance in commercial banks operating in the State of Kuwait

From this hypothesis, the following sub-hypotheses are derived:

H01: There is no statistically significant Impact at significance level ($\alpha \leq 0.05$) of business intelligence on the financial dimension of strategic performance in commercial banks operating in the State of Kuwait.

Table 4. Ho1 test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.714 ^a	.509	.507	.21562		
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	12.930	1	12.930	278.131	.000 ^b
	Residual	12.459	268	.046		
	Total	25.390	269			
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.487	.173		8.597	.000
	intell	.666	.040	.714	16.677	.000

a. Dependent Variable: finance

Simple regression test was used to test the above hypothesis. T value =16.677 which is statistically significant at level 0.05, R value = 0.714 reflects the strength of the relationship between the independent variable and the dependent variable, and therefore it can be concluded that there is a statistically significant impact at significance level ($\alpha \leq 0.05$) for business intelligence in financial dimension for strategic performance in commercial banks operating in the State of Kuwait

H02: There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on customer dimension of strategic performance in commercial banks operating in the State of Kuwait

Table 5 .Ho2 test

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.533 ^a	.285	.282	.29428		
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	9.233	1	9.233	106.623	.000 ^b
	Residual	23.208	268	.087		
	Total	32.442	269			
Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.953	.236		8.272	.000
	intell	.563	.054	.533	10.326	.000

a. Dependent Variable: customer

Simple regression test was used to test the above hypothesis. T value =10.326 which is statistically significant at level 0.05, R value = 0.533 reflects the strength of the relationship between the independent variable and the dependent variable, and therefore it can be concluded that there is a statistically significant impact at significance level ($\alpha \leq 0.05$) for business intelligence in customers dimension for strategic performance in commercial banks operating in the State of Kuwait

H03 There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on internal operation dimension of strategic performance in commercial banks operating in the State of Kuwait:

Table 6. Ho3 test

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.484 ^a	.234	.231	.32803		
Model	Sum of Squares		Df	Mean Square	F	Sig.
1	Regression	8.807	1	8.807	81.851	.000 ^b
	Residual	28.838	268	.108		
	Total	37.645	269			
Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.919	.263		7.293	.000
	intell	.549	.061	.484	9.047	.000

a. Dependent Variable: process

Simple regression test was used to test the above hypothesis. T value =9.047 which is statistically significant at level 0.05, R value = 0.484 reflects the strength of the relationship between the independent variable and the dependent variable, and therefore it can be concluded that there is a statistically significant impact at significance level ($\alpha \leq 0.05$) for business intelligence in internal operations dimension for strategic performance in commercial banks operating in the State of Kuwait

H04: There is no statistically significant impact at significant level ($\alpha \leq 0.05$) of business intelligence on learning and growth dimension of strategic performance in commercial banks operating in the State of Kuwait

Table 7. Ho4 test

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.521 ^a	.272	.269	.36030		
Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	12.970	1	12.970	99.910	.000 ^b
	Residual	34.790	268	.130		
	Total	47.760	269			
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.386	.289		4.796	.000
	intell	.667	.067	.521	9.996	.000

a. Dependent Variable: growth

Simple regression test was used to test the above hypothesis. T value =9.996 which is statistically significant at level 0.05, R value = 0.521 reflects the strength of the relationship between the independent variable and the dependent variable, and therefore it can be concluded that there is a statistically significant impact at significance level ($\alpha \leq 0.05$) for business intelligence in learning and growth dimension for strategic performance in commercial banks operating in the State of Kuwait

5. Conclusions and Recommendations

This study provides a conceptual framework for the impact of business intelligence on strategic performance, as it indicates some benefits of business intelligence, the most prominent of which is the analysis of all data to obtain information in their database management systems, to organize the routine process quickly, to reduce its costs, and to increase the return on investment on the long term, and this will be reflected in the strategic performance.

The business intelligence system also ensures data processing using data storage and data mining techniques to obtain consistent and qualified information, thus providing the necessary knowledge to achieve strategic goals and objectives by end users and executives in the future. In addition, the development of information technology that is an important infrastructure for the business intelligence system provides opportunities and provides a competitive capacity for the bank in the banking market.

Consequently, the researcher recommends Kuwaiti banks to keep up with the developments in the field of business intelligence in order to employ it in better form to enhance their strategic performance, in addition to conducting future studies that follow the analytical approach to deepen their utilization in the Kuwaiti commercial banking sector.

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Modelling Theory of Planned Behavior on Health Concern and Health Knowledge towards Purchase Intention on Organic Products

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Abstract

Organic products have been gaining popularity among consumers worldwide due to the environmental and health benefits they are associated with. As a result of this trend, organic industries have been flourishing and have been able to expand into a variety of consumer product/service categories. Looking to explore purchasing behavior related organic coconut cosmetic products, this study attempted to apply the theory of planned behavior (TPB), which is a method of predicting consumer behavior that has been used extensively in a variety of research areas in recent years. Based upon the literature review, an extended TPB model that incorporates *health concerns* and *health knowledge*, in addition to *attitude*, *subjective norms* and *perceived behavior control* was examined in this study. For the data collection, an online survey was issued to residents of Bangkok, Thailand; with a total of 613 respondents returning the questionnaires. Structural equation modeling (SEM) was employed to analyze the data using SPSS AMOS 24. The results showed that attitude, subjective norms, perceived behavior control and health concerns positively affect purchase intention; however, health knowledge did not influence purchase intentions related to the organic coconut cosmetic products. Similar to the findings in most extant literature, *attitude* was found to exert the most influence on the purchase behavior in this study.

Keywords: organic coconut, health concern, health knowledge, behavior intention

1. Introduction

Public concern regarding environmental issues has been growing progressively (Kirk, 1995; Laroche, Bergeron, & Barbaro-Forleo, 2001). Consumers are aware that their purchasing behavior might have direct or indirect adverse impacts on the environment. Consequently, consumers are modifying their purchasing behavior, and gravitating towards products perceived to be environmentally friendly. Therefore, the rising “green consumerism”, which entails the production, promotion, and advancement of goods and services that are understood to have more positive impacts on the environment (Akenji, 2014), is now having a considerable influence on the decisions being made in various business segments, and is modifying manufacturing processes and operational procedures (D’Souza & Taghian, 2005). The term “green”, in these contexts, is well understood to have such connotations as “eco-friendly”, “environmentally friendly”, or “sustainable” (Kim et al., 2013). Within the world of green consumerism, organic products play a central role. Evidence for this can be seen, in part, by the positive growth that pushed global sales in the organic market up to 97 billion US dollars in 2017. In terms of market share, organic food sales in America accounted for the most (valued at 48.7 billion US dollars), followed by Europe (valued at 39.6 billion US dollars), and then the rest of the world (with a combined value of 8.7 billion US dollars) (Willer & Lernoud, 2019). This suggests that, as the idea spreads, organic product markets will continue to experience correspondent growth.

For instance, nowadays Thai consumers are more concerned about health and environment related problems than they were in the past. These concerns are inspiring them to search for higher-quality and healthier products, preferably without chemical substances. Meanwhile, according to a report from the United Nations Food and Agriculture Organization (FAO, 2016), Thailand is importing about THB 30,000 million of agriculture chemicals per year, and ranked 4th in the world for insecticide use. For this reason, cancer risk among farmers is higher than it is among those in other vocations (Ueausangkomsate & Santiteerakul, 2016). Related concerns have been

fostering growth in Thailand's organic agriculture market for a number of years now, and the trend is likely to continue. With growing demand for greater variety in organic products, some believed that in the future, the organic industry will develop into the largest health-oriented market in the world (Leong & Ng, 2014). Even now, there are a great number of different types of organic products available; however, this study narrows in on a specific group, giving focus to organic coconut cosmetic products being marketed to Thai consumers. It aims to develop an understanding of Thai consumer behavior by looking at the way in which factors such as *health concern* and *knowledge* influence purchase intention. Additionally, this study also offers recommendations about how the government and those in the agricultural industry can implement strategies to increase the market share of organic products in Thailand. Even though there is growing interest in green products among Thai consumers, consumption of organic products is still relatively low. There are, of course, many demographic variables that need to be taken into consideration when exploring the situation, including age, gender, education level, occupation, household income and marital status. Although the organic movement gained traction quite quickly in developed countries, in developing countries the response has been slower; nevertheless, receptiveness among consumers does seem to be present (Yadav & Pathak, 2016). As information spreads, growing consumer awareness and rising health concerns are fueling the desire for organic products (Ghazali et al., 2017); however, there is still much to be learned with respect to the specific factors influencing each trend.

