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Disclosure of Audit Activities in Annual Reports: A Comparative Study of Selected Listed Companies in Botswana and South Africa

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Abstract

Audit activities form part of the key functions that enhance the reliability and validity of financial and non-financial information. One of the reporting processes investors and other stakeholders rely on when making decisions is the annual reports of enterprises which are a compilation of various reporting elements. Although internal auditors do not make direct disclosures in annual reports, many financial and non-financial disclosures are for audited items. Ultimately internally-audit activities and those of the external auditor are reflected in disclosures made by the internal audit function, the audit committee, and the external auditors themselves. The main objective of this study was to identify the levels of audit disclosure made in reference to the activities of IAFs, external auditor and the audit board committee, and to make comparisons therein between Botswana Stock Exchange (BSE) and the Johannesburg Stock Exchange (JSE) listed companies. To uncover the extent of these disclosures the current study derived seventeen (17) mandatory or voluntary audit disclosure areas that were used to conduct text analysis and to determine disclosures made for a cross-country study of three companies, each from the areas of retail, banking and insurance selected from the Botswana Stock Exchange (BSE) and the Johannesburg Stock Exchange (JSE). The study found that audit committees and internal audit functions dominated the disclosure of the audit-related variables, and that external auditors tend to confine their disclosure to areas concerned with presentation and qualification of financial statements. The study also found that companies listed in the JSE made more disclosures than their BSE counterparts, and that the retail sector made fewer disclosures as compared to the other two sectors. Furthermore, disclosures related to assessment and management risk as well as aspects of internal audit functions were the two most frequently disclosed variables in both geographic locations. The study goes on to recommend that future studies make more comparative studies by sector, geographic location, and to explore the use of a broader range of auditing variables.

Keywords: audited-related activities, annual report disclosures, listed companies, cross-country study

1. Introduction

Audit activities of an organization are critical in shaping the assurance model of an entity. Audit procedures are the independent examination of records and activities that ensure compliance with established organizational controls, policies and operational procedures (Basu, 2009). These financial compliance and probity functions were conventionally assumed by internal and external audit functions of organizations (Bosi & Joy, 2017). Whilst internal auditing evaluates an organization's operations by personnel within the same organization (Almström & Kinnander, 2011), external audit is the independent examination and expression of an opinion on the financial statements of an entity and risk therein by external professionals (Bediako-Ahoto, 2011). According to Soh and Martinov-Bennie (2011) the processes of external audit forms a smaller part of the audit process and therefore investors and other stakeholders often depend on the work of other organizational constituents when making decision regarding a particular organization (Chatterjee, Tooley, Fatseas & Brown, 2011).

Over the past two decades the demand for greater levels of governance mechanisms by board directorship has further increased the scope of auditing functions in organizations (Bishop, DeZoort & Hermanson, 2017). This is clearly evidenced by the growing corporate governance literature in financial control and auditing (Carcello, Hermanson & Ye, 2011). Subsequently three monitoring mechanisms have been identified by the extant literature as driving the role of audit reporting in organizations namely, internal auditing, external auditing, and audit board committee (Al Matarneh, 2011).

Despite the growing understanding of auditing activities in developing countries, little is known about similar advances in developing countries. This is partly due to the dearth of literature on organizational accountability, transparency, and corporate governance practices in the developing world (Tsamenyi, Enninful-Adu & Onumah, 2007). This study examines the levels of audit information disclosures in the annual reports of six selected listed companies in Botswana and South Africa as appreciated through reports made by various units of organizations on auditing activities, whether voluntary or mandatory.

2. Literature Review

2.1 Organizational Accounting Structures, External Auditing and Audit Committees

For many decades audit functions served an important role in assessing a company's activities against relevant standards and providing an opinion or information with regards to an organization. Internal audit activities are mainly concerned with ensuring that companies comply with internally set standards, that its operations are carried out efficiently, and that financial statements have been prepared correctly and accurately to ensure the reliability of such statements (Cooper, Chow & Yun Wei, 2002). Internal audit functions (IAFs) are also expected to direct internal assurance planning and program execution, to deliver risk identification, and to develop monitoring and mitigation strategies (Staciokas & Rupsys, 2005). Finally, they must report to the board on decisions taken, including approval of financial statements (Pratoomsuwan, 2012). In addition to IAFs, organizational accounting functions serve a larger role in the provision of financial and associated information, albeit with the support of the other internal organization constituents such as financial controllers. Ultimately internal auditors provide an important internal governance mechanism that is critical in shaping financial reports that are eventually published in annual reports. Although internal auditors do not make direct disclosures in annual reports of companies, the result of their audited activities form the basis of disclosures made by various persons associated with the organization (Saha & Arifuzzaman, 2011). Therefore, as Arkermann, Marx and Fourie (2016) posit, IAF disclosures and evidence of their work therein can be traced to annual reports though references made on their work by other organizational constituents.

On the other hand external audit is the independent and objective verification of financial statements of an organization's, financial statement, combined with the expression of the auditor's opinion regarding the statements (Staciokas & Rupsys, 2005) .The intervention of the external auditor in the reporting process provides assurance on the authenticity of the financial statements. This process not only considers possible errors and fraudulent activities, but also pronounces on whether financial statements are presented fairly, and whether all information provided reflects actual transactions that occurred during the financial period (Chandler, Edwards, & Anderson, 2012)

An audit committee is a delegate committee of the board of directors tasked with guaranteeing the reliability of accounting information provided by firms (Méndez & García, 2007). Vafeas (2005) suggests that audit committees are responsible for monitoring information contained in financial reports. In addition, Méndez and García (2007) note that audit committees are essential to improving market transparency and restoring the investment community's confidence. Audit committees form part of the executive board of a firm and according to Vafeas (2005) they must be made up of financially literate people and atleast one must be a financial expert. Karamanou and Vafeas (2005) maintain that audit committees must be independent, thereby being free from management influence. The primary tasks of audit committees include the evaulation of companies' internal audit systems, safegaurding the independence of internal auditors and to evaluate and control the processes of corporate governance, information transparency and conflicts between managers and shareholders (Méndez & García, 2007). However the sole presence of an audit committee does not guarantee sturdy financial reporting system since factors such as the company's ownership structure, leverage and industry sensitivity come into play (Habbash, 2015).

2.2 Audit Expectation Gap

The audit expectation gap is primarily concerned with the existence of differences in perceptions between the audit profession and the public regarding the nature, purpose and functions of those who engage in audit activities (Soh & Martinov-Bennie, 2011; Bedard, Sutton, Arnold & Phillips, 2012). A study by McEnroe and Martens (2001) found that investors have higher expectations for the various components of assurances of the audit-process than do auditors. Similarly, Dibia (2015) ascertained that users of financial statements hold different perceptions regarding the practice of audit, and that their perceptions of the work and assurance provided by the auditors are quite diverse. A study by Bedard, Sutton, Arnold and Phillips (2012) concurs, further disclosing that many investors believe that information provided in annual reports, not just the financial statements, is audited. In order for companies to help bridge the expectation gap, Epstein and Geiger (1994) suggest that the audit profession needs to embark on processes that will fundamentally change attitudes, and that will ultimately meet society's expectations in terms of reporting and provision of information. Furthermore, they suggest that an expansion of services which incorporates more work on fraud detection, internal control audits and disclosure levels are vital in bridging the gap.

Although the Bedard, Sutton, Arnold and Phillips (2012) study focuses on the investor's perception of whether various contents of annual reports were audited, a crucial element that is introduced as an extension of the expectation gap is the 'information gap' which can be found within annual reports. This phenomenon examines whether investors know about auditors' involvement with information contained in annual reports and whether, according to Hooks, Coy and Davey (2002), there is inadequate disclosure which results in an information gap between stakeholders and the disclosures provided by companies. The findings of various studies suggest that there is a difference in disclosure needs between two or more user groups on perceived information needs (see for example Wallace (1988); Mirshekary & Saudagaran (2005); Hassan, Giorgioni, Romilly & Power (2012); An, Davey, Eggleton & Wang (2015). The findings of these studies identified low levels of disclosure in the developing countries where the studies were conducted, as well as a significant difference between actual disclosure practices of companies and market expectation of such practices.

While the debate around the expectation gap and its associated information gap continues, it has become a norm for companies to voluntary disclose information regarding their operations in annual reports as a means of bridging these gaps (Braam & Borghans, 2014). In doing so more detailed information regarding a company's internal operations such as disclosures on its IAF and audit management issues are communicated within their annual reports. Audit disclosures are a means used to make the auditing process more transparent to users of financial reports (Doxey, 2013). As Phosrichan, Boonlua and Janjarasjit (2016) observe, audit disclosures promotes transparency and adds value to information disseminated to users of annual reports.

According to Depoers (2000), audit disclosure has significantly increased over the years, in particular the provision of information in areas required by regulation. In order to satisfy market information needs and provide information required for corporate transparency and accountability there is a consensus that business reporting models needs to expand beyond the traditional financial reporting model and be more forward-looking based on prospective information (AICPA, 1991[1]; Beattie, McInnes & Fearnley, 2004). However an increasing body of literature cautions against this practice due to risk factors associated with disclosure. Some posit that the role of accounting regulation in organization oversteps its mandate when extensive non-mandatory disclosures are made (Depoers, 2000; Archambeault, DeZoort & Holt, 2008).

Yet a fundamental issue that is not addressed by the literature and by researchers is the nature and level of audit disclosures made by various audit functions in the organization. Turlea and Stefanescu (2009) suggest that the auditing profession and reporting therein has changed considerably in the public sector as a result of the increasing complexity of organizational activities, changes in national and international accounting regulations, as well as the growing importance of risk management issues. In the private sector such concerns are raised to include corporate governance, disclosure in the proxy statement of whether the audit committee had fulfilled its responsibilities (Rezaee, Olibe & Minmier, 2003). To better understand and begin to close this 'accountability vacuum' Humphrey, Loft and Woods, (2009) suggest that audit information requires continued and contextual understanding, a mandate pursued by the current study.

2.3 Audit Disclosure Practices in Botswana

Botswana's financial reporting environment is dominated by the requirements of the Botswana Stock Exchange (BSE), a Financial Reporting Regulatory Authority, the Companies Act, the Botswana Institute of Chartered Accountants (BICA), the new Accountants Act, and the International Financial Reporting Standards (Kiyanga, Wingard & Cronje, 2016). The Botswana Stock Exchange has developed its own Code of Best Practice on Corporate Governance which contain various audit reporting and responsibility clauses. Besides auditing ventures, the code provides guidelines to listed companies on corporate governance and accounting practices. Further to this, the Botswana Institute of Chartered Accountants Institute (BICA) has directed its members to

[1]This AICPA document is commonly referred to as the Jerkins Report.

comply with International Financial Reporting Standards (IFRS), International Standards on Auditing and International Federation of Accountants (IFAC) and related codes of ethical practice. In 2010 The Financial Reporting Act was published. One of its primary mandates was the establishment of the Botswana Accountancy Oversight Authority (BAOA). The authority provides oversight to both accounting and auditing services, and guides the provision of financial and non-financial information by entities.

Despite the various and continued efforts by Botswana regulatory bodies to align its financial reporting practices with internationally accepted standards and codes of practice, studies maintain that there is room for improvement to the current supervisory provisions (Josiah, Themba & Matenge, 2016; Kiyanga, Wingard & Cronje, 2016; Phatshwane & Mbekomize, 2017). Research into voluntary disclosures patterns of locally-based companies have also begun to emerge. A study by Rankokwane (2008) determined that there was improvement in the promotion and reporting of environmental accouting and audit activities. Similarly, Mbekomize and Wally-Dima (2013) recognized that social and environmental reporting exists in Botswana listed companies and public organizations. Kitindi, Magembe and Sethibe (2007) contend that the presentation of additional information in annual reports, especially non-financial information, has grown profoundly in recent years. Baliyan, Othata and Swami (2012) found that financial reporting by Botswana listed companies has become more complex, and that disclosure requirements appear to be empowering stakeholders in decision making processes.

The Kiyanga, Wingard and Cronje (2016) study found that the increase in the level of corporate disclosure varied from sector to sector, and that the information items differed across organizations. The study also established that integrated reporting was not practised by all companies included in the Botswana Stock Exchange (BSE) sample, and that companies listed on the South African Johannesburg Stock Exchange (JSE) had a higher level of corporate disclosure, and that internal audit and audit committee disclosure is more prevalent in South African listed companies. However the nature and areas of disclosures were not revealed by the study.

2.4 Audit Disclosure Practices in South Africa

The South African reporting environment is similar to that of Botswana in that both use the IFRS and the Kings III (or IV) Code of Corporate Governance. According to the World Economic Forum South Africa has a world class securities exchange system, and has been ranked 3rd globally for regulations relating to securities exchanges compared to Botswana's 59th ranking (World Economic Forum, Competitiveness Report of 2016 - 2017). Similarly, several studies assert that with the exception of the Johannesburg Stock Exchange (JSE), most African stock exchanges exhibit immature markets and poor market inefficiency (Mensah, 2003; Odera, 2012; Mobarek & Mollah, 2016), presenting the JSE as a more advanced player in the global financial markets' sphere.

As is the case with Botswana, an expectation gap has been reported by studies conducted in the South African business environment. A study by Firer and Meth (1986) examined the information requirements of South African investment analysts and compared them with their UK counterparts. The study reported low levels of voluntary disclosure among South African firms in comparison with the UK group of companies included in the study. A subsequent study by McInnes (1994) disclosed that there are three areas that are the likely causes of insufficient disclosure. The areas identified are lack of independence of auditors, uncertainty regarding the role of auditors and the dissatisfaction with the compulsory audit of small owned businesses. More recently Kiyanga, Wingard and Cronje (2016) reported that voluntary audit disclosure in annual reports has increased considerably in South Africa since more users of financial information render the information more credible as a result of increased disclosure. This is further supported by Kiyanga (2014) who notes the increasing levels of disclosure by South African listed companies allows investors to make more informed decisions.

Following from these discussions, the primary objective of this study is to identify the levels of audit disclosure made in reference to the activities of IAFs, external auditor and the audit board committee. The study also seeks to make comparisons between companies listed on the BSE and those on the JSE, predominantly by the sector the company operates in. This will be accomplished by identifying audit disclosure in the annual reports of the selected companies, and classifying the disclosure according to the source of the disclosure (IAF, external auditor, or audit committee).