The coconut tree, popularly referred to as the 'tree of life', is a commercial crop grown around the world for its multipurpose "fruit". Global demand for general coconut products and coconut-based health products are expected to increase along with population growth and industrialization around the world (Alrifai & Marcone, 2019). In their research, DebMandal & Mandal (2011) explored the benefits coconuts, including the medicinal, nutritional and functional values various coconut-based products have to offer (e.g. coconut virgin oil, tender coconut, coconut milk, coconut leaves, and wood-based products). Coconut is a perennial plant that is widely grown in tropical countries, and of which all parts have found use in the daily life of people. It has been used for everything from the development of natural medicines for various diseases, to commercial products sold for popular consumption. Coconuts are grown for their meat, water, oil, fibers, and sugar; they are used for fuel, construction, and cosmetics, and components have even been used by the pharmaceutical industry (Batugal et al., 1998). Nutrients and microminerals from coconut water and coconut kernels are important contributors to human health and they have been shown to have antifungal, antiparasitic, hypoglycemic, antioxidant and immunostimulant properties. As Prades et al. (2016) points out, the main regions for coconut production include tropical Asian countries such as Indonesia, the Philippines, Sri Lanka, India, and Thailand.

Much literature has been written on green products, with a great deal of focus given to organic foods (e.g. Roitner-Schobesberger et al., 2008; Yazdanpanah & Forouzani, 2015). A few studies have also been conducted with concern given to consumer purchasing behavior in relation to organic personal care products (Kim & Chung, 2011; Ghazali et al., 2017). However, previous studies have given less attention to certain constructs which might influence the purchase intentions of customers towards organic products. Therefore, this study has extended on Ajzen's (1991) theory of planned behavior (TPB) by incorporating two additional constructs; namely, *health concern* and *health knowledge*. This study is also the first attempt to explore the influences that distinct divisions in consumers' perceived values regarding health concern and health knowledge have on purchase intention towards organic coconut cosmetic products (OCCP).

The main objective of this study is to investigate the factors that influence consumers' purchase intention towards OCCP. The study aims to identify the factors that affect Thai consumers' consumption of OCCP and develop a better understanding of related consumer behavior by extending the TPB. The study expands on previous research in the area of organic foods by exploring the role that health concerns play in motivating consumers to make organic choices. Another important contribution of this study is the focus it gives to the purchase intentions of Thai consumers. Hopes are that the knowledge gained can help stimulate related economic activity, add value to the organic crops of Thai farmers, and allow for the expansion of farming practices which are beneficial to the health of farmers and the health of the local environment. Additionally, this study will contribute to the development of strategies which will help us understand the behavior and expectations of OCCP consumers. The information can be incorporated into marketing policies adopted by governments, producers, and manufacturers operating in the Thai marketplace. In this study, 613 online questionnaires completed by respondents in Bangkok City, Thailand provided the sample data. Structural equation modeling (SEM) was employed to analyze the data with assistance of SPSS AMOS 24, which was used to test the relationships among the variables.

2. Literature Review

2.1 Review of Theoretical Models

The Theory of Planned Behavior (TPB; Ajzen, 1991), as an expansion of the Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1988), has been extensively applied for the purpose of predicting the intentions behind human behavior (Shin et al., 2018). The TPB has been applied successfully as a tool for explanation and is widely used for predicting intentions and behaviors (Leong & Ng, 2014). Therefore, this study aims to apply the TPB for the purpose of predicting consumer purchase intentions as they relate to OCCP. According to this model, the three constructs of attitude, subjective norm, and perceived behavioral control can be used to describe a person's intentions towards a product, a behavior, or an innovation as either positive or negative (Akbari et al., 2019).

Figure 1 illustrates the Theory of Planned Behavior (TPB).

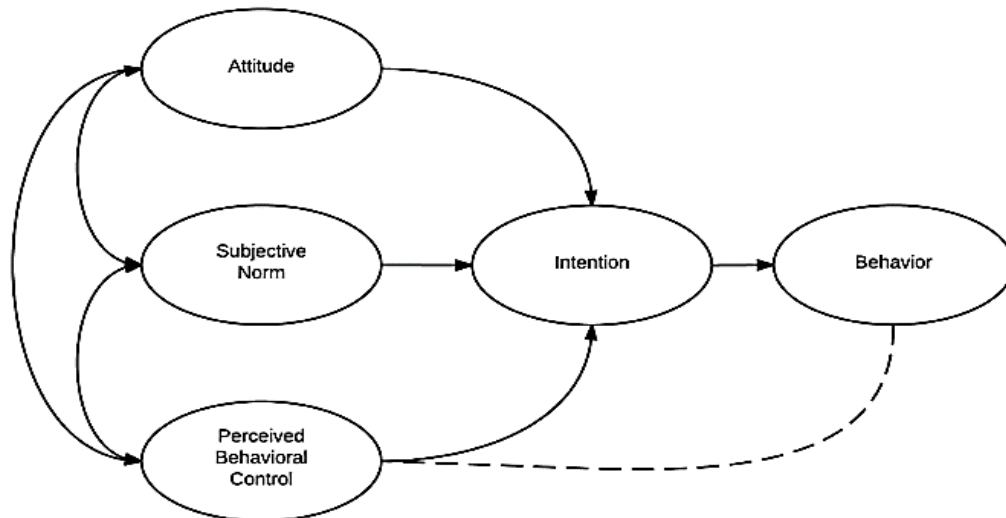


Figure 1. Theory of planned behavior model (Ajzen, 1991)

2.1.1 Attitudes

Attitudes refer “to the extent to which whether a person has a favorable or unfavorable evaluation of the behavior of interest” (Leong & Ng, 2014, p. 11). The attitude construct has been shown to support intention-based correlations within the context of organic or green consumption (Ghazali et al., 2017). According to Ajzen (1991), attitudes are “likable” or “unlikable” evaluations of specific human behaviors. Attitudes are considered to be an important part of the comprehension processes consumers depend on during the purchasing process (Hill & Lynchehaun, 2002). Chryssohoidis & Krystallis (2005) found that literature relevant to the consumption of organic food shows that recognition of the relationship between the environment and personal health influences attitudes about purchasing organic food. Kim & Chung (2011) also found a positive relationship between attitudes and the purchase intention towards organic skin/hair care products. Hence, based on the above, this study hypothesizes that:

H₁: Attitude is positively associated with purchase intention for OCCP.

2.1.2 Subjective Norms

Subjective norms refer to “the belief in which whether most people approve or disapprove of the behavior” (Leong & Ng, 2014, p. 12). It is a motivation to exhibit a specific behavior with consideration given to the expectations of other people who are considered to be important to the actor. They could be relatives, friends, family members or other significant people in the life of the person performing the behavior. Social norms, in other words, can be defined “as the customary codes of behavior in a group of people or society” (Leong & Ng, 2014, p. 12). Essentially, they are sets of behavior that are standard or normative to a community of people. According to Kim & Chung (2011), if consumers believe that it is normative to have positive thinking about organic skincare products, their intentions to purchase such products will increase.

Ajzen (1991) described subjective norms as relating to one's sense of social pressure to adopt certain behavior. Basha & Lal (2019) noted that subjective norms had a positive influence on organic food consumption.

Pomsanam et al. (2014) found that subjective norms play a key role in customer decisions to buy organic products in Thailand. Tarkiainen & Sundqvist (2005) found that subjective norms also must be considered for forecasting re-purchase intentions. And finally, Kim & Chung (2011) found that subjective norms have a significant positive relation to purchase intentions towards organic shampoo and body lotion. Hence, based on the above, this study hypothesizes that:

H₂: Subjective norms are positively associated with purchase intention for OCCP.

2.1.3 Perceived Behavioral Control

Perceived behavioral control (PBC) has been defined “*as a person’s perception of the ease or difficulty of performing the behavior of interest*” (Leong & Ng, 2014, p. 12). PBC covers the effects of such outer determinants as labeling, time, and location. All of these outer determinants might be regarded as risks or benefits, thus influencing a consumer’s decision to purchase products (Chen, 2007). Kim & Chung (2011) found that those who perceive a higher degree of individual control are inclined to engage in the behavior of consideration and have stronger behavioral motives.

Put another way, PBC refers “*to the possession of resources, abilities and opportunities that a person believes he or she has in order to perform a particular behavior*” (Ghazali et al., 2017, p. 157). Looking at attitude and perceived behavioral control, Amin et al. (2014) found a positive relationship between parental oral health knowledge on their intention to adopt certain behaviors. Madden et al. (1992) confirmed that PBC stimulates a person's behavioral motivations, as well as true behavior. Previous research has found that PBC positively influences purchase intention towards organic products (Ghazali et al., 2017). Hence, based on the above, this study hypothesized that:

H₃: Perceived behavioral control is positively associated with purchase intention towards OCCP.

2.2 Health Concern

Piqueras-Fiszman & Spence (2015) maintain that health concern is an important consideration in the food consumption experience. Apaolaza et al. (2018) found a significant relationship between consumer concern for health and organic food consumption. However, individual consumer beliefs are thought to vary vastly when it comes to health and nutrition (Yarar & Orth, 2018). Nevertheless, concerns for personal health and the health of family members were the biggest factors influencing purchasers’ attitudes towards organic food (Ghazali et al., 2017). Consumers who are more health conscious have a greater propensity for their health to be positively impacted by the consumption of organic foods, which could further justify the challenges of deficient cognitive processes (Apaolaza et al., 2018).

Chrysochou & Grunert (2014) found that health concern had an impact on the influence that organic claims had on purchase intention, as well as perceptions of the healthiness of foods. Also, organic consumers have been shown to have more concerned about their health and to develop behaviors to guard their health (Schifferstein & Ophuis, 1998). Finlay et al. (1997) suggested that many personal health behaviors are the result of attitudes, while some are the result of subjective norms. Also, health-related behaviors can lead to changes in subjective norms or attitudes, depending on whether the behavior or goal is normatively or attitudinally controlled. Hence, based on the above, this study hypothesizes that:

H₄: Health concern is positively associated with purchase intention for OCCP.

H₅: Health concern is positively associated with attitudes towards purchase intention for OCCP.

H₆: Health concern is positively associated with subjective norms towards purchase intention for OCCP.

H₇: Health concern is positively associated with perceived behavioral control towards purchase intention for OCCP.

2.3 Health Knowledge

The EU Health Literacy Project describes health knowledge as “*the knowledge, motivation and competences to access, understand, appraise and apply health information in order to make judgments and take decisions in everyday life concerning health care, disease prevention and health promotion to maintain or improve quality of life throughout the course of life*” (Sørensen et al., 2015, p. 1). Also, health knowledge refers “*content and context specific knowledge about health and health care*” (Gellert et al., 2016, p 2034). Quite discernable from what is popularly known about that which is defined and applied, whilst improved health outcomes and increased knowledge on preferred health options (Chin et al., 2011). Factual and procedural health knowledge are the two subdivisions for greater detail of an understanding for the knowledge on health. The two categories of health knowledge are closely related and has a dependency relationship. The knowledge on the design by

which a health condition is treated is that of factual whilst the detailed mannerism of timing and process of executing the factual knowledge design is referred to as procedural health knowledge (Schulz et al., 2005).

Organic products are looked to as being supportive of healthy lifestyles-and health and sustainability can be explained by lifestyle (Kim & Chung, 2011). Health knowledge is highly important when it comes to coping with and preventing chronic problems. Simply put, knowledge of health is related to health behavior (Gellert et al., 2016). Yin et al. (2010) found that health benefits, like health development and health preservation, are the dominant motivators for green consumption. Therefore, it is hypothesized that:

H₈: Health knowledge is positively associated with purchase intention for OCCP.

H₉: Health knowledge is positively associated with attitudes towards purchase intention for OCCP.

H₁₀: Health knowledge is positively associated with subjective norms towards purchase intention for OCCP.

H₁₁: Health knowledge is positively associated with perceived behavioral control towards purchasing intention for OCCP.

Organic food products can be defined as “*non-chemical, pesticide-free and artificial coloring-free food products*” (Leong & Ng, 2014, p. 10). The word “organic” is a description of a process of production that does not involve chemical substances. The main determining reasons that usually lead people to consume organic products are related to concerns about personal health and the environment. This study will go into more particulars on the determinants or reason which influence consumer intention toward organic products. The conceptual framework for the hypotheses is shown in *Figure 2*. A total of 11 hypotheses are described according to the six constructs of attitude, subjective norms, perceived behavioral control, health concern, health knowledge, and purchase intention for OCCP.

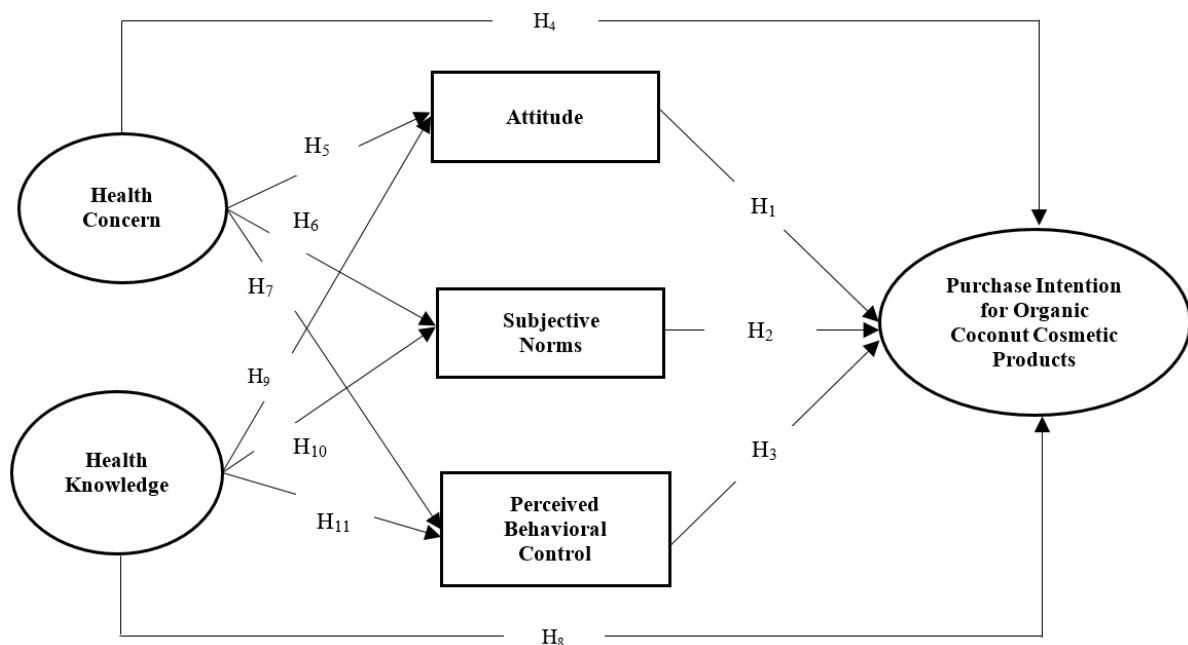


Figure 2. Hypotheses Conceptual Framework

Note. H₁: Attitude→Purchase intention for OCCP; H₂: Subjective norms→Purchase intention for OCCP; H₃: Perceived behavioral control→Purchase intention for OCCP; H₄: Health concern→Purchase intention for OCCP; H₅: Health concern→Attitude; H₆: Health concern→Subjective norms; H₇: Health concern→Perceived behavioral control; H₈: Health knowledge→Purchase intention for OCCP; H₉: Health knowledge→Attitude; H₁₀: Health knowledge→Subjective norms; H₁₁: Health knowledge→Perceived behavioral control.

3. Methodology

3.1 Sample and Data Collection

The survey issued for this study consisted of two sections that were designed to examine the following: health concern, health knowledge, attitude, subjective norms, perceived behavioral control, purchase intention for

OCCP, and demographic characteristics of the respondents regarding consumers' intention to buy OCCP. The survey was issued online, as this allowed for the data to be collected quickly, and, in a more cost-effective manner (Klein et al., 2019). The data was collected between November, 2019 and January, 2020, during which time 613 respondents from Bangkok City, Thailand took the survey. 96 of the respondents' surveys were incomplete and thus not included in the data set. According to the *rule of thumb* principle, *10 cases/observations per indicator variable* is considered to be the lower limit of an adequate sample size (Nunnally & Bernstein, 1967). Therefore, based on the number of constructs, the final sample of 517 completed surveys satisfied the *rule of thumb*.

A quantitative non-probability sampling method was utilized with the data being collected from respondents via convenience sampling. The questionnaire was designed in English then translated to Thai, then back-translated to English to confirm that the original meaning was preserved. The target population of this study consisted of actual and potential OCCP consumers in Bangkok, the capital of Thailand. This city is generally recognized as the main economic engine of the country. The city's populace, which has the power to purchase large quantities of consumer products, has a comparably high level of consciousness towards health and organic products (Roitner-Schobesberger et al., 2008).