3. Methodological Procedures

3.1 Justification of the Selection of BSE and JSE Listed Companies

This study uses a qualitative research methodology under an interpretive paradigm as the research paradigm. The use of an interpretive involves the interpretation and reconciliation of different data using the researchers own subjective interpretation (Bhattacherjee, 2012). Interpretive paradigm is appropriate for the current study as it has the potential of generating new understanding on a concept not previously studied in the geographic and social domains covered by the study (Van Esch & Van Esch, 2013). The study uses text analysis, a variant of content analysis, to systematically identify disclosure elements or characteristics from the data as outlined in table 2 below. Content analysis was selected for the study as it allows for large volumes of data contained in annual reports to be analysed. It is from these disclosures that inference is made by the study, albeit objectively and systematically, from the annual reports of companies selected for the study (Tregidga, Milne & Lehman, 2012).

The selection of Botswana (BSE) and South Africa (JSE) as study subjects were motivated by both a desire to carry out a cross-country study, and the proximity and convenience of sourcing information from both sites. Furthermore, cross-comparison studies on disclosure patterns between the two geographic locations are common given the embedded economic and business associations that exist between the two countries (see for example Kiyanga, Wingard & Cronje, 2016).

3.2 Data Collection Procedures

The current study is based on the premises that audit information disclosed in annual reports allows shareholders to access information on legal, financial and risk issues that relate to an organization and its environment. Besides information provision, these reports help keep management accountable for organizational practices and decision-making processes. Thus, the various constituents who provide audit information in annual reports will either be guided by prevailing legal, organizational, regulatory and industry practices.

The data that informed the study was collected from annual reports. Annual reports are a widely disseminated source of information by publicly held corporations, and therefore afford users easy access to corporate information (Arnold, Moizer, & Noreen, 1984). Each annual report was subjected to qualitative content analysis to identify and classify auditing statements therein. For purposes of this study an auditing statement is a statement which refers to an auditing function or activity reported in the annual report. The study classified each statement by its source or provider, the three providers being IAFs, external auditor and the audit committee.

The population of the current study is all listed companies in BSE and JSE. As at June 2017 the JSE had 403 listed companies compared to the BSE with 46 listed companiesThe syudy uses listed companies because information related to these entities can be easily accessed online, and in both juristictions King III Code of Corporate Governance makes it mandatory for listed companies to present their annual reports at the end of each financial preriod to the general public. The sampling process was largely convenient with three relatively large listed companies listed in both the BSE and the JSE being selected for the study. To maintain some level of comparability two companies were selected from the financial sector (one in insurance and one in banking), and one from the retail sector in both countries. Although the sample is relatively small as compared to the population, the demands of an in-depth, longitudinal study was not amenable to the handling of a large corpus of data (Das, Verburg, Verbraeck & Bonebakker, 2018).

The analysis of audit disclosures was conducted by reviewing the annual reports the six selected companies over a three-year period from 2013 to 2015. Although the results of the study represent a tally of counts for all three years, comparisons were made between the various years for each company. Operational aspects of the selected companies are shown in Table 1.

Table 1. BSE and JSE Listed Companies Selected for the Study

Company	Operating Sector	Company Brief and Characteristics
BSE Listed		
Retail 1	Retail	A mass grocery retailer operating in Botswana and parts of Africa. It is one of the largest retaiter stores operating in Botswana, and is a mass employer.
Insurance 1	Financial / Insurance	Established as a life insurance company listed on the BSE. The company offers a range of savings, asset management and employee benefits products. The company has been operating in the country for many decades.
Bank 1	Financial / Banking	The bank was registered in the 1990's and rapidly grew to become one of the largest companies listed on the BSE. It has established immense footprint in the country.
JSE Listed		
Retail 2	Retail	A South African food retailer established over half a century ago. The group has presence in much of Africa and parts of Britain.
Insurance 2	Financial / Insurance	The group offers a wide range of insurance, investment management and related financial support services to its clients. It has been operating in the country for many decades, and has formidable footprint in the Southern African region.
Bank 2	Financial / Banking	The bank is one of the largest banking groups in South Africa. It offers wholesale and retail banking services, insurance, asset management and wealth management services.

3.3 Classification and Coding of Data

Marston and Shrives (1991) found that many studies have measured disclosure quality, but there is no concrete explanation or general guideline for the selection of items to measure the extent of disclosure. In the current study the measurement of audit disclosure takes the form of a number of characteristics including words, sentences and paragraphs covering the various elements of audit-related disclosures (Unerman, 2000). Frequency counts were constructed from the codes in order to better understand the qualitative data. A total of seventeen (17) audit disclosure variables were identified from the perusal of BSE annual reports, and subsequently used for measurement purposes. These variables were either included in International Accounting Standards (ISA) guidelines, or formed part of the typical areas of organizational activities monitored by internal auditors (Robson, Macdonald, Gray, Van Eerd & Bigelow, 2012). The variables identified for the study are provided in table 2.

Table 2. Audit-related Disclosure Variables

Variable	Title / Name	Description
v1	Assurance of the Report (Reasonable)	Reasonable assurance is high level of assertion regarding the reliability of financial reporting and the preparation of financial statements for external purposes.
v2	Independence of Audit and Auditors' independence	Independence refers to a state where the auditor is free form external influence regarding all audit procedures and the opinion given. External influences include shareholders, directors, management, and those who prepare or use the financial statements.
v3	Appointment of Auditors	Generally appointment of auditors is done by the directors of the company if they were not already appointed at the Annual General meeting. In our analysis key themes include who appoints the auditors, who are the appointed auditors and the length of their appointment.
v4	Name of Appointed Auditors	This variable answers the question 'who are the appointed auditors'.
v5	Statutory Duties of the audit committee	This variable is set to uncover the specified responsibilities and duties of the audit committee, and whether they have been stated on the committee's report.
v6	Assessment and Management of Risk	Risk assessment is estimating possible risks that may be involved with undertaking a particular activity. In contrast, risk management is concerned with the forecasting and evaluation of any financial risk and mitigation processes therein.
v7	Internal Controls	Internal controls refer to processes of assuring achievement of an organization's objectives in operational effectiveness and efficiency, reliable financial reporting and compliance with laws, regulations and policies.
v8	Safety and Health Audits	These audits represent a process in which information is collected and assessed regarding the effeciency and effectiveness of the company's safety and health processes. These audits are commonly carried out by retail-type outlets.

v9	Monitoring Compliance to Regulatory Bodies	Compliance / conforming to International Standards of Auditors (ISA) and other regulatory bodies. This variable helps in establishing whether the selected companies comply with such (Stock Exchange, IFRS, KING Code of Corporate Governance, etc)
v10	Scope of the Audit	An audit scope establishes how deep an audit is performed. Ordinarily not all financial aspects of a company are audited during each audit. The annual report is therefore required to communicate the scope of the audit.
v11	Audit Opinion	Whether the financial statements are free from material misstatements or not. Therefore it must be stated on whether that opinion is unqualified, qualified, adverse, or a disclaimer of an opinion.
v12	External Auditors' Responsibilities	External auditor's responsibilities must be detailed in both in the auditor's and the director's report.
v13	Responsibilities of Internal Auditor	These variables are mainly concerned with the internal audit responsibilities and functions, in particular the different activities that fall under each function.
v14	Responsibilities of Internal Auditor Report	A report on responsibilities of internal auditor.
v15	Audit Fees .	These fees are in the form of remuneration to the auditor for the services provided to their clients, however under this variable emphasis is not much on the amount is being paid but rather on whether such fees have been disclosed by the reporting company
v16	Fair Presentation of Financial Statements (True and Fair View)	Fair presentation refers to a financial reporting framework that requires compliance with the requirements of the framework and acknowledges explicitly and implicitly that it may be necessary for management to provide disclosures beyond those specifically required by the auditing reporting framework
v17	Material Misstatements	Misstatements that may affect the economic decisions of the users of financial statements. These misstatements could be due to fraud or errors.

4. Results and Discussions

Annual reports of the six (6) selected enterprises listed in the BSE and the JSE for the years 2013 to 2015 provided the source of primary data analysed by this study. The 18 reports were used to generate the total observations for each company, with presentation of data and its analysis carried out on the basis of company location.

In presenting the findings tables were generated to show that level of auditing disclosure by individual companies and by stock listing (BSE or JSE).

4.1 Botswana Stock Exchange Listed Companies

The audit-related disclosure counts for the selected BSE companies were categorized based on the source of the disclosure (IAFs, external auditor and audit committee). The results are presented in table 3.

Table 3. Auditing Disclosure by Selected BSE Listed Companies

	Retail 1			**Insurance 1**			**Bank 1**		
Variable	IAF	AC	EA	IAF	AC	EA	IAF	AC	EA
v1	2	6	4	8	11	4	2	3	3
v2	0	5	7	4	8	7	5	9	5
v3	0	4	0	1	9	0	0	3	0
v4	1	10	5	8	12	4	0	6	3
v5	1	14	0	1	63	0	0	18	4
v6	12	15	1	96	52	0	73	55	3
v7	8	13	2	9	8	5	23	26	6
v8	0	0	0	9	0	0	0	0	0
v9	2	9	2	27	35	0	10	18	0
v10	2	0	0	2	5	0	2	0	4
v11	2	4	13	0	5	11	0	2	20
v12	0	4	6	1	1	6	1	0	6
v13	0	20	2	11	19	3	6	10	0
v14	14	19	0	24	14	0	44	22	0
v15	6	1	0	3	0	0	6	1	0
v16	0	4	6	0	3	3	0	1	6
v17	0	3	5	0	1	1	0	2	7
Total	50	131	53	204	246	44	172	176	67
Grand Total		234			494			415	

Key: IAF –Internal Audit Function AC- Audit Committee EA – External Auditor

Retail 1

With a total of 234 disclosures over the three-year period, Retail 1 had the lowest level of disclosure of audit-related activities reported by the six companies include in the study. The audit committee is dominant in the overall level of disclosure of audit activities, followed by IAF. The low level of disclosure by IAF is likely due to the fact that for a long time Retail 1 did not operate an internal audit department. In 2014, the company introduced an internal audit unit to work alongside the audit committee. In fact, in 2013 there were no disclosures made by any IAF in relation to audit-related activities. In 2014 the IAF disclosures increased from zero to a little over twenty, increasing even further in 2015. Much of the audit-related information disclosed in 2015 referred to v13 (responsibilities of internal auditor) as a result of the newly established function. The study also determined that audit committee primarily disclosed on issues of assessment of risk management and internal audit functions and reports, whilst external auditors focus on the audit opinion.

Over the three year-period the company had the highest level of disclosure overall for variables such as assessment and management of risk (v6), the internal audit function and reports (v13 and v14), and internal controls (v7). On the other hand there were minimal disclosure on independence of audit and auditor's independence (v2), scope of the audit (v10), and safety audits (v8).

Insurance 1

Insurance 1 has all three audit functions active in audit-related disclosures. A summary of disclosures revealed that disclosures were mostly made by the audit committee (49%) as compared the other two audit functions. The highest disclosure areas by the audit committee were statutory duties of the audit committee, followed by assessment and management of risk. The highest count for the internal audit functions was assessment and management of risk (v6). The company reported that it had recently adopted a risk assurance framework to define identify, assess, mitigate, and control risk. Such a strategy appears to have enhanced the disclosure of risk management. The next highest disclosure was the monitoring compliance to statutory bodies (v9), followed by v13 and v14 (responsibilities of internal auditor and reports thereof).

Bank 1

The results for Bank 1 indicated that the audit committee most prevalent in the disclosure of audit activities (42%), followed by IAFs (41%). Both units reported extensively on assessment and management of risk, internal controls, and internal audit functions. External audit disclosure were much lower than the other two functions, with most of its disclosures being in v11 (audit opinion).

In comparing the individual variables, v6 (assessment and management of risk) is the most disclosed variable by Bank 1 at 31% of total disclosures. It is worth noting that Bank 1 has a risk and compliance committee at board level. The committee is supported by a combined assurance forum made up of senior management and internal auditors. One of the priorities of this committee is ensuring that potential risk is identified, monitored and managed. This high disclosure and attention on risk is also improved by the fact that the company's annual report carries a separate report on risk management. The second most disclosed item is v14 (responsibilities of internal auditor report) accounting for 16% of disclosures, with v7 (internal controls) at 12%. The least disclosed activities are v8 (safety audits), v3 (appointment of auditors) and v10 (scope of the audit).

The study noted that disclosure patterns over the three-year period between 2013 and 2015 are relatively similar. However the disclosure of v6 (assessment and management of risk) has the highest level of disclosure over all three years, and with the audit committees' view dominant in disclosures of the audit process.

BSE Summary

Overall the audit committee is more dominant in terms of disclosure of audit activities as compared to the other two functions. It accounts for almost half the disclosures made (48%) as shown in table 4. External audit disclosures were mostly limited to issues of assurance and scope of the audit. Disclosures by Insurance 1 were the highest of all three BSE companies, with Retail 1 having the least disclosures in total for all 17 variables. Disclosure of audit activities has however grown over the three-year period, and it is therefore fair to conclude that audit disclosures are on the rise, and that voluntary disclosure areas are observed.

Table 4. Aggregated Total Results for the BSE Companies

Company	IAFs	Audit committee	External audit	Total
Retail 1	50	131	53	**234**
Insurance 1	149	242	103	**494**
Bank 1	172	176	67	**415**
Total	**371**	**549**	**223**	**1143**

When it comes to disclosure frequency, v6 (assessment and management of risk), v14 (responsibilities of internal auditor report), v9 (monitoring compliance to regulatory bodies), v5 (statutory duties of the audit committee), and v7 (internal controls) appear in the top five most mentioned audit disclosures by the three companies as shown in table 5. The frequently disclosed items all carry mandatory disclosure. Interestingly the retail company made much fewer disclosures of v9 (monitoring compliance to regulatory bodies) as compared to the other two companies. The least disclosed variable is v8 (safety and health audits) which has zero across the years in all three companies. This disclosure is made voluntarily.

Table 5. Ranking of Most Cited Variables by BSE Companies

Company	1st	2nd	3rd	4th	Least
Retail 1	V14	V6	V7	V13	V8 (with zero count)
Insurance 1	V6	V14	V13	V7	V17 (with two count)
Bank 1	V6	V14	V7	V9	V8 (with zero count)

4.2 Johannesburg Stock Exchange Listed Companies

The audit disclosure counts for the three JSE companies were also categorized based on the variables and unit making the disclosure. The results are presented in table 6.

Table 6. Auditing Disclosure by Selected JSE Listed Companies

	Retail 2			Insurance 2			Bank 2		
Variable	*IAF*	AC	EA	*IAF*	AC	EA	*IAF*	AC	EA
v1	0	0	3	8	11	4	0	1	4
v2	3	11	6	4	8	7	8	10	5
v3	0	23	0	1	9	0	0	19	0
v4	2	19	6	8	12	4	2	34	2
v5	2	17	2	1	63	0	1	19	1
v6	33	28	0	96	52	0	99	24	0
v7	7	11	9	9	8	5	21	20	5
v8	17	0	0	9	0	0	11	0	0
v9	19	8	0	27	35	0	16	31	0
v10	1	4	0	2	5	0	5	2	1
v11	0	2	18	0	5	11	0	2	7
v12	2	1	9	1	1	6	0	0	5
v13	8	37	0	11	19	3	22	49	9
v14	46	17	0	24	14	0	40	13	0
v15	7	4	0	3	0	0	2	11	0
v16	0	0	6	0	3	3	0	6	2
v17	0	3	9	0	1	1	0	2	8
Total	147	185	68	204	246	44	227	243	49
Grand Total		400			494			519	

Key: *IAF* – Internal audit functions AC- Audit Committee EA – External Auditor

Retail 2

With a total of 400 audit disclosures observed, Retail 2 had the lowest count for the JSE companies covered by the study. The Retail 2 audit committee has the highest level of disclosure overall for the company as it recorded 185 counts (46%) of disclosures. The audit committee primarily reports on v13 (responsibilities of internal auditor), v6 (assessment and management of risk) and v3 (appointment of auditors). IAFs mostly report on the functions of the internal function, assessment and management of risk, and monitoring compliance to regulatory bodies. In contrast, the external auditors reported mostly on the v11 (audit opinion), v12 (external auditors' responsibilities) and v17 (material misstatements).

The most disclosed variable for the company overall was v14 (responsibilities of internal auditor report) with 63 counts. This differs from all other companies included in the study since assessment and management of risk was their most observed variable overall for most organizations. Assessment and management of risk is the second most disclosed variable with 61 counts, followed by v13 (responsibilities of internal auditor) with 45 counts. The least disclosed variables are v1 (assurance of the report: reasonable assurance), v10 (scope of the audit), and v16 (fair presentation).

Insurance 2

Disclosure of auditing activities by Insurance 2 totalled 494 counts over the three-year period. Variables such as v6 (assessment and management of risk) with 30 % of overall organizational counts, v5 (statutory duties of the audit committee) and v9 (monitoring compliance to regulatory bodies) had a high level of disclosure. Some variables recorded low levels of disclosure, including v17 (material misstatements), v15 (audit fees) and v10 (scope of the audit).

Of the three functions the audit committee was most dominant in the disclosure of audit activities, followed by IAFs and lastly the external audit function. Table 6 shows that out of the seventeen variables the audit committee recorded the highest values for eight of the variables, with its primary disclosures being in the areas of v6 (assessment and management of risk), v5 (the duties of the audit committee) and v9 (monitoring compliance to regulatory bodies). The IAFs also recorded high counts for v6 (assessment and management of risk, monitoring compliance to regulatory bodies, and internal audit function reports. In contrast, the external audit function recorded highest counts for two variables; auditor's opinion (v11) and external auditors' responsibilities (v12).

Over the period covered by the study, disclosure of audit activities at Insurance 2 reduced significantly. A variable such as assessment and management of risk had a count of 100 in 2013, reducing to 28 in 2014 and declined further to 20 counts in 2015. Internal controls had 19 counts in 2013, declining drastically to 1 count in 2014, and 2 counts in 2015. This differed in trends shown by other companies covered by the study since the general trajectory was an increase in the more 'popular' variables such as assessment and management of risk as the years progressed.

Bank 2

With a total of 519 disclosures over the three-year period, Bank 2 had the highest level of disclosure overall for all six companies covered by the study. Consistent with the observations made with regards to most companies included in this study, the audit committee is more prevalent in the disclosure of audit activities (47%), with the IAFs accounting for 44% of disclosures made. The leading area of disclosure was v6 (assessment and management of risk), followed by v13 (responsibilities of internal auditor) and v14 (responsibilities of internal auditor reports). The audit committee recorded the highest level of disclosure for eight variables as compared the IAF with five leading variables. Again, the external audit function had the fewest disclosure counts.

The IAFs mainly focused on the reporting of v6 (assessment and management of risk), and v14 followed by v13 (responsibilities of internal auditor and their reports). The external auditors had its highest disclosure in the areas of monitoring compliance to regulatory bodies (v9), material misstatements (v17), and audit opinion (11).

In terms of the comparison in disclosure of the individual variables, risk assurance and management continues to be the most disclosed variable overall as compared to other variables, followed by the IAFs, and then monitoring compliance to regulatory bodies. This could be a result of the company operating in the financing sector which has strict compliance requirements. Variables such as v1 (assurance of the report), v10 (scope of the audit), v16 (fair presentation) and v11 (audit opinion) had the lowest overall levels of disclosure.

In this company the level of disclosure of audit activities over the three years has been at the same level. For example, a variable such as v7 (internal controls) recorded 16 counts in 2013, then 15 2014 and 2015. V2 (Audit independence) had 8 counts in 2013 and 2014, and 7 in 2015. However, v9 (monitoring compliance to regulatory bodies) and v6 (assessment and management of risk) showed an increase in counts as the years progressed.

JSE Summary

In the case of the JSE listed companies, audit committees disclosures were higher than the other two audit functions (48%), although IAFs' disclosures are not far behind in comparison (41%) as shown in table 7. Assessment and management of risk (v6) continues to be the most reported variable, particularly by IAFs. External auditors are rather confined to their role of giving their qualified opinion on the financial statements and less on other audit-related aspects. With the exception a few disclosure variables which decreased after 2013 for Insurance 2, audit disclosures have increased over the three years.

Table 7. Aggregated Total Results for Selected JSE Companies

Company	**IAFs**	**Audit committee**	**External audit**	**Total**
Retail 2	147	185	68	**400**
Insurance 2	204	246	44	**494**
Bank 2	227	243	49	**519**
Total	578	674	161	**1413**

An analysis of overall disclosure patterns by all three companies revealed that v6 (assessment and management of risk) and v13 (responsibilities of internal auditor) are the two most audit disclosed variables as shown in table 8. They are followed by v14 (responsibilities of internal auditor report) and v9 (monitoring compliance to regulatory bodies). These highly reported items are all disclosed mandatorily. No discernable patterns emerged for the least disclosed variables.

Table 8. Ranking of Most Cited Variables by Selected JSE Companies

Company	1st	2nd	3rd	4th	Least
Retail 2	V14	V6	V13	V4	V1 (with 3 count)
Insurance 2	V6	V5	V9	V14	V17 (with 2 counts)
Bank 2	V6	V13	V14	V9	V1 and V12 (5 count each)

One of the exceptional features in the reporting of audit activities by South African companies was the detail with which disclosures were made on compliance to King III Code of Governance, Companies Act, and JSE listings requirements. Furthermore, the boards of the financial institutions studied had a functioning Group Risk Committee. This helped intensify disclosure of risk activities by board structures.

5. Conclusion and Recommendations

The main objective of this study was to assess audit disclosures made by selected BSE and JSE listed companies. This was achieved by coding audit disclosures using 17 codes of variables assigned to audit-related elements carried in annual reports. The findings of this study points to several interesting observations. The first is that when the results of both countries were compared in their entirety (all three companies), some audit disclosures pervaded the reporting process in annual reports. These include the assessment and management of risk, internal audit functions and reports, as well as monitoring compliance to regulatory bodies. All these areas carry mandatory disclosure. Notwithstanding, JSE listed companies carried more disclosures in total, as well as proportionate disclosure in the monitoring of compliance to regulatory bodies as compared to their BSE counterparts. This is consistent with the findings made by the Kiyanga, Wingard and Cronje (2016) study. However, somes area carried very low disclosure. In the case of the selescted BSE companies it was safety and health audits with no disclosures by two companies over the three-year period, and for JSE companies it was assurance of the report (reasonable), auditor’s responsibilities, and material misrepresentations which, though carringing low disclosures, had some mention in some annual reports of all three companies over the three-year period.

The second observation is that some disclosures appear to follow industry practices. Companies in the retail sector, for example carried the least disclosures in each of the three companies selected countrywide, and for the 6 companies covered by the study. However, the retail companies were observant of mandatory areas of disclosure. Furthermore, the banks and insurance companies listed in both stock exchanges had a separate committee (internally or at executive board level) dedicated to risk monitoring, and /or had a separate report dedicated to risk management. Financial institutions also made more disclosures related to the requirements of regulatory bodies.

Thirdly, the majority of audit disclosures were made by IAFs and the audit committee, with very few disclosures being made by the external auditors. The role of external auditors appears to be that of building confidence in the financial statements and lending credibility to the company’s reporting process. These findings suggest that the narrowing of the any information gap beyond the organization credibility largely falls on IAFs and the audit board committees. The need for board of directors to carry out their duties independently and diligently is crucial as they provide valuable information to stakeholders and extend accountability for the organization. As society and corporations grow, information disclosure patterns and responsibilities in audit activities require proficient people. The findings also support the establishment of appropriate board committees as a way of improving financial reporting and upholding good governance (Barako, Hancock & Izan, 2006). This is particularly relevant to the BSE listed companies where audit committees (as opposed to IAFs) dominated the more popular disclosure areas such as assessment and management of risk.

Finally, when comparing total disclosures by geographic location, the JSE exceeds the counts for the BSE in all but 4 variables, namely assurance of the report (reasonable), internal controls, audit opinion, and fair presentation of financial statements. All these disclosures are mandatory, and can broadly be referred to as major facets of ‘the traditional disclosure requirements in auditing’. In contrast, JSE selected companies exceeded their BSE counterparts more extensively in the disclosure of internal audit functions, the name of appointed auditor, monitoring and compliance to regulatory bodies, and safety and health audits.

While the findings of the study provide credence to the audit disclosure activities and the participation of various organizational constituents, there is need to recognize the implications of this study on the auditing and profession acumen expertise required for. The board audit committee is an important party in influencing audit disclosures, and in ensuring that regulatory requirements are upheld. Furthermore, stakeholders have certain expectations in regards to information that will be disclosed in annual reports. Thirdly, in both Botswana and

South Africa there appears to be no concerted effort by board structures and organizational management in encouraging the reporting of voluntary audit information. In particular disclosures of safety and health, duties of the audit committee, and audit fee disclosure were poorly disclosed.

6. Directions for Future Studies

One of the limitations of the study is that audit variables have not been established by extant literature and were therefore developed for this study. Furthermore, the study could not assert the extent of audit activities involved with each variable in the organizations covered by the study since annual reports informed the study. More in-depth studies could refine areas of audit disclosure as defined here.

Although the study revealed some of the audit disclosures made by selected BSE and JSE listed companies, the reasons and motives for the disclosures could not be ascertained. Much broader and inclusive studies that incorporate more companies and industries may uncover more discernable audit disclosure patterns. It is also important for researchers to uncover and understand the information requirements and expectations of users of financial reports in order to appreciate the extent of any information gap in each geographic location, as well as in comparison with each other.

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Determinants of Bank Profitability in the Euro Area: What Has Changed During the Recent Financial Crisis?

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Abstract

During the recent financial crisis, bank profitability has become an element of strong concern for regulators and policymakers; in fact both self-financing strategies and capital increases – necessary to provide higher level of capitalization – rely on the ability of a bank to generate profits. However, the determinants of bank profitability, that seemed to be unequivocally identified by previous literature, appear to have changed under the effect of regulatory and competitive dynamics. We test this hypothesis on commercial, cooperative and saving banks, employing a random effect panel regression on a dataset comprising bank-level data and macroeconomic information (covering the period 2006-2013) for 9 countries of the Euro area. Our findings suggest that, after a period of "irrational exuberance" in which credit growth and high leverage were seen as proper and fast ways to boost profitability, a sound financial structure and a wiser and objective credit portfolio management have become the main drivers to ensure higher returns.

Keywords: financial crisis, bank profitability, Euro area

1. Introduction and Brief Literature Review

The banking sector plays a crucial role in the modern economies; this statement is especially true for countries in which the transmission of purchasing power is not widely guaranteed by traded securities. Therefore, it's not surprising that the soundness of the banking system, and in particular bank profitability, is a relevant element of concern for policymakers and regulators. The new regulatory framework introduced by Basel III has strengthened this assumption; in fact, the choice for the banks that need to improve their regulatory capital ratio is between self-financing (i.e. retaining a major part of net profits) and capital increases. The success of both these strategies relies on the ability of a bank to produce an adequate return on capital; this result will be hard to meet in a sector in which the competition and the costs generated by the compliance to new regulation are soaring over time.

Since the seminal works of Short (1979) and Bourke (1989), academic literature has widely investigated the main determinants of bank profitability. Competitive dynamics, continuously changing regulation, introduction of new accounting standards have contributed in subsequent years to make challenging the research activity, giving birth to different streams of literature. From a geographical point of view, we can divide works based on a cross-country comparison (Molyneux & Thornton, 1992; Demirguc-Kunt & Huizinga, 1999; Goddard, Molyneux, & Wilson, 2004a; Athanasoglou, Delis, & Staikouras, 2006; Pasiouras & Kosmidou, 2007; Goddard, Liu, Molyneux, & Wilson, 2011; Dietrich & Wanzenried, 2014; ElKelish & Tucker, 2015; Weigand, 2015) from others that focuses on a single country (Athanasoglou, Brissimis, & Delis, 2008; Alexious & Sofoklis, 2009; Alper & Anbar, 2011; Dietrich & Wanzenried, 2011; Trujillo-Ponce, 2013; Lusignani & Onado, 2014; Brighi & Venturelli, 2014; Chronopoulos, Liu, McMillan, & Wilson, 2015).