3.2 Measurement

A 7-point Likert Scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used in the questionnaire. The survey issued for the data collection in this study was designed with consideration given to the six constructs included within the hypotheses. The constructs and items of measurement are shown in *Table 1*.

Table 1. Measurement items

Constructs	Details
Attitude (ATT) 6 items (Yazdanpanah & Forouzani, 2015)	<ul style="list-style-type: none"> ▪ I think that purchasing organic coconut cosmetic products is a right thing to do. ▪ I think that purchasing organic coconut cosmetic products is pleasant. ▪ I think that purchasing organic coconut cosmetic products is interesting. ▪ I think that purchasing organic coconut cosmetic products is wise. ▪ I think that purchasing organic coconut cosmetic products is undesirable. ▪ I think that purchasing organic coconut cosmetic products is not worthy.
Subjective Norms (SN) 3 items (Ghazali et al., 2017)	<ul style="list-style-type: none"> ▪ Most people who are important to me would think I should purchase organic coconut cosmetic products. ▪ Most of my friends and important others purchase organic coconut cosmetic products. ▪ Government policies and media promotion would lead me to purchase organic coconut cosmetic products.
Perceive Behavior Control (PBC) 4 items (Ghazali et al., 2017)	<ul style="list-style-type: none"> ▪ For me, it is easy to purchase organic coconut cosmetic products. ▪ For me, it is possible to purchase organic coconut cosmetic products. ▪ I have money to buy organic coconut cosmetic products. ▪ I myself decide to buy organic coconut cosmetic products.
Health Concern (HC) 4 items (Ghazali et al., 2017)	<ul style="list-style-type: none"> ▪ I think health is very important to everyone. ▪ The human body is very delicate and can be easily damaged. ▪ I think health problems cannot be overlooked. ▪ I think we should care about our health.
Health Knowledge (HK) 4 items (Yadav & Pathak, 2016)	<ul style="list-style-type: none"> ▪ I always check the eco-label and certification before purchase organic products. ▪ I know organic products are good for health. ▪ I have good health knowledge to take care my health. ▪ I know laws and regulations related to health.
Purchase Intention (PI) 2 items (Yadav & Pathak, 2016)	<ul style="list-style-type: none"> ▪ I plan to purchase organic coconut cosmetic products. ▪ I would recommend organic coconut cosmetic products to others.

3.3 Data Analysis

To examine the relationships among the variables and test the hypotheses of this study, a path analysis was conducted using structural equation modeling (SEM) with the assistance of SPSS AMOS 24. According to Jöreskog & Sörbom (1993), SEM can specify how the hypothetical constructs are associated with the observed variables and also can estimate the unknown coefficients of the causal relationships among latent variables. This

study followed the suggested procedure to execute the SEM data analysis and determine whether the collected data fit well with the proposed theoretical model using an SPSS version 24.0 software package.

4. Empirical Results

4.1 Sample Descriptive

The details of the respondents' demographic profiles are presented in *Table 2*. The results show that the sampled population was made up of 27.1% males and 72.9% females. Those who were in the 36-45 yr. age group accounted for the largest segment, at 37.9%. A little more than half of respondents were single (52.8%). The majority of the respondents had bachelor degrees (60.5%); and, with respect to occupation, the largest group represented in the sample were government or educational institute employees (29.4%). Just under half of the respondents had household sizes of three members (48.9%). And the largest segment of respondents fell into the monthly household income category of THB 50,000-59,999 (approximately 1,572-1,887 US\$) (33.5%).

Table 2. Demographic information of this study (n=517)

Items	Classification	Frequency	%
Gender	Male	140	27.1
	Female	377	72.9
Age	Under 26	98	19.0
	26-35	111	21.5
	36-45	196	37.9
	46-55	99	19.1
	56-65	11	2.1
	Above 65	2	0.4
Marital Status	Single	273	52.8
	Married	188	36.4
	Others	56	10.8
Education	Elementary school	1	0.2
	Junior high school	8	1.5
	Senior high school	81	15.7
	Bachelor degree	313	60.5
	Master degree	107	20.7
	Ph.D. degree	7	1.4
Occupation	Student	98	19.0
	Government/Educational institute	152	29.4
	Industry	28	5.4
	Commerce	115	22.2
	Agriculture	12	2.3
	Self-employed	77	14.9
	Housewife/husband	27	5.2
	Retired	8	1.5
Household Size	1 member	11	2.1
	2 members	56	10.8
	3 members	253	48.9
	4 members	145	28.0
	5 members	52	10.1
Household Income per monthly (THB)	Less than THB 20,000	2	0.4
	THB 20,000-29,999	30	5.8
	THB 30,000-39,999	27	5.2
	THB 40,000-49,999	100	19.3
	THB 50,000-59,999	173	33.5
	THB 60,000-69,999	107	20.7
	THB 70,000-79,999	40	7.7
	THB 80,000-89,999	24	4.6
	THB 90,000-99,999	10	1.9
	THB 100,000 and above	4	0.8

4.2 Exploratory Factor Analysis (EFA)

Since the measurement items for the six constructs (attitude, subjective norms, perceived behavioral control, health concern, health knowledge, purchase intention for OCCP) had not been used previously for predictive purchase intention towards OCCP by Thai consumers, they were subjected to an Exploratory Factor Analysis (EFA). An EFA with Varimax rotation was executed to refine the scales by eliminating items that did not exhibit

meaningful loads on the underlying constructs and/or did not strongly correlate with other items measuring the same construct. In order to determine if the data was suitable for EFA, the Kaiser-Myer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were first performed. The KMO results came in at 0.90, which is well above the recommended value of 0.40 (Kim et al., 2018). Bartlett's Test of Sphericity also turned up significant results ($\chi^2 = 7840.952$, $df = 253$, $p < .001$). Based on these results, the data were considered suitable for a factor analysis. When conducting the analysis, only items with a loading greater than 0.40 on a single construct could be retained (Hair et al., 1998). *Table 3* shows that the factor loadings on the intended constructs were all well above 0.6; any items with factor loadings lower than 0.6 were eliminated. That is to say, any items that failed to exhibit a substantially high loading on any factor was removed from the analysis until a clear factor structure emerged (Floyd & Widaman, 1995). Items ATT5 and ATT6 from the attitude construct, PBC2 from the perceived behavioral control construct, and HK1 from the health knowledge construct were removed from the analysis due to low factor loadings (ATT5 = -0.060, ATT6 = -.104, PBC2 = 0.585 and HK1 = 0.523). The analysis revealed a six-factor solution that explains approximately 74% of the total variance.

Table 3. Exploratory factor analysis

Constructs	1	2	3	4	5	6
Attitude (ATT)						
ATT1:	0.762					
ATT2:	0.740					
ATT3:	0.818					
ATT4:	0.784					
Health Concern (HC)						
HC1:		0.801				
HC2:		0.777				
HC3:		0.861				
HC4:		0.830				
Subjective Norms (SN)						
SN1:			0.719			
SN2:			0.747			
SN3:			0.712			
Perceived Behavioral Control (PBC)						
PBC1:				0.684		
PBC3:				0.742		
PBC4:				0.818		
Health Knowledge (HK)						
HK2:					0.627	
HK3:					0.835	
HK4:					0.797	
Purchase Intention (PI)						
PI1:						0.644
PI2:						0.711
Variance Explained (%)	39.576	9.441	7.718	7.143	5.719	3.922
Cumulative (%)	39.576	49.018	56.736	63.879	69.598	73.521

4.3 Measurement Model

The descriptive statistics and constructs of the items in the questionnaire are presents in *Table 4*. These consist of the mean values of attitude, subjective norms, perceived behavioral control, health concern, health knowledge, and purchase intention for OCCP. The mean values range from 4.381 to 6.580, with familiarity about laws and regulations related to health on the low end and concern about personal health on the high end. With respect to the correlation among the variables measured in this model, *Table 5* shows the results, with all correlations found to be significant. The mean and standard deviations for the constructs are listed in the table.