In the past, expected differences in the behaviour of the banks and in their ability to obtain profits were seen as correlated with their dimension and geographical scope (e.g., small vs. big banks, domestic vs. multinational players); more recently, the focus has been switched toward features linked to elements of governance and market relevance (e.g., cooperatives vs. savings vs. commercial banks, listed vs. unlisted intermediaries, systemic vs. non systemic players). As expected, bank specific factors are considered as crucial determinants of profitability by a wide literature (Bourke, 1989; Demirguc-Kunt & Huizinga, 1999; Goddard, Molyneux, & Wilson, 2004b; Pasiouras & Kosmidou, 2007). These measures include bank size, bank specialization, loan share, revenues diversification, leverage, credit quality and efficiency. A relevant role in explaining bank profitability is also attributed to competitive and macroeconomic conditions (Bourke, 1989; Athanasoglou et al., 2008; Demirguc-Kunt & Huizinga, 1999; Molyneux & Thornton, 1992; Demirguc-Kunt & Huizinga, 2000; Beckmann, 2007; Albertazzi & Gambacorta, 2009; Genay & Podjasek, 2014; Saeed, 2014). This latter group of explanatory variables includes financial markets capitalization, GDP growth, inflation levels, market concentration.

More recently, interest has been raised on peripheral and emerging economies (Flamini, McDonald, & Schumacher, 2009; Javaid, Anwar, Zaman, & Gafoor, 2011; Olson & Zoubi, 2011; Misra, 2015) and on the effect of the crisis on bank profitability; however existing literature on this latter theme is still limited (Bolt, de Haan, Hoeberichts, van Oordt, & Swank, 2012; Beltratti & Stulz, 2012; Kasselaki & Tagkalakis, 2014).

This variety observed in literature is in line with the developing business model of the banks, which nowadays must compete in a challenging environment, much more segmented and complex than in the past. Moreover, the financial crisis of the last years has dramatically evidenced the risks underlying some competitive and operative strategies previously carried on by part of the banking system. For example, the fast expansion of credit and a high leverage had been seen in the past as good schemes to improve bank profitability; during the crisis, these same strategies has been widely considered (also by prudential regulation) as a potential dangerous source of instability. Furthermore, the starting point of the recent crisis has nearly coincided with the advent of significant changes in banking regulation (for example the rules introduced by Basel II in 2008). These latter innovations have the potential to permanently modify the way to perform the banking business, changing at the same time the fundamental drivers of banking profitability.

In particular, the advent of the recent financial crisis has dramatically reduced banks' margins, lowering the yields structure (the so called "new normal") and increasing the share of non-performing loans in banks' balance sheets. In this new framework, macroeconomic/competitive conditions and cost-efficiency should emerge as main determinants of bank profitability. During harsh times, the lack of opportunities to boost revenues requires a wise cost management; moreover, the economic cycle has an immediate effect over financial dynamics, including credit supply and demand. These outcomes are likely to be particularly relevant for banks focused on the traditional "commercial banking" activities. In effect, the surrounding economic environment (through the credit channel) directly influences income statement figures of these players. Then, our hypothesis is that the advent of the recent crisis has increased the importance of variables like GDP growth, market concentration, cost income ratio and loan loss provisions in explaining bank profitability.

Our work, using bank-level data covering the period 2006-2013, aims to test this hypothesis, highlighting which have been – and how they have changed over time – the main determinants of bank profitability just before and during the crisis in 9 countries in the Euro area. The choice of this geographical and economic context is due to several reasons. First of all, in the Euro area the traditional commercial banking activity still prevails. Moreover, the presence of numerous and sometimes large mutualistic players allows us to investigate the bank type dimension in explaining profits generation. Finally, during the time span 2009-2013 European banks have experimented a severe crisis period started with the negative spillovers of the great global financial crisis and continued with the European debt crisis.

We contribute to literature in different ways. First of all, the time span under investigation allows us to better explore the effect of the crisis on bank profitability. Moreover, the geographical scope of our sample reduces the heterogeneity problems usually linked to cross country analysis. In effect, the common monetary system and the shared adoption of regulatory frameworks like Basel Accords, MIFID, Banking Union, etc. have progressively strengthened this harmonization in the Euro Area.

2. Data and Methodology

In order to investigate the determinants of bank profitability before and during the crisis, we use bank-level data derived from individual bank balance sheets and income statements, as available from BvD Bankscope database. We consider only commercial, cooperative and saving banks. For macroeconomic and competitive conditions we use data from World Bank, European Central Bank and Eurostat. Our data set covers the eleven 'first entrant' countries of the Euro-area (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain); however two of them (Ireland and Netherlands) are not included in the final sample given the widespread presence of missing values in domestic banks balance sheets. We investigate the period 2006-2013. There is wide evidence that the global financial crisis started in late 2007; however, it is quite difficult to determine the exact starting point of the negative effect of the crisis on banks profitability. In effect, what really counts in modelling an econometric analysis is not the official beginning of the crisis, but the moment from which the bank balance sheets have been affected by the crisis itself. According to this statement, we split our sample in two different periods (Pre-crisis and Crisis) using the mean and median values of our banks profitability measures over time as a reference; data show that profitability measures mainly drop in 2009 balance sheets, so we consider this year the starting point of the crisis.

Table 1 lists and describes the variables used in this study and indicates the expected effect of them on bank profitability. Table 2 summarizes the descriptive statistics of these variables, highlighting the mean-median values before and during the crisis. Panel composition is outlined in Table 3.

Table 1. Variables definition

Variable	Description	Expected effect	Source
ROAA	Return on average assets		Bankscope
ROAE	Return on average equity		Bankscope
NIM	Net interest margin over average earning assets		Bankscope
Loans_TA	Net Loans over total assets	+/-	Bankscope
Loans growth	Loans growth	+	Bankscope
Loanimpch_Loans	Loan impairment charges to average gross loans	-	Bankscope
Total assets	Natural Logarithm of total assets	+/-	Bankscope
Eq_TA	Equity over total assets	+/-	Bankscope
Cost Income	Cost income ratio	-	Bankscope
Nonintinc_grev	Non-interest income over gross revenues	+/-	Bankscope
Cooperative	Dummy variable: 1 for cooperative banks	-	Bankscope
Saving	Dummy variable: 1 for saving banks	-	Bankscope
GDP growth rate	Annual real GDP growth	+	Eurostat
HICP	Harmonized index of consumer prices – Euro Area	+/-	Eurostat
HHI	Herfindahl Hirschman index for credit institutions Total Assets	+/-	European Central Bank
MktCap_GDP	Market capitalization over GDP – 1 lag	+/-	World Bank

Table 2. Descriptive statistics

PRE-CRISIS PERIOD						
Variable	Obs	Median	Mean	Std. Dev.	Min	Max
ROAA	375	0.542	0.566	0.553	-3.986	2.442
ROAE	375	7.948	8.406	13.201	-106.938	83.592
NIM	375	1.796	1.794	0.786	-1.072	4.934
Loans_TA	375	62.868	58.455	20.667	8.293	91.415
Loans growth	375	9.980	13.778	22.365	-30.670	180.460
Loanimpch_Loans	375	0.370	0.464	0.513	-1.120	3.540
Total assets	375	16.560	17.038	1.342	13.904	21.533
Eq_TA	375	6.421	6.816	3.148	0.377	16.830
Cost Income	375	62.874	64.064	18.092	18.343	198.394
Nonintinc_grev	375	36.980	38.106	41.073	-84.960	662.680
GDP growth rate	375	2.400	1.988	1.545	-1.000	8.400
HICP	375	2.200	2.430	0.741	1.300	4.500
HHI	375	0.068	0.060	0.047	0.018	0.316
MktCap_GDP	375	102.482	89.671	36.323	33.949	144.561

CRISIS PERIOD						
Variable	Obs	Median	Mean	Std. Dev.	Min	Max
ROAA	625	0.321	0.310	0.562	-5.882	3.116
ROAE	625	4.691	4.475	10.090	-84.757	73.447
NIM	625	1.547	1.579	0.590	-0.766	4.155
Loans_TA	625	63.705	59.072	20.401	8.521	93.155
Loans growth	625	2.840	3.314	10.617	-56.370	127.630
Loanimpch_Loans	625	0.370	0.527	0.758	-6.080	5.020
Total assets	625	16.745	17.231	1.290	14.496	21.354
Eq_TA	625	7.102	7.211	3.045	1.192	18.013
Cost Income	625	63.332	62.746	14.812	24.184	145.124
Nonintinc_grev	625	38.060	37.415	14.414	-30.250	208.560
GDP growth rate	625	0.400	-0.010	2.638	-8.300	5.700
HICP	625	1.700	1.640	0.953	-0.900	3.700
HHI	625	0.055	0.058	0.048	0.021	0.370
MktCap_GDP	625	42.067	43.145	14.225	13.476	86.540

Table 3. Sample composition

Bank type	N° of observations	N° of banks
Commercial	*416*	*52*
Saving	*248*	*31*
Cooperative	*336*	*42*
Country		
Austria	32	4
Belgium	24	3
Germany	192	24
Spain	56	7
Finland	24	3
France	472	59
Italy	144	18
Luxemburg	32	4
Portugal	24	3
Full Sample	**1,000**	**125**

We use the following random effect panel model to explore the determinants of bank profitability before (years 2006-2008) and during the crisis (years 2009-2013):

$$\Pi_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^{j} + \sum_{m=1}^{M} \beta_m X_{it}^{m} + \sum_{d=1}^{D} \beta_d X_{it}^{d} + \varepsilon_{it} \quad \text{(I)}$$

where Π_{it} is the profitability of bank i at time t, c is the constant term and ε_{it} the disturbance term. Our explanatory variables are grouped into bank-specific (X_{it}^{j}) and macroeconomic ones (X_{it}^{m}); moreover, we include a set of dummies (X_{it}^{d}) that captures bank specialization (i.e. cooperatives and saving banks). Random effect specification has been preferred on fixed effect given the results of an Hausman test on the differences between the coefficients.

According to mainstream literature, we consider three dependent variables to explain bank profitability: ROAA, ROAE and NIM. ROAA (return on average assets) explains bank capacity to generate profits from the managed assets and it's widely considered the key ratio to evaluate bank profitability (Golin, 2013). ROAE (return on average equity) reveals how much profit a company generates with the shareholders' capital. NIM (net interest margin over average earning assets) may be considered a proxy for the income generation capacity of the traditional banking business, i.e., lending and borrowing money.

The following bank-specific characteristics are used as internal determinants of performance.

Eq_ta: the ratio of Equity to Total Assets is a measure of capital strength. High ratios indicate a low level of leverage, and therefore low riskiness: consequently, on the basis of the conventional risk-return hypothesis, they are associated with lower expected profitability. However, as noted in Dietrich and Wanzenried (2014), lower levels of risk strengthen bank soundness and reduce funding costs, with a positive effect on its profitability. Given these opposite effects, the impact of bank's capitalization on profitability is not theoretically determinate.

Cost income: calculated as the ratio between operating costs (which include administrative costs, staff expenses, and property costs) and gross revenues, this indicator is a measure of efficiency: a lower level of this ratio has an expected positive effect on bank profitability (among others, Molyneux & Thorton, 1992; Goddard et al., 2013; Dietrich & Wanzenried, 2014).

Loans_ta: the Net Loans to Total Assets ratio measures the weight of loans (net of reserves) on total assets. It shows bank's traditional approach towards lending activities and, indirectly, it's experience/specialization in granting credit to customers, leading to a deeper consciousness in credit risk evaluation. In this sense, we expect a positive effect of this variable on profitability (in line with Goddard, Liu, Molyneux, & Wilson, 2013; Abreu & Mendes, 2001; Demirguc-Kunt & Huizinga, 2000).

Loans growth: this variable indicates the growth rate of gross loans between the previous and the current year. Being a way to expand business opportunities, loans growth - where not 'abnormal' (Foos, Norden, & Weber, 2010) - may promote bank profitability (Kok, Moré, & Pancaro, 2015); hence we expect positive sign for the coefficient associated to this variable.

Nonintinc_grev: the ratio Non-Interest Income to Gross revenues is a measure that allows us to identify the level of income diversification of a bank. The higher the ratio, the more important are activities different from traditional lending and borrowing. This kind of business diversification has two opposite effects on profitability. On the one hand, it can promote a reduction in profit volatility, due to a 'portfolio effect'; on the other hand, it may distract the bank from its core business. In literature are found very different diversification measures and the impact of them on profitability is mainly empirically determined (Kok et al., 2015).

Total assets: we use the natural logarithm of bank assets to control for bank size. An increase in the bank dimension brings two opposite effects: on the one hand the opportunity to exploit scale and scope economies and on the other hand the costs associated with bureaucracy and complexity. Hence, the expected sign of the coefficient associated to this variable is undetermined.

Loanimpch_loans: Loan impairment charges to average gross loans are part of the overall cost of lending activity; in this sense they have a negative impact on bank profitability (Chronopoulos et al., 2015) as measured by ROAA and ROAE. This is not likely to occur for NIM that can instead benefit from a riskier portfolio.

Our model controls for bank specialization through three dummies that identify commercial (Commercial), cooperatives (Cooperative) and savings banks (Saving); this allows us to focus on the impact of a mutualistic nature on profitability before and during the crisis. Cooperatives and saving banks usually provide credit lines to small and medium enterprises and therefore are considered more close to the local economy (Goddard et al., 2013; Goddard et al., 2004a); we expect that this commitment can lower bank profitability, due to the difficulty to enforce 'flight to quality' strategies.

Our set of external indicators includes different coincident and lagged country-specific variables that are likely to influence the bank profitability. Undoubtedly, the strength of competition in the banking sector, the soundness of the surrounding economic environment and other external factors impact on the costs and revenues of a bank, on the quality of its assets and hence on its financial stability.

To capture the fluctuations of the economic cycle we use the real GDP growth for each country under investigation. Previous studies have found a positive relationship between this variable and the banking sector profitability (Goddard et al., 2011; Kanas, Vasiliou, & Eriotis, 2012; Albertazzi & Gambacorta, 2009; Athanasoglou et al., 2006; Beckmann, 2007); improved market conditions are associated with a better quality of the loans portfolio and with an increase of net interest margin. The growth of credit demand raises interest rates, while liquidity abundance on the market reduces funding costs for banks; naturally, the worsening of economic conditions brings to an opposite result, compressing the banks' profit margins.