Table 4. Constructs and descriptive statistics of the questionnaire items

Constructs	Indicators	Mean	Std.	Sources
Attitude (ATT)	ATT1	5.093	0.921	(Yazdanpanah & Forouzani, 2015)
	ATT2	5.104	0.911	
	ATT3	5.526	0.897	
	ATT4	5.706	0.939	
Subjective Norms (SN)	SN1	4.683	0.992	(Ghazali et al., 2017)
	SN2	4.598	0.994	
	SN3	4.656	1.075	
Perceived Behavioral Control (PBC)	PBC1	4.735	1.020	(Ghazali et al., 2017)
	PBC3	4.934	1.060	
	PBC4	4.547	1.225	
Health Concern (HC)	HC1	6.279	0.880	(Ghazali et al., 2017)
	HC2	5.853	0.981	
	HC3	6.462	0.805	
	HC4	6.580	0.792	
Health Knowledge (HK)	HK2	5.882	0.921	(Yadav & Pathak, 2016)
	HK3	5.035	0.974	
	HK4	4.381	1.161	
Purchase Intention (PI)	PI1	5.147	0.975	(Yadav & Pathak, 2016)
	PI2	5.391	0.901	

Table 5. Correlation among variables

Constructs	Mean	Std.	ATT	SN	PBC	HC	HK	PI
ATT	5.357	0.801	1					
SN	4.645	0.875	0.636**	1				
PBC	4.739	0.912	0.495**	0.444**	1			
HC	6.294	0.741	0.435**	0.341**	0.332**	1		
HK	5.099	0.854	0.374**	0.479**	0.432**	0.367**	1	
PI	5.269	0.883	0.613**	0.563**	0.485**	0.424**	0.439**	1

Note. ** Correlation is significant at the 0.01 level (two-tailed).

The values of composite reliability (CR) came in between 0.762 to 0.888, thus exceeding the minimum suggested value of 0.70 (Fornell & Larcker, 1981). As shown in *Table 6*, all of the standardized factor loading measurement results expressed values between the 0.615 and 0.925. Thus, the factor loading values for all items were above the recommended level of 0.6 suggested by Chin et al. (1997). To measure the internal consistency among items, Cronbach's alpha (α) was used. According to Hair et al. (1998), in social psychological research, a value above 0.7 is acceptable. This study shows reasonable reliability with value ranging from 0.766 to 0.896. Also, the average variance extracted (AVE) values came in between 0.518 to 0.744, and were thus in-line with the recommendations of Fornell & Larcker (1981). *Table 6* presents the values for validity and reliability.

Table 6. Reliability and validity of the constructs

Constructs	Items	α	Factor Loading	CR	AVE
Attitude (ATT)	ATT1	0.896	0.815	0.888	0.664
	ATT2		0.758		
	ATT3		0.861		
	ATT4		0.823		
Subjective Norms (SN)	SN1	0.819	0.848	0.819	0.604
	SN2		0.827		
	SN3		0.640		
Perceived Behavioral Control (PBC)	PBC1	0.766	0.845	0.774	0.544
	PBC3		0.813		
	PBC4		0.508		
Health Concern (HC)	HC1	0.875	0.801	0.887	0.668
	HC2		0.615		
	HC3		0.925		
	HC4		0.892		
Health Knowledge (HK)	HK2	0.782	0.643	0.762	0.518
	HK3		0.768		
	HK4		0.742		
Purchase Intention (PI)	PI1	0.869	0.885	0.853	0.744
	PI2		0.839		

Note. α : Cronbach's Alpha; CR: Composite Reliability; AVE: Average Variance Extracted

The results of path analysis conducted with AMOS 24.0 were used to measure the path coefficients for the relationships among the constructs in this study's model. The overall goodness-of-fit indices in the structural model were as follows: the chi-square (χ^2) = 720.313, degree of freedom (df) = 141, χ^2 / df = 5.109, the goodness-of-fit index (GFI) = 0.870, Root mean square error of approximation (RMSEA) = 0.089, Normed fit index (NFI) = 0.882, Comparative fit index (CFI) = 0.903, Relative fit index (RFI) = 0.857, and Adjusted goodness-of-fit index (AGFI) = 0.825.

Previously, MacCallum et al. (1996) elaborated on cut points and noted that RMSEA values ranging from .08 to .10 indicate a mediocre fit. According to Jöreskog & Sörbom (1993), the GFI and AGFI indices both range from zero to 1.00, with values close to 1.00 being indicative of a good fit. NFI, CFI, and RFI coefficient values also range from zero to 1.00, with values close to 0.95 indicating superior fits (Hu & Bentler, 1999). The goodness-of-fit statistics for the present study are presented in Table 7.

Table 7. Goodness-of-Fit Statistics

Chi-square (χ^2)
Chi-square (χ^2) = 720.313
Degrees of freedom (df) = 141
χ^2 / df = 5.109
Absolute fit Measures
Goodness-of-fit index (GFI) = 0.870
Root mean square error of approximation (RMSEA) = 0.089
Incremental fit indices
Normed fit index (NFI) = 0.882
Comparative fit index (CFI) = 0.903
Relative fit index (RFI) = 0.857
Parsimony fit Indices
Adjusted goodness-of-fit index (AGFI) = 0.825

4.4 Testing of the Structural Equation Model

The results of the structural model and the standardized path coefficients that exist among the constructs are shown in Figure 3. As seen in Table 8, the original theory of planned behavior variables, including attitude ($H_1: \beta = 0.377, t = 6.358, p < 0.001$), subjective norms ($H_2: \beta = 0.235, t = 3.194, p < 0.001$), and perceived behavioral control ($H_3: \beta = 0.236, t = 4.102, p < 0.001$), were all significant predictors of purchase intention towards OCCP. Thus, $H_1, H_2,$ and H_3 are supported. According to the data, health concern had a positive impact on purchase intention for OCCP ($H_4: \beta = 0.159, t = 2.751, p < 0.01$); as did attitude ($H_5: \beta = 0.425, t = 9.389, p < 0.001$), subjective norms ($H_6: \beta = 0.210, t = 4.995, p < 0.001$), and perceived behavioral control ($H_7: \beta = 0.294, t = 5.609, p < 0.001$). Thus, H_4, H_5, H_6 and H_7 are supported. Finally, health knowledge had a significant positive influence on attitude ($H_9: \beta = 0.368, t = 8.771, p < 0.001$), subjective norms ($H_{10}: \beta = 0.495, t = 9.982, p < 0.001$), and perceived behavioral control ($H_{11}: \beta = 0.576, t = 10.486, p < 0.001$) meaning that H_9, H_{10} and H_{11} are also supported. However, health knowledge did not exhibit significant influences on purchase intention for OCCP ($H_8: \beta = 0.086, t = 1.109, p > 0.05$); thus, H_8 is not supported.

Table 8. Hypotheses results for the structural model

Hypothesized Path	Path Estimates	S.E.	t-Value	Results
H_1 ATT→PI	0.377***	0.059	6.358	Accepted
H_2 SN→PI	0.235***	0.074	3.194	Accepted
H_3 PBC→PI	0.236***	0.058	4.102	Accepted
H_4 HC→PI	0.159**	0.058	2.751	Accepted
H_5 HC→ATT	0.425***	0.045	9.389	Accepted
H_6 HC→SN	0.210***	0.042	4.995	Accepted
H_7 HC→PBC	0.294***	0.052	5.609	Accepted
H_8 HK→PI	0.086	0.078	1.109	Rejected
H_9 HK→ATT	0.368***	0.042	8.771	Accepted
H_{10} HK→SN	0.495***	0.050	9.982	Accepted
H_{11} HK→PBC	0.576***	0.055	10.486	Accepted

Note. * $p < 0.05,$ ** $p < 0.01,$ *** $p < 0.001.$

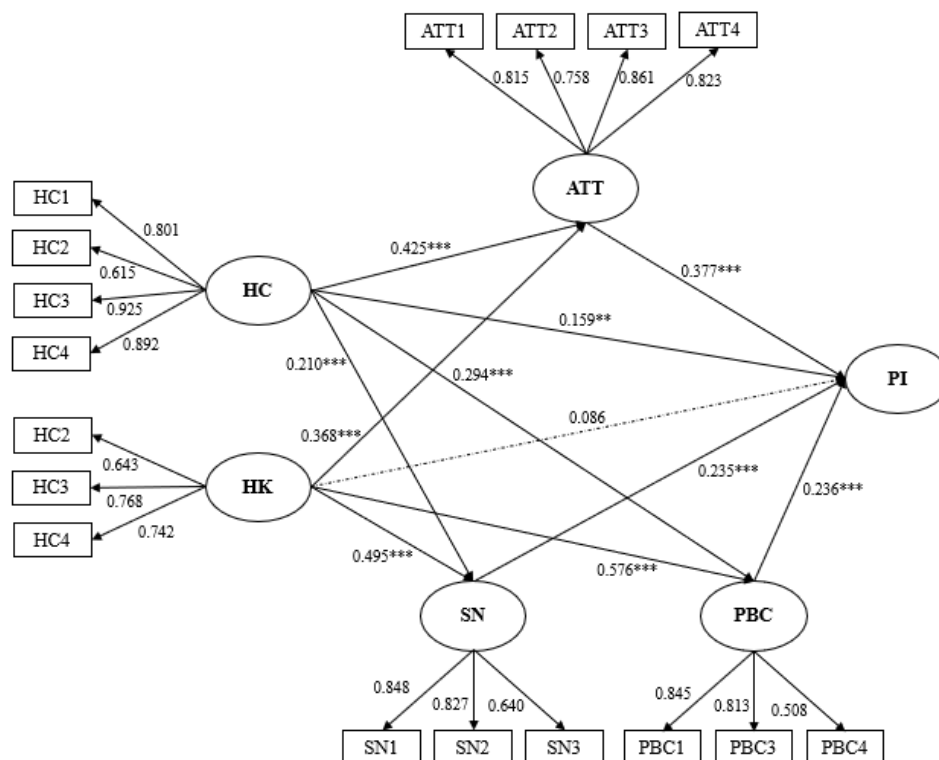


Figure 3. The construct research model results

(Note. * $p < 0.05,$ ** $p < 0.01,$ *** $p < 0.001$)