The choice to select countries that are part of the Euro Area allows us to have a homogeneous environment with regard to monetary policy; nevertheless, there are still differences in the level of inflation and interest rates of each country. To deal with this source of heterogeneity we use the national HICP index observed in each country; inflation influences different items in the bank balance sheets, like assets value, funding costs and interest rates on loans. However, in existing literature there is no clear evidence about the final effect of inflation on bank profitability (Beltratti & Stulz, 2012; Demirguc-Kunt & Huizinga, 2000; Trujillo-Ponce, 2013; Pasiouras & Kosmidu, 2007); the expected sign of the coefficient in our regressions is therefore indeterminate.

The traditional theories about the effect of competition on firm profitability have been applied to the banking sector leading to different approaches. Among them we find the Structure - Conduct - Performance hypotheses, the Efficient - Structure hypotheses, the Expense Preference hypotheses, the Galbraith - Caves Risk-avoidance hypotheses (for a review of literature about these topics see Rasiah, 2010). Usually a higher degree of market concentration is associated with the opportunity of extracting oligopolistic rents through collusive behaviours. However, a concentrated banking market can be the result of a fierce competition between intermediaries: this could compress their profit margins, for example in the traditional activity of borrowing and lending, reducing bank profitability. As a result, the expected effect of concentration on profitability is uncertain. It's worth observing that is difficult to find an uncontroversial measure of market concentration; previous studies have used a wide set of indicators (e.g. the market share of the first 3-5 players, the Lerner Index, etc.). In our paper we use the Herfindahl Hirschman Index (HHI) of total assets for each country, which is the measure of market concentration used by European Central Bank.

In addition, we control for the 'competition' between banks and financial markets. To do this, we use a measure of relative importance of capital markets for the economy of a country, built as the ratio of market capitalization over GDP (mktcap_GDP). Where financial markets are underdeveloped, there is room for the banking system to exploit its bargaining power towards the customers, for example in credit supply: in this sense, poor financial markets fail in counterbalancing a concentrated banking market. On the contrary, efficient markets can compete with the banking sector in providing financial resources to borrowers and opportunities to investors. At the same time, banks can expand their business lines toward financial consulting and trading services, raising their non-interest incomes; as a result, the expected effect of financial market development over bank profits is undetermined. Since a relevant share of market capitalization is attributable to large listed banks, we prevent endogeneity problems using a lagged version of this variable.

3. Results

Estimation results are presented in Table 4.

Table 4. Estimation results

	ROAA		***ROAE***		***NIM***	
	Pre-crisis (1)	***Crisis (2)***	***Pre-crisis (3)***	***Crisis (4)***	***Pre-crisis (5)***	***Crisis (6)***
Bank specific variables						
total assets	-0.003	0.012	-0.687	0.377	-0.139***	-0.118***
	(0.023)	*(0.032)*	*(0.777)*	*(0.670)*	*(0.050)*	*(0.042)*
eq_ta	0.055***	0.034***	-0.566	-0.223	0.061***	0.048***
	(0.011)	*(0.009)*	*(0.448)*	*(0.194)*	*(0.018)*	*(0.009)*
loans_ta	-0.001	0.003	0.026	0.074	0.014***	0.005***
	(0.002)	*(0.002)*	*(0.051)*	*(0.047)*	*(0.003)*	*(0.002)*
loans growth	0.003	0.002	0.089***	0.012	0.003***	0.003**
	(0.001)	*(0.002)*	*(0.032)*	*(0.039)*	*(0.001)*	*(0.001)*
loanimpch_avgloan	-0.195**	-0.229***	-6.011**	-4.091***	0.184***	0.051***
	(0.087)	*(0.088)*	*(2.446)*	*(1.136)*	*(0.050)*	*(0.016)*
cost income	-0.015***	-0.021***	-0.269***	-0.408***	-0.002	-0.006***
	(0.004)	*(0.003)*	*(0.095)*	*(0.067)*	*(0.002)*	*(0.001)*
nonintinc_grev	-0.002***	0.000	-0.046***	-0.002	-0.002**	-0.014***
	(0.000)	*(0.001)*	*(0.014)*	*(0.022)*	*(0.001)*	*(0.003)*
cooperative	-0.228**	-0.233***	-4.565*	-5.803***	-0.364**	-0.288**
	(0.113)	*(0.087)*	*(2.298)*	*(1.667)*	*(0.169)*	*(0.118)*
saving	-0.231**	-0.243***	-4.919**	-4.710***	-0.156	-0.212*
	(0.101)	*(0.077)*	*(2.367)*	*(1.424)*	*(0.151)*	*(0.118)*
Macroeconomic variables						
GDP growth rate	-0.086***	0.072***	-2.163**	1.360***	-0.042	0.018*
	(0.029)	*(0.025)*	*(0.859)*	*(0.384)*	*(0.035)*	*(0.010)*
hicp	-0.083	0.159*	-2.427	2.325*	0.007	0.034
	(0.105)	*(0.083)*	*(2.809)*	*(1.205)*	*(0.031)*	*(0.028)*
hhi	2.358	-4.819***	116.671	-73.098**	5.211***	-2.340**
	(4.163)	*(1.623)*	*(115.035)*	*(30.622)*	*(1.715)*	*(1.074)*
mktcap_gdp	0.007**	-0.004	0.118	-0.097***	-0.004	-0.000
	(0.003)	*(0.002)*	*(0.095)*	*(0.036)*	*(0.003)*	*(0.001)*
Constant	0.391	1.518**	24.716*	27.199*	0.131	3.906***
	(0.611)	*(0.689)*	*(13.770)*	*(15.237)*	*(0.321)*	*(0.816)*
Wald test on time dummies	14.65***	9.05*	23.38***	12.18**	11.76***	22.00***
	(0.00)	(0.06)	(0.00)	(0.02)	(0.00)	(0.00)
Wald test on country dummies	8.67	19.82**	5.90	17.37**	37.33***	36.74***
	(0.37)	(0.01)	(0.66)	(0.03)	(0.00)	(0.00)
R-squared overall	0.57	0.55	0.32	0.50	0.65	0.62
Banks	125		125		125	
Observations	375	625	375	625	375	625

The recent crisis has emphasised the importance of credit dynamics for the soundness of the banking system; this both from a quantitative and qualitative point of view. In line with this observation, we use three measures, to highlight the importance of lending (net loans to total assets and loans growth) and the quality of credit portfolio (Loan impairment charges to average gross loans) for the banks included in our sample. The share of loans over total assets has a positive and significant coefficient in NIM regression, but not in ROAE and ROAA estimations; bank specialization in the traditional lending activity seems to have a positive and stable effect on the net interest margin.

Loans growth has a positive and significant sign over all our pre-crisis regressions; in that period the attitude to increase credit was considered a good health indicator of a bank and one of the most crucial driver to boost profitability. However, recent studies (Foos et al., 2010) have demonstrated that an abnormal credit growth can generate more loan loss provisions (LLPs) and a reduction of the overall bank profitability; this is what happened across the crisis period.

The worsening quality of the outstanding credit portfolio, as measured by loan impairment charges to average gross loans, reduces ROAA and ROAE - that are more sensitive to LLPs - but not NIM that does not take into account this item. NIM may rather be increased from a riskier outstanding credit portfolio; however this effect should be negative from a risk-adjusted point of view.

Table 4 reports a negative and significant coefficient on total assets in NIM estimations; larger banks have experimented a lower profitability in the period under examination. This should be explained by different point of views. On the one hand, immediately after the beginning of the financial crisis, the blackout of the interbank market has penalized much more the borrowers than the lenders (usually represented by institutions with a high ability to collect money on the market, i.e. small local banks). On the other hand, smaller banks typically present a wider interest rate spread between borrowing and lending.

Equity over total assets has a positive and significant coefficient in NIM and ROAA regressions; it has negative but not significant coefficients in ROAE table. Banks with a lower leverage are perceived as more stable by the market and can pay lower risk premium; this has a positive effect on NIM and net income. The results obtained in ROAE regressions can be explained considering that in this profitability measure the equity represents the denominator. A higher level of equity, *ceteris paribus*, reduces the expected level of ROAE.

Cost Income ratio, as expected, presents steadily negative and significant sign. Banks effort to improve their efficiency has granted a higher level of profitability before and during the crisis.

We find a negative and significant coefficient on non-interest income over gross revenues in NIM estimation; we find mixed results in ROAA and ROAE regressions. As expected, lower levels of specialization in traditional banking activity reduce the NIM of the banks included in our sample. ROAA and ROAE regressions show negative and significant coefficients during the pre-crisis period and positive and not significant coefficient during the crisis. These results are coherent with a two-tier period; the first one, in which the leading strategy to boost profitability was expanding the lending portfolio, and the second one – i.e., during the crisis – that required the banks to find alternative sources of profits.

Table 4 reports negative and significant coefficients on our two specialization dummies (cooperatives and saving banks) in almost all the regressions. Results are consistent with the typical attitude of these types of banks, which favour long lasting relationships instead of short-term profitability; the wide time span of the crisis and the frequent small and medium enterprises bankruptcy have exacerbated these results.

With regard to macroeconomic conditions, we find significant and positive coefficients on GDP growth during the crisis, while negative and significant before. This latter result appears trickier to explain. Probably, during the pre-crisis period the delayed recognition of the worsening of macroeconomic conditions in banks' balance sheets (through a higher level of LLPs) has weakened the link between banking profitability and economic growth.

Estimations report positive and weakly significant coefficients on HICP in ROAA and ROAE regressions for the crisis period; however it must be noted that during the time span under investigation, HICP has experienced a high volatility, even reaching negative values.

HHI has negative – where significant – coefficient in ROAA and ROAE regressions. Estimation results appear coherent with a market framework in which concentration leads to tougher competition between banks, reducing profitability. This is true particularly in troubled periods, when rivalries are fiercer. For NIM we find a positive and significant coefficient in the pre-crisis period, while negative and significant during the crisis. These mixed results suggest that the extraction of oligopolistic rents is likely to occur only during economic upturns, while during a crisis period the 'life-and-death struggle' severely erodes the margins.

Finally, coefficients associated to market capitalization over GDP are positive before the crisis and negative in the following period in ROAA and ROAE regression, while negative and not significant in NIM columns. A high development of financial markets can be used by the banking system to increase profitability. However, during economic downturns, the perceived riskiness of the banking business rises; in this context, financial markets may become a potential competitor of banks, offering a wide set of alternative financial opportunities to investors.

Overall, empirical evidence supports our research hypothesis. The pattern of coefficients before and during the crisis period confirms that macroeconomic conditions (including competitive pressure, as measured by the variable HHI) and cost-efficiency have increased their relevance in explaining bank profitability. This effect is evident both in the magnitude and in the statistical significance of the coefficients associated to the variables of main interest. Operating costs and loan loss provisions play a crucial role in determining the banks' profit margins when the market yields drops, as happened after the recent global crisis. The resulting weakened income statements are much more sensible to exogenous factors: estimations confirm that the crisis has reinforced the effects on banks' profits deriving from the economic cycle and the dynamics of inflation. Since the exogenous forces linked to the "new normal" could maintain the market yields near to zero for a long time, banks should work on the variables under (at least in part) their control: operating costs and credit standards.

4. Conclusions

The new regulatory framework introduced by Basel III has strengthened the importance of bank profitability; this both to promote self-financing and to ease capital increases. In effect the success of these strategies relies on banks' ability to generate profits in order to retain a major part of them or attract new investors. In this sense, European Central Bank [ECB] (2015) issued a recommendation to banks "to base their dividend policies on conservative and prudent assumptions to cover their current capital requirements and prepare to meet more demanding capital standards". This statement has a very crucial implication for countries strongly relaying on the banking sector; in fact, any lack of regulatory capital implies the need for reducing the amount or riskiness of credit granted to customers.

In recent years, lending policies have been taken to the forefront of academic and political debate, due to the primary role that credit expansion has played in the recent crisis. Our results confirm that rigorous behaviours in granting credit to borrowers improve bank profitability. A greater level of net loans over total assets seems to improve profitability with a positive effect on NIM, but not necessarily on ROAA and ROAE (which takes directly into account LLPs). Moreover, we find that loans growth can improve bank profits; coherently with Foos et al. (2010), this growth must be conscious and wisely based on a risk-return approach to mitigate potential adverse effect over LLPs.

As expected, lower cost income ratios have a positive effect over profitability. Moreover, results indicate that banks profits are associated to higher capital resources (i.e. low leverage); this outcome explains the concerns of the authorities about regulatory capital adequacy of the banking system. On the contrary, dimension *per se* (as measured by total assets), does not show a significant impact over bank profitability in the period under investigation; a more crucial role is played by bank specialization.

Saving e Cooperative banks are in fact associated to lower profitability levels in our dataset; being strongly close to the territory makes banks more sensitive to local shocks. Their mutualistic nature emphasizes the commitment to local environment, leading these banks to act as a social security cushion, especially during harsh times. Moreover, the reduced importance of soft information in the process of credit evaluation introduced by Basel II (and confirmed by Basel III) may permanently mitigate the historical advantages of a relationship banking approach, which has been always the 'ace in the hole' of these types of banks.

We find a discontinuity between different profitability measures, which often have been used in literature to provide reciprocal robustness checks to regressions: in effect NIM shows results that are sometimes really different from ROAA and ROAE. This fact may raise concerns about the impact of non-recurring elements in banks income statements on traditional profitability measures and hence may open a debate about the best key performance indicator. In this line, ECB (2010) has stated that "a consistent framework for measuring banks' performance may incorporate more insider data than those used for ROE, but may also provide a good equilibrium between providing a reasonable level of insider information (namely as regards business strategy and risks associated with each business line) and relatively simple and comparable indicators".

We need to bear in mind that beside the traditional dynamics related to competition and the costs linked to the compliance to the new regulatory frameworks, also the 'long wave' of non-performing loans and LLPs deriving from the recent economic downturn are likely to affect bank profitability still in the future. Improving efficiency and finding a sound competitive positioning will be fundamental to deal with these problems, maintaining a sufficient profitability in order to meet capital requirements and be attractive on capital markets.

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The Research to Remove Barriers Between China and Tunisia in the Shipping Field

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Abstract

Over the years, the trade from China to Mediterranean countries has boomed spectacularly. The fast development of foreign trade has not only pushed China's port industry and international shipping industry forward considerably, but also provided foreign ocean carriers and terminals opportunities and challengers. As Tunisia is a strategic location, the Tunisian ports overall goals are to increase the number of calls made to it. Then the market study between Mainland China and Tunisia turned to be necessary and meaningful.

The objective of this research project is as a first a theoretical review to introduce and describe collaborative logistics management and investigate its consequence on the supply chain. This purpose necessitates a framework to support the collaboration between the entities in the chain especially in terms of logistics activities. Despite the identified needs and potential benefits, there are still barriers, which must be identified to attain desired benefits.

On a second part the purpose of this study is to analyze China's port industry and ocean shipping market in a relation to trade with Tunisia and to recommend some suitable Chinese ports to cooperate with Tunisian ports and find the reason why some top shipping companies are still not carrying goods to Tunisia. Two market surveys are performed, one for finding suitable Chinese ports for the Tunisian ports to cooperate with, and one to collect information from several top shipping companies using the Tunisian ports.

In the third and last part a small research study focuses in the costs and quality shipment from China to Tunisia showing Tunisia as a transshipment port for the whole Maghreb. The case of study will be a proof of future consideration for Chinese shipping companies to assure a direct shipping line to the port of Tunisia. The case of study will be affirmed by statistical and theoretical analysis in order to confirm the idea.

Keywords: collaboration, Chinese ports, shipping industry, Tunisia ports, transshipment port

1. Introduction

Since 1978 the real growth of GDP of China has averaged 9.3% per year. The robust GDP growth has helped trade. China's membership of the World Trade Organization (WTO) since November 2001 has also contributed in the country's economic development. China has become the origin of most supply chain in the world economy, a world production base and an attractive consumption market. The past two decades have seen China's amazing development in foreign trade. (Coyle, J.J., Bardi, E.J. & Novack, R.A., 2006)

Through much market research I can conclude that the traffic going in and out of China is growing up. However this development is not yet observed in the Mediterranean Zone although the Mediterranean offers great potential for liner shipping especially Tunisia which is ideally located along some of the world's major Shipping routes.

On the basis of equality and mutual benefit, China has long pushed for expanded economic and trade cooperation with the African countries, especially since the founding of New China and the African countries' success in gaining national independence. A new-type strategic partnership, based on mutual political trust, economic reciprocity and mutual cooperation, has been established between the two under common effort.

Based on the purpose of the study, the research will focus on logistics as a part of supply chain management and investigate the collaborative logistics management considering the driving forces, benefits, and barriers to effective logistics collaboration. This study will have both theoretical and practical relevance. While most of the research will be written based on the theoretical perspective, the final purpose of the research will be fulfilled practically through some statistics analysis, graphs and cost analysis of some of the main shipping lines handling containers to the Mediterranean sea.

The overall aim of this thesis is to make a study of China's port industry and shipping market in a relation trade with Tunisia. Two market surveys will be performed: one is related to using the Tunisian ports among several top shipping companies why the traffic between China and Tunisia is still low; the other is to find out the advantage of Tunisian port as becoming a transshipment port.

2. Methodology

- Study the shipping industry in China and Tunisia;
- To understand the trend for both countries;
- Finding causes and barriers existing between the cooperation of Tunisia and China in the shipping filed;
- Find the way to remove those barriers by reasons supporting: case of study will be performed.

3. The Shipping Industry in China

At the beginning of the reform and opening, China's ports were apparently in lack of capacity and the port berths were always congested, which had restricted the development of the national economy and foreign trade, especially in 1980's. Since the middle 1990's, the congestion of port berths has been alleviated.

China's container transport started in the seventies; it developed rapidly from the eighties. As the container vessels grow larger and larger, the main coastal ports in China began to construct the dedicated container berths. And those container berths are mainly built in Shanghai, Tianjin, Dalian, Qingdao, Ningbo, Xiamen, Shenzhen, and Guangzhou port. China invested heavily in the port construction, and the foreign capital was permitted to invest in port project. Since the middle of eighties, the port of Shanghai, Tianjin, Dalian, Qingdao, and Guangzhou began their international regular cargo ship lines. Until 1997, there are 30 ports in China that have developed the international container transport lines. (Branch A.E., 2003).

The number of containers handled by Chinese ports has maintained an annual growth rate of 30 percent in the past decade. In 2005, the number of containers handled by Chinese ports amounted to 37 million TEUs (domestic and international), about 30 times the volume of 1989. In 2005, the container throughput in main coastal ports won a 36.9% increase compared to 2004. The international container throughput reached 33.8 million TEUs in 2006, while the throughput of top eight ports (Shanghai, Shenzhen, Qingdao, Tianjin, Guangzhou, Ningbo, Xiamen, and Dalian) accounted for 29.17 million TEUs, taking 86% of the total volume. (www.zgjtb.com)

In 2008, the cargo throughput of China's major coastal port reached 3 billion tons with the annual growth rate of 7%; the container throughput reached 100 million TEUs. (The 2009 Report on China's Shipping Development)

Although the international shipping industry began at a rather late stage and from a low level, it has grown remarkably and become a new growth point for China's fast-developing economy. Latest statistics show China's total foreign trade volume last year surged 21.8%, reaching US$620bn, among which exports rose 22.3% and imports 20.5%, the overall shipping tonnage kept an increase about 8-10% every year. The Chinese international maritime transportation trade increased by 14% in 2007 to 736m tons, of which imports were up by 16% to 416m tons while exports were up 13% to 320m tons.

China's shipping now ranks the fifth largest in the world with 50 million tons of handling capacity in operation -- 37 million tons in foreign trade. The following factors can be concluded as the dominant drivers for overall growth in the Chinese international shipping industry. (www.chinadaily.com.cn)

- Organic growth, where China is taking market share from other Asian locations, because of its overall competitiveness. The relocation of Japanese, South Korean and Taiwanese manufacturers is good examples.
- The enormous speed of China's economic growth is the real powerhouse for the industry.
- The alteration in the way of transport: the containerization of bulk cargo.
- The shift in transport mode from Hong Kong to South China. Because of the simple fact that it will help the shipper to reduce the transport cost greatly by shipping the goods via the mainland seaports in South China.

The significance of China's shipping is growing and the nation will continue to play a big role in the global industry, especially now that it is a member of the WTO. Since 90% of China's foreign trade volume is shipped out by sea, experts agree that, with the increase of imports and exports. China seaborne foreign trade volume is expected to increase by eight percent to ten percent, from 393 million tons in 1998 to 656 million tons in 2007. But to meet the challenges from foreign counterparts, China's shipping industry still has a long way to go. (Imms M, Ereaut G, 2005)

3.1 The Developing Trend

Economic globalization will exert significant influence on world economy as well as on world shipping, which is oriented towards openness. The development of multinationals in turn contributes to the health and well being of world shipping. What is required of shipping corporations is to expand cross-border operation through mergers and acquisitions and to provide global shipping services. China's shipping is becoming an important link in the chain of global shipping. Liner carriers of China can launch mergers and acquisitions on a larger scale and can develop third or even fourth party logistics business. Foreign liner shipping companies will not be subject to any restrictions to set up subsidiaries in China, and they can well penetrate the Chinese market with their asset and technological advantages. (People's Republic of China Yearbook, PRC Yearbook, Beijing, 2008)

Analysis by officials of the Ministry of Communications indicates that China's international shipping industries will see the following development trends:

1. The opening of Chinese shipping market will be deepened and accelerated while more foreign capital will be allowed to enter into this market. Parts of the field inaccessible for foreign investment in the past will be gradually opened in the future, for example distribution service, international shipping agency and setting-up branches of foreign shipping companies in China.
2. The institutionalization process of the shipping market will be expedited. In case that the combination of Chinese shipping market with the world market will be promoted by the joining of foreign capital, China must step up the market institutionalization to impose supervision on the market entry and market behaviour of foreign companies in accordance with the Chinese laws and regulations
3. Chinese shipping companies will enjoy a better environment in the competition of world market. In the face of the increasingly fierce competition, some of the Chinese shipping companies will have to tap for new markets, such as to ship goods for a third party in order to optimize China's international shipping structure. Furthermore, China will be able to enjoy more initiative rights in international talks for shipping business. As foreign companies will get more benefit from the Chinese market after getting their entry permission.
4. Demand for shipping will be increased along with the growth of international trade volume. With China's entry into the WTO, the domestic market will be further opened with the international environment for foreign trade improved. China will by then has more to do in the work division of the world economy with the Chinese economy depending more on the world market at the same time. All these changes will by and large promote the development of the Chinese industries with comparative advantages and help raise greatly the transport volume in international trade, thereby boosting the development of the Chinese shipping industry.

In 2006, the container throughput of all the top ten ports reached 22.37 million TEUs; the ratio of container to the whole throughput has been raised by 1.5% compared to that in year 2005. The development of large ships brings about the reduction of the corresponding ports for mooring the ship. This trend also leads to the centralization of ports: few ports that have leading edge in hardware will become the key container ports. (Kinnear, T. C., Taylor, J. R., 2007).

From January to July 2008, container volume handled by China's major ports amounted to 25.67million TEUs, up 31.8 % over the same period last year, according to China's Ministry of Communications. Shanghai maintained its leading position with growth of 35.6 percent to 6.18million TEUs. Ningbo remained the fastest growing container port among the top 10 with a 53.6%.

3.2 Leader's Company Profile

3.2.1 COSCO Line

As the first international shipping company of the People's Republic of China, the China Ocean Shipping Company (COSCO) was founded on April 27, 1961. COSCO owns one of the largest fleets in the world. Owned by the state, it is a diversified group whose main business is international shipping. The group has now grown mainly in the fields of shipping agency, freight forwarding, marine bunker supply, road transport, air freight transport, terminal operations, manufacturing, trade, real estate and tourism. It is one of the 56 big groups of enterprises approved by the State. (Beddow M, 2005)

COSCO develops remarkably over past 4 decades as the main line of business. At present, its asset is over 20 billion U.S. Dollars. The group achieved excellent performance in the first six months of 2010. The total seaborne trade volumes during this period recorded up to more than 200 million tons, accounting for 66 % over the planned figure. The group also carried out 61.1 % of its ration on road transportation sector and 55.5 % of its air cargo transportation plan respectively.

COSCON has grown rapidly in the past decade; it has woven a huge global service network consisting of more than 1000 agencies, spanning almost all of the global transport hubs. Overall its shipping schedule accuracy has consistently been 95% or higher since 1998. In particular, its US trade and Australia trade have maintained 100% schedule accuracy, becoming key features of the company’s trading services. The company has been expanding its liner service routes into a new area. The expansion is aimed at integrating its global network of container transportation to enhance its competitiveness in the world market.

The company has the largest market coverage amongst the Chinese ocean carriers; it offers traditionally reliable and efficient container transportation with modern full-container ships. The high transport capacity makes the company one of the strongest providers on its connection, and most of liner service is popular with customers for quick and punctual delivery. It is very much committed to intra-Asian services; feeder vessels carry the goods from and to virtually every port in the Asian region.

COSCO states its mission as: “To be a world leader in shipping and logistics service by maintaining trustworthy relationships with our customers, employees and partners, yielding best returns for shareholders, society and environment.”

The group is staying in the process of implementing an aggressive strategy, which mainly focuses on quality, cost-efficiency, IT and logistics. It is revealed that COSCO is aiming to further enhance its overall competitiveness in the international shipping industry, gradually broadening logistics-service activities, optimizing its organizational structure and making better use of its global shipping and logistics resources. To be more specific, the group’s strategy will be explained in the following aspects. (Gao, 2008)

COSCO consider that it has the best range of services, which is very important for the group. The group has good reputation in the international market, it possesses of stable customers and market share. It also enjoys the advantages of rapid expansion. The on-going fleets have been increased and renewed. It has established its huge and mature logistics network in China, which can offer value-added service and gain the competitive advantages when competing with its main competitors. The group has established an Asia Pacific and European information network, an integrated regional information system, which will help it make better use of its resources and become more competitive. (K. H. Kim, Park, Y.M., Ryu, K.-R., , 2000)

The group has a strong financial base. It is one of the Chinese companies that have entered the global capital market according to international regulations.

As an international shipping company, COSCO will continue to contribute to shipping both inside and outside China, especially after China’s accession to WTO. COSCON is planning a major restructuring intended to place it among the world’s top three shipping lines. The company will enhance its co- operation with foreign cargo shippers, which should lead to lower freight costs and better services. It also tries to improve its after-sales service, currently a weak point. By improving service standard and promoting market competitiveness, the group is confident that it will become a world first-class shipping concern.

3.2.2 China Shipping

China Shipping Group was founded on July 1, 1997 in Shanghai. It is one of the big state-owned enterprises under the direct administration of the Central Government. China Shipping has established more than 30 overseas subsidiaries. There is five specialized shipping fleets in the group: oil tankers, tramps, passenger ships, container vessels and special cargo ships. It also operates the diversified businesses of integrated logistics, terminal management, finance and investment, engineering and labour service, trading, and information technology.

China Shipping Container Lines (CSCL) is the key company specializing in container transport under China Shipping Group. The company offers other relative services as well, such as storage, transshipment, and customs clearance. CSCL ranks among the world’s 20 largest container carriers. The group’s income of 2005 reached 27 billion Yuan, with a profit of more than 2.5 billion Yuan, among of container business accounts more than 50 percent.

The group also succeeded in winning heavy support from the banks in China. China Shipping signed an agreement with China Bank this year in shanghai, it has received a 10 billion Yuan (US$1.21 billion) credit line from China Bank to upgrade its fleet and enhance its competitiveness in the international shipping industry. (Guangdong Statistical Yearbook, 2006)

To become a world first class shipping company, the group is taking an active part in the terminal business at home and abroad. It has set up several joint ventures container terminal companies in coastal ports such as Dalian, Lianyungang, Shanghai and Zhanjiang. China Shipping signed the lease agreement for pier 100 and 102 at Los Angeles in the United States for a period of 25 years. The first berth of over 350 meters long and the container yard of 75 acres constructed in the first stage were put into use at the end of 2004.