5. Discussions

The results of the study indicate that consumers of OCCP in Bangkok are inclined to be over 35 years in age, have academic degrees and relatively high household income levels; however, younger consumers (less than 26 years old) also seem to have high purchase intentions towards OCCP. The results here are consistent with another study in Bangkok which found that general organic buyers also have higher income levels and higher levels of education (Roitner-Schobesberger et al., 2008). Also, consistent with Aguirre's (2007) research, in Bangkok, females are more likely to buy organic products than males.

The various constructs within the TPB, including attitude, subjective norms and perceived behavioral control, were found to have a significant positive impact on purchase intention for OCCP. Attitude was found to have the most significant positive effect on consumers purchase intention, meaning that attitude is a strong predictor of purchase intention for OCCP. This is followed by perceived behavioral control and, lastly, subjective norms. The results agree with the attitude behavior theory of Ajzen (1991) and later studies, such as Maichum et al. (2018), who stated that attitude towards organic products had a positive and relatively strong correlation with organic consumption. Conversely, Shin et al. (2018) who found attitude and subjective norms to be concerned with self-interest motives suggested that perceived behavioral control is a more significant factor when it comes to influencing a person's intention to selected organic items based on social motives. The findings show that based on the TPB model, subjective norms have the lowest influence on purchase intention for OCCP when compared with the other constructs of attitude and perceived behavioral control. According to Chan & Lau (2002), subjective norms show that influence from family members' or friends resulted in a little impulsion concerning the reasons to purchase organic products for consumers. In his TPB model, Ajzen (1991) understood behavioral control to have a positive effect and direct influence on intention and behavior. The present study has shown that the influence of perceived behavioral control is smaller than attitude but greater than subjective norms.

Health concern was found to be a significant positive factor when it came to influencing attitude, subjective norms, perceived behavioral control, and purchase intention for organic coconut cosmetic products, thus confirming four of this study's hypotheses (H_4 , H_5 , H_6 , and H_7). According to Sringeng & Thapa (2018), most people in Thailand are aware of some household members with ailing health and would attempt to find knowledge on the health and environmental effects of organic produce. The previous research findings on organic foods showed that concerns about product safety, personal health, and environmental friendliness are important motivators for decisions on organic consumption (Bauer et al., 2013). Conversely, Sun (2008) found that health does not play an imminent role in increasing the level of awareness of such issues. Results are consistent with a priori literature from Apaolaza et al. (2018), which highlights the consumption of organic food as more beneficial to the health of the consumers. The satisfaction derived from less concerns of ill health is a direct effect of the belief that significant nutrients are gained from healthy diets such as an organic diet.

In the present study, health knowledge was found to have significant and positive influences on attitude, subjective norms, and perceived behavioral control, as hypothesized in H_9 , H_{10} , and H_{11} . This concurs with von Wagner et al. (2009), who found that health knowledge is related to health behavior. Beier & Ackerman (2003) identified influences of health knowledge factors across a wide scope of situations including mental health, nutrition, aging, and illness. In the present study, however, contrary to hypothesis 8 (H_8), health knowledge did not have a significant effect on purchase intention for OCCP. According to Yazar & Orth (2018), the concept of healthy nutrition commonly impacts the life of consumers as key decisions are made for personal goals, moral aspects of consumption and production, and eating restrictions. Additionally, the source for nutrition and health information is generally persons of trust, such as family and friends. Roitner-Schobesberger et al. (2008) found that among Thai consumers, few had familiar understandings of organic food. Confusion among consumers and lack of knowledge and trust in Thai organic certifications and controls are indeed barriers for Thai consumers (Nuttavuthisit & Thøgersen, 2017).

As predicted in H_1 , H_2 , and H_3 , the study's findings confirmed that attitude, subjective norms, and perceived behavioral control do influence purchase intention for OCCP. That is to say, those who have favorable attitudes, or consider it to be efficacious to choose organic products, are more likely to choose OCCP. However, Ghazali et al. (2017) found that, generally, decisions to purchase organic products are driven by personal determinants and interests rather than those of peers, reference groups, and family members. For example, individuals will give consideration to their own skin type, allergic reactions to certain ingredients, and preferences for various product attributes such as scent, or whitening, soothing, and/or hydrating properties. In Bangkok, as this study confirms, based on the TPB, health concern and health knowledge aspects are closely associated with consumers' intention to purchase organic products.

6. Conclusions

This study extended on the TPB model to investigate factors affecting consumer behavior and the consumption of OCCP among Thai consumers. Health concern and health knowledge were added to the constructs of attitude, subjective norms and perceived behavioral control in the original TPB framework. The results show that SEM can predict the variability of the intention and were significant predictors of consumer purchase intention. The study offers an integration of its research findings and provides suggestions for future studies on consumer OCCP purchase behavior. Based on the TPB, this research provides valuable insight into the important role that attitude plays in predicting intention to purchase OCCP when compared with subjective norms and perceived behavioral control. Additionally, the determinant of health concern was shown to have a significant positive influence on the purchase intentions of consumers towards OCCP. The study thus confirmed that health concern is becoming an increasingly important factor for Thai consumers. Health knowledge, on the other hand, was not shown to influence consumer purchase intention, suggesting that Thai consumers are not familiar with the related laws and regulations. This study provides producers and marketers with a better understanding of consumer purchase behavior and consumer perception so that they will be in a better position to capitalize on the growing interest in various organic products. Based on the findings, producers should be able to develop more effective marketing activities by giving focus to health benefits and safety factors.

This study supports the Thai government policy to develop an agriculture system based on sustainable management and efficient use of agriculture resources and infrastructure, while also providing Thai farmers with the ability to use production resources such as land, soil, and water properly and suitably to help biodiversity and to expand the market for organic products. This study provides evidence regarding consumers' underlying motivations to buy OCCP, which should play a defining role in the organic coconut cosmetic market in Thailand. It presents an opportunity for organic coconut producers in Thailand to employ growth strategies and gain greater market share. It maintains that such factors as health concern and knowledge can increase the predictive power of TPB for purchase intention towards OCCP. By getting a clearer look at potential consumers, the organic coconut cosmetic producers will be better equipped to develop effective marketing strategies.

This study explored issues which have never been studied in Thailand, addressing questions that are important to governmental and non-governmental organizations and organic coconut producers. The information can be used to create strategies to help with growth and acquisition of greater market share. Specifically, in order to promote OCCP consumption, the government has to promote and support the establishment of knowledge and understanding about the difference between OCCP and chemical cosmetic products. It is important for the government to work closely together with the producers, not only to diminish consumer concern about those products, but also to help transform perceived demand into actual demand for OCCP. Furthermore, since issues related to health knowledge did not influence consumers purchase intention towards OCCP, policymakers and producers could try to develop consumer health knowledge related to organic products to thereby hopefully encourage more consumers to purchase organic products. Second, on the marketing end, due to high prices and limited variety of OCCP on markets, such products have not been fully embraced by local consumers. Thus, the government and related sectors should work to establish understanding of OCCP among consumers and provide more market channels to increase visibility and distribution of organic products. Finally, by using such tools as TPB to predict consumer purchase intention towards OCCP, producers can have more confidence in their OCCP investments, knowing that as consumer trust in the health and safety of OCCP increases, future consumption will also increase.