The group developed its container terminal businesses actively in North America, Mediterranean, Europe, Southeast Asia by various ways such as share holding, share cooperation, long term lease etc.; meantime it found more partners along the coast of the mainland China, enhance the development of container terminal along the coast of south China, east China and north China, and expanded the coverage of China Shipping terminal business. The group's terminal business at home and abroad achieved a certain scale; the throughput reached 3 million TEUS. (www.people.com.cn)

In the past, the main fleets of China Shipping were bulk carrier and oil tanker; however, in recent two years the container fleets have reached rapid growth. Its domestic coastal transportation covers 11 ports from South China to North China, providing most economical, efficient and rapid service to the customer. Based on this advantage, China Shipping is trending to enhance the development of international shipping.

CSCL has kept expanding its shipping lines in the past four years. Currently, its service has already expanded to Australia, Europe, Japan, Mediterranean, North America, and South-West Africa. There are more than 30 foreign trade line connecting 75 ports in 20 countries. The company owns the most shipping lines and also the largest shipping capacity from Europe and the Mediterranean to Mainland China. (M. Grunow, H.-O. Günther, and M. Lehmann, 2006)

China Shipping has a big plan in expanding its fleet's capacity. The group and CMA-CGM has jointly ordered 5 by far the biggest container vessels in the world with capability of 9180 TEUs. These vessels were delivered in 2004 and used in American Line jointly. The group owns three of these vessels. By using giant container vessels, the cost of every container decreased because of the economy of scale. Experts predicted that the group got more competitive power and higher profit.

CSCL have the long-stated ambition of becoming a world top five container carriers in capacity terms. The company plans to expand continuously its worldwide liner services and provide more value-added service to customer.

CSCL's coastal service in the domestic trade has always been the market leader. Its foreign trade services have been stable and sure. Especially, the company has put the largest capacity in Euro-Mediterranean service. It reduced the frequency of its recently introduced trans-Pacific service from weekly to fortnightly in October 2008, on what it called a temporary basis. The move is due to an expected downturn in volumes in the slack season post-Chinese New Year. But it is also being seen as a possible indication that the China/Europe trade offers more market potential for the company. (C. Carrascosa, M. Rebollo, J. Vicente, and V. Botti, 2009).

China Shipping is widely regarded as the most ambitious Chinese maritime player. According to the report of the group, by the end of 2012 the carrying capacity will be expanded beyond 30 million tons, container capacity will reach 520,000 TEUs. Its main ocean fleet will consist of 70 ships and an average space for container capacity of 7200 TEUs. With the advanced equipment, high technology and good management, the group will surely lead to a bright future, and achieve its goal as one of leading carriers in the shipping industry. (I. F. A. Vis, R. de Koster, 2010).

4. The Shipping Industry in Tunisia

Situated in the middle of the Mediterranean region, between a European market marked by a rapid economic development and an African continent boosted by its emergent economy and its market of hundreds of millions of inhabitants, the Tunisian ports are the most recommended sites for a competitive, reliable and secured transit of goods and ships.

The Tunisian port chain is composed of 7 ports open to international trade. It spreads over a coast of 1300 km. The diversity of activities of these ports, their complementarities and their exceptional situation allow them to receive all types of ships and to handle all sorts of goods.

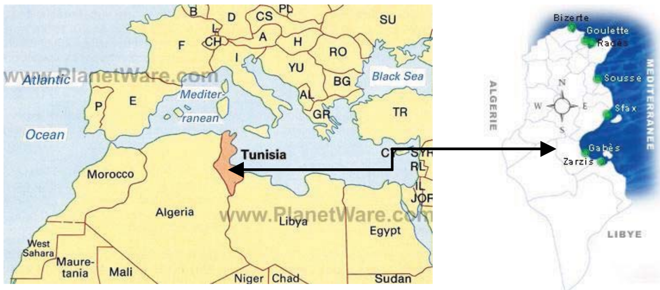

Figure 1. Map of Tunisia

The Tunisian economy is characterized by an increasing openness of the structure of production and exchange, which places foreign trade at the heart of its development issue and implies special attention to the transport sector, including shipping.

The importance of maritime transport sector in Tunisia is not to prove, it is exactly like other countries of the Maghreb. It is an essential service in foreign trade, an important vector of development, since it provides about 95% of trade. (Port of Tunisia, Annual Report 2008)

Maritime trade is assured by 7 commercial ports: Bizerte Menzel Bourguiba, Tunis Gouolette Rades- which is the port complex in the capital-, Sousse, Sfax, Gabes, Zarzis and the oil port of Skhira. The Office of Shipping and Ports (OMMP) manage all ports, except the port of Skhira, which is managed by an oil company. The ports ensures the transit of about 26 million tons of cargo in 2000 composed of 39% hydrocarbons, 23% of bulk solids, 18.5% of general commodity, 11.5 of cereal and 8 bulk liquids. (Journal d'Afrique, Mai 2006).

It is important to note, firstly, that commercial activity in the Mediterranean and the Black Sea has the potential to play a major role for liner shipping companies. A number of important EU countries with highly developed markets border onto the Mediterranean, and numerous countries both in the Eastern and Western Mediterranean that is likely to undergo considerable development in the future.

Within advanced economies there is a direct relation between growth of GDP and long-term growth in quantity of containers. But in countries with a slower rate of growth there is an overall lower development of trade, as well as a lower proportion of goods transported in containers as compared to break-bulk goods (in other words, the opposite of advanced countries). If we divide the Mediterranean into an Eastern and Western sector, we note that containerization is much more developed in the western than in the eastern sector; the same is true of the northern as compared to the southern Mediterranean coastline.

The main difficulties faced by North African Mediterranean countries, which are non-EU countries, are the need for investment and for greater political stability and employment. Productivity is low in North African countries; their economies are mainly linked to agriculture, which accounts for almost 20% of their output.

The EU seeks to establish good contacts with these countries, and it is likely that the desired Euro-Mediterranean agreements with the EU could favor foreign investments both in human capital and physical assets. This would in turn help to develop intra-regional exchanges within the Mediterranean basin.

At present, however, the countries bordering onto the Southern Mediterranean coast remain weak, for the following reasons:

- Lack of direct foreign investment
- Lack of portfolio investment

Finally, their political instability introduces an element of uncertainty into the plans for economic reform in southern Mediterranean countries, and makes investment less attractive to foreign companies.

4.1 Overview of the Traffic of Goods per Products and Continents

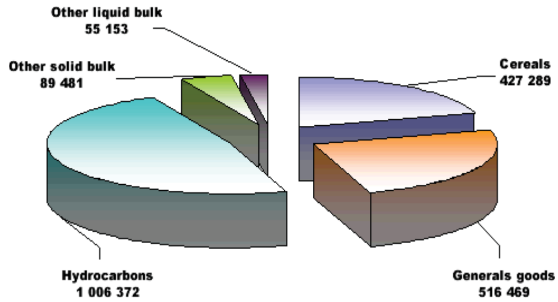

Figure 2. Distribution of the traffic of goods in the first semester 2010 (tons)

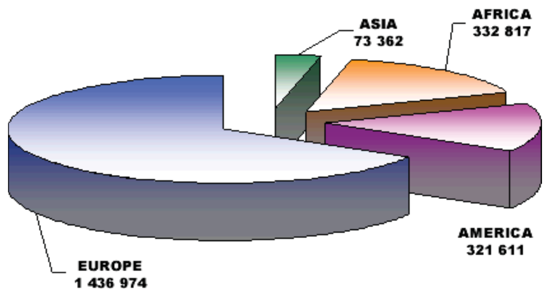

Figure 3. Distribution of the traffic of goods in the first semester 2010 (tons)

From Figure 2 and 3 we can notice that the ports of Bizerte main product distributers are the hydrocarbons and cereals shipped mostly to Europe.

Asian market is not noticeable here since there is no direct shipment service to Asia and most of the goods go through Europe, which has many transshipment ports.

5. Reason to Remove the Barriers Between China and Tunisia in the Shipping Filed

5.1 The Developing Trend: China and Tunisia Relationship

5.1.1 Political Relation

China established diplomatic relationship with Tunisia on January 10, 1964. The friendly cooperative relationship between the two countries in all fields is developing steadily. Tunisia attaches importance to the relationship with China, follows China's reform and open policy with interest, maintains high- level visits and other exchanges and develops cooperative partnership with China. Tunisia shares common views with China on many important international issues, and the two countries cooperate and support each other in international affairs. The Foreign Ministries of the two countries set up the periodical political consultation mechanism in December 1996. (www.Tunisia.tn; the port of Tunisia).

5.1.2 Trade Relation

Bilateral trade has been developing steadily. China has provided certain amount of economic aid to Tunisia since 1959. The volume of trade between China and Tunisia in 2005 was US$109,380,000. China mainly exports tea and light industrial products while imports phosphate fertilizer. From 1984, Chinese companies of labour service entered Tunisia, involving them in the infrastructure building, agriculture, light industry and other related fields.

On the economic front, relations between the two countries are on track. They continue to strengthen. As such, in recent years, the area of economic assistance between China and Tunisia has expanded.

Between 2007 and 2009,14 major Chinese companies operating in Tunisia In terms of investment, growth engine and job creation, Ms. Li said that his Government encourages Chinese enterprises to invest in Africa, taking a series of incentives financial, like the creation of a Development Fund for Sino-African expansion of preferential loans for African countries. Tunisia has benefited from the momentum encouragement. Indeed, 14 Chinese companies are major established on the site Tunisian businessman, operating in various fields, such as communication, oil exploration, agriculture, light industry....

Chinese investment in Tunisia is expected to grow. Turning to trade between the two countries, the ambassador said that according to Tunisian customs statistics, they amounted to 1.38 billion dinars. The imbalance is obvious, says Ambassador, where the positive steps the Chinese government for businesses Chinese invest in Tunisia, to enrich the variety of products exported from Tunisia to China.

Though it is the smallest country of the Maghreb, but also one of which its economy is the most open worldwide. The country displays a vocation turned towards international trade with Europe and the rest of Africa. The Tunisian economy is more open to the entire region: exports represent 45% of its GDP, a Real largely due to the reduced size of the domestic market.

Tunisia is one of the EU's most established trading partners in the Mediterranean region with a total value of trade with the EU of € 14.7 billion in 2008. 38.6% of EU imports from Tunisia are in textiles and clothing, making Tunisia the EU's fifth largest source of imports in this sector. Other significant import sectors are machinery and energy, accounting for, respectively, 18.3% and 12% of total EU imports from Tunisia. Major EU exports to Tunisia are textiles (20.2%), machinery (24.1%) and transport material (9.4%).

I can conclude that the trade between Tunisia and China is increasing for imports as for exports. Most of the product mass exchanged increased and some new product emerged which is a good signal showing that we need to think about a direct call from Tunisia ports to China ports and vice-versa.

The aim of my research is developing and analysis of this potential project in order to prove that this new solution is beneficial for both parts.

6. Project Survey and Market Research

6.1 Cost Analysis

In my research I will make a small case of study will include the most common terms which is the FOB (Freight on board) which is the cost paid by the exporter include load and lash.

The cost analysis will be separated into two different sections: the option of traditional transport shipping passing by transshipment ports TP and the direct shipping DS. The component of each type of shipping is broken down into the elements that incur cost. The demand for particular container shipment drives the cost for each option; that cost in turn is the driving force for the decision to DS or not. As the demand for the specific container shipment the costs for each option are calculated.

Once the costs for each option of shipping have been calculated they are compared to determine at which point it becomes more cost effective to have containers shipped directly DS or by traditional way TS.

- Traditional Shipping Cost:

Table 1. Different shipping rate taken from different careers on December 2010

POL	POD	TP	Carrier	Unit/cost (Dollar)		Frequency	TT
				20'	40'		
Ningbo	Rades	Via Malta	CMA	1870	3540	Every Friday	35 days
Xiamen	Rades	Via Barcelona	MSC	1720	3240	Every Thursday	25 days
Qingdao	Rades	Via Barcelona	Norasia	1800	3500	Every Wednesday	36 days
Guangzhou	Rades	Via Shenzhen	MSK	1900	3600	Every Tuesday	21 days
Ningbo	Rades	Via Shenzhen	MSK	1880	3540	Every Saturday	21 days
Shanghai	Rades	Via Las Spezia	Evergreen	1650	2800	Every Monday	36 days

- POL: Port of loading
- POD: Port of discharging
- TP: transhipment port
- Carrier: CMA-CGM, MSC, MSK (Maersk line), Evergreen
- TT: Transit Time

The shipping rate cost shown in table 4-6 where offered by different career called from China and Tunisia during the last month of year 2010. Usually the rates are changing almost every month depending on the fuel costs and the balance currency. Most of the careers do at least one dearth in one transshipment port during their shipping route. (See Figure 4).

Maersk line is the only line making direct call to the Tunisian ports. The company has a good reputation of best quality of service and less transit time but most of the time offering high rates comparing to other shipping companies

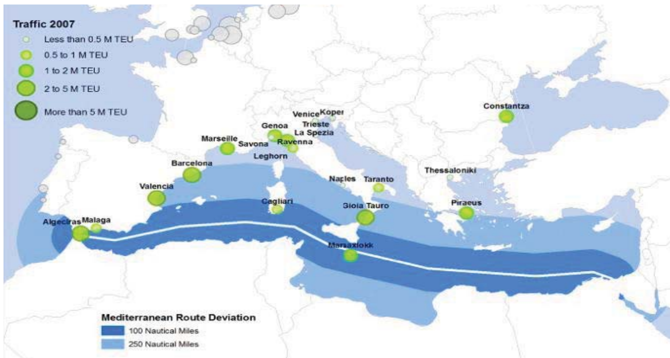

Figure 4. The transhipment in Mediterranean sea (Southern Europe)

- Direct Shipping Cost:

Table 2. Maersk shipping line rates (the only career making direct call to Tunisian Ports) on December 2010

Units						
POL	POD	Carrier	20'	40'	Frequency	TT
Ningbo	Rades	MSK	2100	3850	Every Friday	31days
Xiamen	Rades	MSK	1950	3670	Every Thursday	22 days
Qingdao	Rades	MSK	2050	3780	Every Wednesday	34 days
Guangzhou	Rades	MSK	1900	3600	Every Tuesday	21 days
Ningbo	Rades	MSK	1880	3540	Every Saturday	21 days
Shanghai	Rades	MSK	2200	3800	Every Monday	34 days

- POL: Port of loading
- POD: Port of discharging
- Carrier: MSK (Maersk line)
- TT: Transit Time

The shipping rate cost where offered by Maersk line the only carrier who does direct call to most of the ports all over the world from which Tunisia is as well. Those rates are available until the last month of year 2010. As I said before the company has a good reputation of best quality of service and less transit time but most of the time offering high rates comparing to other shipping companies, which is shown on table 2. If we compare the 2 tables 1 and 2 we can see that all the rates of Maersk line are higher comparing to what offered from other career. The prices are still reasonable compared to the others and the transit time is much shorter.