Regarding the limitations and directions of the present study, to begin with, since consumers of organic products generally live in urban areas, the targeted sample consisted of residents of Bangkok rather than those in other places in the country. Thus, future research could collect data from other areas to get an understanding of trends and patterns on a broader scale. People's values, social norms, and motivations for consuming organic products may differ in different cultural contexts, as perceptions and needs are dependent on a large number of circumstances. However, this study applied convenience sampling method where the researcher selected the research sample based on the ease and proximity to the researcher. In future investigations into consumer purchase intention towards other organic products, such as ginger, durian, tamarind or other agricultural products unique to Thailand could also be carried out. Future research could also look to examine consumers' intentions to re-purchase OCCP based on other factors, such as product knowledge, hedonic value, safety value, etc.

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A New Approach for Proper Reporting of Pension Benefit Obligations in the Financial Statements of “Old Funds” for Professionals

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Abstract

In this paper, we focus on the disclosure of pension liabilities for entities referred to in Italian Legislative Decree 30 June 1994 no. 509 (also called “old funds” for professionals), which is crucial for a suitable communication. After illustrating the limits of current statutory financial statements’ in relation to the information they provide on pension benefit obligations, we propose three potential solutions to bridge the gap. Each of these proposals helps ensure the completeness and clarity of financial reporting and improves upon the informational capacity and quality of disclosure. In our opinion, one of these approaches, in particular, would be preferred because of its ease of adoption. Indeed, the disclosure in the explanatory notes allows for the quantification of pension benefit obligations, and hence a more proper evaluation of entities in the medium/long-term, with no impact on annual economic-financial results as reported in the balance sheet and the income statement.

Keywords: professionals’ old pension funds, pension benefit obligations, complete disclosure, future pension liabilities

1. Introduction

As evidenced by Chiacchio and Tagliapietra (2018) *the Italian debate on the pension system predominantly focuses on short-term aspects, neglecting relevant longer-term fundamentals*. In this paper, we will highlight how this short-term focus also characterizes the statutory financial statements of entities governed by Legislative Decree no. 509/94.

The first pillar of the Italian social security system for freelance professionals is entrusted with two main groups of privatized entities as detailed in the II Report 2015 (Technical Scientific Committee of Itinerari Previdenziali, 2015): pension schemes *ex* Legislative Decree n. 509/94, the so-called “old funds” and pension schemes *ex* Legislative Decree n. 103/96, called “new funds”.

The first group is composed of the following entities: ENPACL (labor consultants), ENPAV (veterinary doctors), ENPAF (pharmacists), CNPAF (lawyers), INARCASSA (engineers and architects), CIPAG (surveyors and evaluators), CNPR (accountants), CNPACD (chartered accountants), CNN (notary publics), ENPAM (doctors) and INPGI (journalists).

The second group is composed of the following entities: ENPAB (biologists), ENPAIA (agricultural experts and land surveyors), EPAP (agronomists and forestry experts, actuaries, chemists and geologists), EPPI (industrial engineers and graduates), ENPAP (psychologists), ENPAPI (nurses) and INPGI 2 (journalists, separate account).

The aim of this paper is to analyze how “old funds” report pension benefit obligations (PBOs) (Note 1) in their financial statements, and to further propose potential approaches to better represent them. Within this scope, and after having pointed out that the PBOs are currently not properly reported in either the balance sheet or in the explanatory notes, our research question is “how can financial statements be improved with specific regard to future pensions that will become due in consideration of contributions paid and recorded in the asset section?”.

This paper is organized as follows. Section 2 describes the two main documents of “old funds” reporting, highlighting the lack of PBOs in the statutory financial statements. Section 3 explains why this absence represents an issue. In Section 4 we propose possible solutions to proper disclosure, which are then further discussed in the last section.

2. Theory

2.1 Pension Calculation

Pensions can be calculated with different approaches which could have a significant impact on the pension computation (Attias, Arezzo, Pianese, & Varga, 2016). In particular, we distinguish between two different methods for the calculation: the income-based system, the so-called Defined Benefits (DB), that evaluates pensions considering the average of an individual's "last" income (Note 2); and the contribution-based system, the so-called Defined Contributions (DC), that evaluates pensions considering contributions paid by each professional over their whole working life (Kalyta & Magnan, 2008). In other words, by using the latter method pensions are estimated referring to contributions provided during an individual's entire professional life, rather than just their "last" income (Kemp & Patel, 2012), which shows a sharp decline in gross substitution rate (SR) (Note 3). Using this method, the pension is determined by multiplying the amount of contributions paid over an individual's whole professional life (calculated applying the benefit growth rate (Note 4)) by an age-related transformation coefficient, which reflects the life expectancy at retirement, without a sex distinction, and consequently the expected number of annual pension payments (Franco, 2001).

2.2 Pension Funds Reporting

The primary documents which make up privatized pension schemes' reporting are the actuarial statements (also called the "technical budget") and the statutory financial statements.

The actuarial statements are drafted, at least every three years (Note 5), based on forecast data (Note 6) while the statutory financial statements are drawn up annually with final data.

The actuarial statements detail information regarding the applicable legislation in force at the date of drafting, on the financial management system, on demographic, economic and financial data, on the technical bases adopted and on methodology used. As stated by the Ministerial Decree November 29, 2007, technical budget should develop projections of data with reference to the time lapse of 50 years.

The most common methodologies used to develop technical budgets are MAGIS (Coppini, 1979; Tomassetti, 1973), Monte Carlo simulation and Exact Individual Trajectories Method (EIT) (Angrisani & Attias, 2004). Monte Carlo is a stochastic simulation to model the probabilities for different trajectories founded on the Large Numbers Law. In the MAGIS version (the method of management years on an individual basis and with a draw), the elementary probabilities, referring to each individual, are used as weights of random extraction. In this case, trajectories are out of control due to the polynomial aspect which considers all "possible fates". The EIT is set up on an axiomatic individual basis which takes into account, for each fund's member, the set of all feasible trajectories, that is, all possible life events. Most notable, EIT, starting from the vital cycle of when the professional enrolled in the fund, identifies only the feasible trajectories (that is, the history of each professional is non polynomial) and so trajectories are under control.

Technical budgets allow for the assessment of both the sustainability of the system, from a medium/long-term perspective, and the intergenerational equity and solidarity (Guardiancich & Natali, 2018), which is given by the stable and fair ratio between contributions and benefits paid. With regard to sustainability, it is useful to highlight that the financial crisis has further emphasized the need for performance measures which are able to determine the ability to effectively provide income replacement at retirement age (Hinz, Heinz, Antolin, & Yermo, 2010). Indeed, the European Union also focuses on the sustainability of pensions in several documents (European Commission, 2010, 2018a, 2018b; European Economic and Social Committee, 2010), particularly in the 2010 Green Paper where it states "*An adequate and sustainable retirement income for EU citizens now and in the future is a priority for the European Union. Achieving these objectives in an ageing Europe is a major challenge. Most Member States have sought to prepare for this through pension reforms.*" Adequacy and sustainability need to be addressed jointly (Alonso-García, Boado-Penas, & Devolder, 2018) with the aim of solidarity and equity between and within generations. In this context demography plays a very important role.

During the period between 1946 and 1964 the so-called "baby boom" phenomenon occurred (Mazzola et al., 2016). People born during this period represented a large number of professional funds' members in the '90s. The mass of these professionals will retire around 2025/2030 with the problem arising that beneath this population there is a "hole" from the enormous decrease in births since the '70s. This demographic tsunami phenomenon will create an unbalanced relationship between active professionals and retired ones, the immediate consequence of which will be asset erosion. Therefore, sustainability has to be based on the real performance of the variables that have the inherent ability to determine sustainability itself (Angrisani & Di Nella, 2011), and in this sense the financial statements are crucial. Indeed, the actuarial budgets report the projections of the possible evolution in terms of

inputs (mainly contributions and returns) and outputs (mainly pensions and operating expenses) in consideration of demographic, economic and financial technical bases esteemed by the editor; these projections are not the estimation of the pensions liabilities of privatized entities at the date of the statements (Geroldi, 2014).

The statutory financial statements are administrative-accounting documents used to inform all categories of stakeholders about the economic, financial and asset situation of an entity (Amaduzzi, 1970; Bastia, 1989; Capaldo, 1998).

The legislator has, in fact, ordered that the financial statements must be drafted with clarity, truth and correctness: the principles of the general drafting clause contained in article 2423 of the Civil Code. The right to information of members and third parties is, first of all, the right to economically true information, technically correct and effectively intelligible and therefore clear and this right is guaranteed by art. 2423 of the Italian Civil Code (L. A. Bianchi, 2013). The financial statements are legitimately prepared, therefore the shareholders' resolution that approved them is valid only in the presence of clarity, truth and correctness. This means that none of these principles can be renounced in order to be able to speak fully of a legitimate balance sheet (M. T. Bianchi, 2001).

These can be drafted according to different standards (Capodaglio, Santi, & Tozzi, 2011; Quagli, 2017). In Italy, the financial statements of "old funds" must be compliant with rules of Civil Code, suitably adapted - lacking regulation - to that typical of privatized social security entities (M. T. Bianchi, Nardecchia, & Tancioni, 2014). In particular, article 2423 c.c., as modified by the Legislative Decree no. 139/2015, states that financial statements are made up of a balance sheet, income statement, statement of cash flows and explanatory notes to the financial statements. This article also specifies that additional disclosures must be provided if these are necessary in order to give a true and fair representation of an entity's affairs (PwC, 2017). According to us, these disclosures are necessary, and additional information concerning the PBO must be reported in order to provide a true and fair representation (Marcello & Lucido, 2019). Indeed, as argued by Reiter and Omer (1992), *in the area of pension accounting, [...] the accounting choices play a major role in distributional decisions, particularly the distribution of wealth between shareholders and employees* and it could cause the deferral of pension funding to future periods (Chaney, Copley, & Stone, 2002). Even if financial statements are frequently considered to be neutral, objective and consequently trustworthy, in actuality this is not always the case. This is especially notable for pension funds which have specific measurement issues (Schipper & Trombetta, 2010), such as with the calculation of future pensions. *The implication for accounting standard-setting bodies is that both the pension plan assets and pension obligations should be disclosed to facilitate users in making predictions about changes in the economic liability* (Selling & Stickney, 1986).

2.3 Analysis of Statutory Financial Statements of Old Funds

In this paper, we analyzed financial statements of all the "old funds" that, in compliance with the first article of the Legislative Decree no. 509/94, register at least a reserve equal to 5 annuities of pensions in the equity section and do not report any additional disclosure about PBOs in either the balance sheet or in the explanatory notes. The absence of all PBOs significantly impacts the completeness (M. T. Bianchi, 2001) and the quality of disclosure (Beretta & Bozzolan, 2008). Indeed, to be exhaustive and to satisfy stakeholders' needs, communication should refer to both current and prospective performances (Quagli, 2004). The guiding thread of our logical reasoning is exactly from this perspective.

In Table 1 we recap the amount of contributions paid in 2018, the recorded PBOs and the number of members in the same year for each fund.

Table 1. Data of old pension funds (source: financial statements 2018)

Old funds	Contributions 2018 (in millions)	Recorded PBOs	Members 2018
ENPA CL (Labor consultants)	€ 200	none	25 469
ENPA V (Veterinary doctors)	€ 117	none	29 252
ENPA F (Pharmacists)	€ 271	none	95 656
CNPA F (Lawyers)	€ 1632	none	246 945
INARCA SSA (Engineers and Architects)	€ 1080	none	168 851
CIPAG (Surveyors and Evaluators)	€ 525	none	84 202
CNPR (Accountants)	€ 330	none	28 776
CNPA DC (Chartered Accountants)	€ 839	none	68 552
CNN (Notaries)	€ 295	none	6270
ENPA M (Doctors)	€ 2933	none	645 893
INPGI (Journalists)	€ 17	none	19 969

3. Results and Discussion

3.1 Results

The analysis pointed out that PBOs are not accounted for either in the financial statements or in the technical budget, undermining their disclosure (Andrietti, 1995; Morrone & Angrisani, in press), which is critical for multiple stakeholders and may impact sustainability evaluation (Angrisani, 2008; Angrisani & Di Palo, 2019).

That said, it is then necessary to define a proper accounting principle that is able to take into consideration the contracted retirement promises (Olivieri, Fersini, Melisi, & Brusco, 2015; Rosa, 2012) by prevailing the economic substance over legal form as regulated by the principle introduced by article 2423 *bis* of the Civil Code as amended by article 6, paragraph 3, letter b) of Legislative Decree no. 139/2015. Indeed, pensions not yet due to members because of the absence of the event that implies payment, will nevertheless eventually become due considering the peculiarity of the privatized entities. It is useful to specify that even though the members of the funds are not properly a third party of the entity, defining with them a relationship of a substantially participatory nature, we postulate the position of these certainly characterized by legal protection (Castellino, 1985). The merit for this kind of disclosure is affirmed by the “new funds” that already report this data in their balance sheets. As an example, the balance sheet of ENPAPI as at 31st December 2017 reports obligations for future pensions in dedicated funds (“B4a Social Security Fund”: € 606 164 060, “B4b Pension Fund”: € 48 461 927 and “B4e IVS Fund (invalidity, old age, survivors), separate account”: € 40 467 889).

3.2 Our Proposals

Based on the analysis performed, we think that a new and specific accounting principle must be designed in order to ensure proper representation of PBOs in the financial statements of “old funds” (Vermeer, Styles, & Patton, 2012). Hence, we propose the following possible solutions to make the financial statements clearer and more informative:

- 1) registration of a reserve that refers not only to the next 5 years, but which also takes into account a longer time horizon;
- 2) creation of a fund that effectively integrates the five-year reserve, recording the future obligations;
- 3) use of the explanatory notes, rather than the quantification of pension benefit obligations in the balance sheet, to create a special section in which to insert the “potential” debt and, therefore, the operational risk (Kaifala, C. Paisey, & N.J. Paisey, 2019) over a wider period than only 5 years. This would create a link between the financial statements and technical budgets, positively impacting the financial statement information.

The first two solutions have a particularly forceful impact because they oblige entities to represent the pension benefit obligations of the following annuities in each financial year (Chaney et al., 2002). The third solution is able to offer a complete disclosure, but appears less “invasive” since it does not directly affect an entity’s annual economic-financial results (Giunta & Pisani, 2020).

Therefore, by choosing the third solution it can be assumed that in the explanatory notes the pension benefit obligations of a privatized entity towards its members in the long-term (at least, 20 years) must be indicated, thus highlighting a relevant information for stakeholders.

Such a scheme therefore allows for the construction of a more comprehensive disclosure able to evaluate the sustainability, by creating a proper logical interconnection between the purposes of the financial statements and the technical budgets.

4. Conclusion and Possible Future Researches

At present, the statutory financial statements of old funds do not present a complete disclosure of pension benefit obligations. Furthermore, the information that can be deduced from the technical budget is constructed with criteria other than those from general accounting and, therefore, does not possess the same informational value. It is essential that the reader of the financial statements has information on the pension debt of the Fund, otherwise the general financial statement drafting clause is not respected due to the lack of clarity.

This demonstrates the need for a different method of presentation.

Utilization of merely quantitative hypotheses could generate complex effects on financial statement results. Conversely, the quantification of pension benefit obligations in the explanatory notes informs the reader without altering results, enabling the analysis of an entity’s sustainability, while still providing all the values on the possible evolution in the long run.

A limitation of this paper refers to the peculiarities concerning Italian “old funds” for professionals that are not

easily comparable to other pension funds around the world. Moreover, this analysis does not stress the actuarial issues related to the quantification of pension benefit obligations that could be considered in further researches. Another interesting future study linked to the problem highlighted in this paper concerns the specific risk of the funds represented by the possibility for members to ask back their paid contributions. This latter, indeed, has a significant impact on one side, on the accuracy, completeness and clarity of financial statements and, on the other side, on the pension system's sustainability evaluation that is relevant also for European policies (European Commission, 2010, 2018a, 2018b; European Economic and Social Committee, 2010).

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Notes

Note 1. A PBO is the present value of retirement benefits already earned by professionals, but not yet paid out (Andrietti, 1995). The amount of this obligation is usually determined by an actuary, based on multiple assumptions.

Note 2. The reference period for calculating it has changed with reforms: it could refer to last paycheck such as the average of the last five/ten earning years.

Note 3. SR is the ratio between the first pension benefit and the last income earned by the professional.

Note 4. For example, with regard to the Italian basic pension, the amount of contributions is capitalized at a five-year moving average of GDP growth.

Note 5. The article 2 of D.M. 29 November 2017 states that the technical budget must be issued also when changes of statutory/regulatory have significant consequences on the evolution of the economic and financial management of the entity.

Note 6. The entities are required to verify annually that the results of the final balance sheet are in line with the technical-financial ones (art. 6, co. 4 D.M. 29 November 2007).

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