Seeing those rates comparing to the option of transshipment doesn't encourage the Chinese shipping company to invest a new line direct calling port of Tunisia. This is normal if you just limit to this condition!

I myself seeing this made me hesitate in the beginning about the idea of emerging a new shipping line calling directly Tunisian port but then seeing other good reasons make me feel more convinced about my thought. After analysing the shipping cost the second point was:

6.1.1 Chinese Product Ratio Price/Quality

The economical of China is fast developing, the product exportation quantity are being more and more. The product cost superiority and unceasingly expands the market share make Chinese product winning the prestige. But, the product quality question is also prominent, how to get qualified product by inexpensive price from China?

China wholesalers stand for the manufacturers in China who are busy making quality goods at very pocket friendly prices. Name a commodity or appliance and it is readily available at the lowest possible price in China. And probably this is the reason why many European companies and US rely on China products to cater to their customers in their respective countries. These companies are a brand and known for delivering quality products which are produced in China. The increasing export in China depicts the true story of global companies relying on this Asian giant for fastest moving consumer goods, electronic items, electrical appliances and many more products.

China now is the new address where one can get all the products ranging from electronics to electrical and apparel to home furnishings at reasonable prices. Millions of hands are moving fast to produce quality goods in gigantic manufacturing units of China. Global companies including the big names contact China wholesalers for supplies. These companies outsource their manufacturing works to factories in China and take advantage of the cheap labour available only in China. In this way, the companies are earning huge profits while they offer quality products at cost effective prices.

China wholesalers adhere to a time schedule hence they deliver finished goods right on time and at the predetermined appropriate place. When dealing with China manufacturers, one can rest assured that the product would be delivered at his doorstep on right time.

In business time is money and who knows this well than manufacturers in China who work around the clock seven days a week, 365 days a year to beat the deadlines. The quality of the Chinese goods is par excellence and this is evident from the growing popularity of Chinese products in every nook and corner of the globe. Brands of the world rely on China wholesalers and so do the small firms catering to the domestic customers. When shopping for Chinese products, one can utilize a trustworthy trading company. There are many groups who deal with China manufacturers and help companies in the other part of the world get quality Chinese products. Though one can contact suppliers in China directly, a

Trading firm can make it convenient for you to import finished Chinese goods. The trading companies know each and every manufacturer in China hence they lose no time in placing the orders and getting the deliveries.

In Tunisia it used to be that most of the customer they do buy just European or American products because they were afraid of the quality. It was easier for a Tunisian customer to get a flight to Europe and go check and choose a product then shipped to the country. Starting from six years ago the Tunisian customer start to be familiarizing with the Chinese product entering the country from Libya or Algeria. And since that Chinese product was improving quality a lot of product started to be imported from China and in different industries and many new markets for China emerge in Tunisia. So the traffic will become bigger and bigger and it will be multiplied more and more in the future. This trend is the support of the idea project of regular line between Tunisian and Chinese ports, which is beneficial for both sides.

6.1.2 Tunisia as a Future Transshipment Port

In the end of 2014, one of the biggest projects in northern Africa will be finished. It is the construction of the first transshipment port in Northern Africa. This project will help Tunisia acquire an infrastructure capacity in order to meet the country external trade progress and participate in transshipment traffic which is rapidly developing in the Mediterranean.

The achievement of this project is integrated within an economic development scope including a modern transport infrastructure and an area of economic and logistics activities aiming at promoting trade activities, industry and services with foreign countries

The Tunisian government launched, with European funds, a study for the construction of a deep-water port dealing with the economic, financial, juridical, technical and environmental framework. This study shows that there is a promising potential market and that Tunisian port site presents the best assets thanks to its proximity to maritime routes and to its physical characteristics.

The site at Enfidha offers multiples advantages to meet Tunisian's international ambitions. It will offer an alternative to the expected saturation of regional-transshipment platforms, while domestically; it will provide international services to the local market.

The creation of a deep-water port is intended to make Tunisia a trading and services providing a modern infrastructure, to expand exports, improve the competitiveness of enterprises and provide direct shipping lines making less transit time (about 15 days) and reduce costs by 15 %.

This port will not fail to boost national development strategy of logistics through the creation and development of logistics zones and economic contribution in addition to the first step of creating 8,000 direct and indirect job creation program with over 20 000 jobs in the last phase of this project. (Port of Tunisia, Annual Report 2008)

This project encourage all the shipping lines to start thinking of ensuring at least one direct call to Tunisia which will be cheaper and faster than passing by the European transshipment ports. And since China is big market for Tunisia and import also many products from almost all the northern African port it will be more convenient, cheaper and faster to establish a regular line to Tunisian ports.

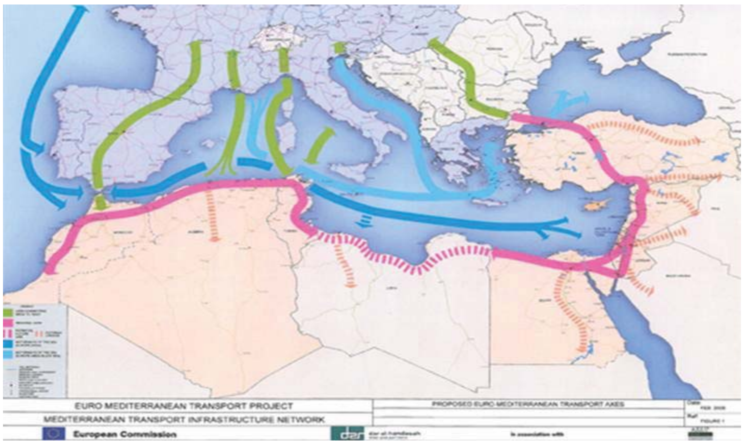

Figure 5. Tunisia a future transhipment port

From figure 5 we can see that Tunisia has a strategic position, situated in the middle of the Mediterranean region, between a European market marked by a rapid economic development and an African continent boosted by its emergent economy and its market of hundreds of millions of inhabitants, the Tunisian port is the most recommended sites for a competitive, reliable and secured transit of goods and ships.

This transshipment port will permit the distribution of the goods for all Mediterranean countries and especially the northern African countries. The goods loaded in Tunisia will be distributed for the local market as to the neighbor countries by land transport, which is very cheap and more convenient for the customers.

6.1.3 Chinese Diplomacy Challenge North African Revolution

The protests and revolutions that are sweeping across North Africa since the beginning of 2011 pose a serious test for Chinese diplomacy. The circumstances forced Chinese diplomats to adapt quickly to the unfolding situation, a measure Beijing has been adept at doing elsewhere in Africa when the government in power is threatened or toppled. Yet, the stakes are higher in North Africa than they are in all but a few Sub-Saharan African states. Indeed, China has important commercial and trade ties with all of the North African countries

China seems to have made a successful transition from the previous Tunisian government to the new one. This demonstrates again that China is able to move quickly and usually successfully when regime change occurs in Africa. China is willing to strengthen political exchanges with Tunisia, expand mutual cooperation and enhance coordination on international and regional issues so as to protect the common interests of developing countries.

With the possible exception of Libya, China’s relations with the countries of North Africa have not been harmed following the political upheavals. Chinese diplomacy worked quietly behind the scenes to insure that it maintained its interests. China was notably silent in the early stages of all the uprisings and fell back on its traditional public support for stability, national sovereignty and non-interference. At the same time, it supported mild UN Security Council sanctions against Libya and abstained when it could have vetoed strong collective military action favoring rebel forces. China has significant economic and political leverage in North Africa.

6.1.4 Conclusion

The total cargo volume between Mainland China and Tunisia is enough for two shipping companies to pay the direct call to Tunisian ports. Currently in the deep- sea liner service for this market, only Maersk Sea land is making direct calls to Tunisia, and several other top container carriers are using independent feeder vessels. The total cargo volume transported by feeder traffic is more than enough for a top carrier to take the direct traffic.

The developing trend of the cargo volume is also promising. China enjoys a phenomenal growth in exports. Instead of purchasing and manufacturing products locally, more and more companies in the African region have since been substituting buying finished goods from China or producing products in China. According to figures recently released by the Far Eastern Freight Conference, trade from Asia to the Africa is booming. During the first quarter of 2009, its westbound traffic increased by a remarkable 32.7%.

In the much larger trade between Asia and northern Africa, more and more shipping companies have started new weekly service.

When considering the transit time, we cannot deny that it does take extra time from Mainland China to Tunisia but we have found that using the feeder service sometimes takes longer than transshipping via Tunisia by railway distribution. According to the Tunisian state-owned railway company, the rail distribution can offer a much faster transit time for transshipment to and from several places in Tunisia, partly because the trains are faster than ships, and partly because of the much greater number of feeder vessels calling at Tunis port compared to other Tunisian ports.

The carriers need to consider the transit cost of using intermodal services via Tunisia more thoroughly in more ways. Firstly, statistics show that because of economy of scale, if the vessel has more than a certain volume of import/export traffic, transshipment via the Tunis port is more cost attractive. And the relatively high cost of feeder service from other European ports should make the main- line carriers consider more about calling directly at Tunisia with their deep-sea vessels.

7. General Conclusion and Recommendations

I found that a direct call at the Port of Tunisia is worth considering, particularly for the following two kinds of ocean carriers: Those which already have or will have large cargo supply in Greater China Area (including Mainland China, Hong Kong, Macao and Taiwan), and those which already have a strong presence in the African market and plan to extend business even further. From the operation of the Maersk Sea land's direct line between China and China, we can see clearly that paying a direct call to Tunisia should be favoured by the local industry in Tunisia, and it could potentially also benefit from loading additional feeder cargo which was discharged in some European ports.

Some necessary initiatives have been completed for the direct traffic between China and Tunisia. Most ports in China are expanding and they are investing heavily in all-round port construction. The Tunisian ports have achieved much in construction of port's infrastructure and inland distribution network. This will lead to a more efficient handling of goods both in Tunisian and China's harbor. The shipping companies can take advantage of more effective solutions because of the reduced transit time and cost.

The transoceanic market between the Greater China Area and northern Africa is turning a more and more promising market for the shipping companies. The international trade in this market is growing rapidly. Especially, the diplomatic ties and bilateral trade has been developing steadily between China and Tunisia. The reduced custom tariffs, the more transparent and reasonable trade policy, and the improved infrastructure will push the country's import and export forward. I have not found factors that can keep the westbound trade from continuing to increase; and the growing purchasing power in the African region can bring about more transoceanic transport demand.

However, the potentials for a direct traffic between China and Tunisia is rather difficult to achieve right now, unless the goods flow from and to all the European countries can be coordinated to go through the Tunisian port. Of course, the critical Tunisian shippers can also affect the situation. If most importers and exporters turn to prefer using intermodal services via Tunis ports, the direct traffic can be more practical.

It is of great importance for Tunis port to keep its leading position in the African Zone and to coordinate the entire transportation network within the region. In this region, container traffic is increasing and there are good opportunities for expansion for the Tunisian ports. Though the immediate access to the motorway and the railway link could provide swift cargo transports at the port, cooperation in the entire network is still needed for offering the customer better-organized and more efficient "door to door" service.

It is necessary to strengthen the cooperation with Shanghai port. As one respondent said, the cooperation can be performed at different levels. Only the cooperation that has clear and practical objective and mutual effort can work for developing the transoceanic market.

I consider that the Tunisian port should implement a more active marketing policy, especially in cooperating with Chinese ports and the shipping companies in Asia. I have noticed that the port has done a lot in promoting itself, but I do not think it is enough, and the port needs to continue some activities for longer. During the interview of several respondents, I found that they have no or very little, even wrong information about the Tunisian port. They are holding that the price level of the inland rail distribution is still the same to that of several years before. Some respondents of shipping companies talk about their concern about the water depth of the port. More contact and more communication can be really helpful to solve these problems. Information should be better shared with clients and customers alike, by facilitating access to reliable information.

Finally, I want to say that it is very important to understand the Chinese culture in order to have a successful business in China. To do business in China is based very much on relationship ("Guanxi" in Chinese). You need to set up good relationships with your customer and related authorities and governments It is of great significance to visit the customer and partner often in order to make the relationship stronger.

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www.sina.net (the company service website of Sina)

www.Tunisia.tn (the port of Tunisia)

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An Exploratory Study on Customers' Selection in Choosing Islamic Banking

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Abstract

Islamic banking industry is growing very rapidly by offering high quality schemes where free interest and better customer services are provided. Strong Islamic banking movements is forcing the industry to come up with new strategy to compete the market. The purpose of this study is to determine and identify the factors that influence the consumers to choose Islamic bank products or services. Data is collected using non probability simple random sampling around Selangor area. The analysis shows that bank reputation, religious and cost benefit factors are significant which influence customers' selection on Islamic banking. Bank reputation and cost benefit has positive relationship on choosing Islamic banking. Convenient is not significant factor of influence customers' selection on choosing Islamic banking. As a conclusion, the study prove that religion shows negative relationship on choosing Islamic banking. This shows that religion is not the main factor but the risk of selecting a bank is important.

Keywords: bank reputation, convenient, religious value, cost & benefit

1. Introduction

In general, there are various contributing factors that can influence one's decision to choose between conventional or Islamic banks. The factors can be categorized into individual,social, cultural and religious factors (Asdullah and Yazdifar, 2016) as well as institutional factors such as facilities (Amin, 2013), processes and ambiance. Though one can argue that there may be little observable differences between the facilities and services between conventional and Islamic banks, Islamic banks differ substantially in their basic principles and procedures which are heavily based on the teachings of Islam (Wan Ibrahim & Ismail, 2013).

Table 1. Data of Customers' Savings Deposit in Islamic Banks

Year	2009 (RM' Million)	2010 (RM' Million)	2011 (RM' Million)	2012 (RM' Million)	2013 (RM' Million)
Customers Savings Deposit	199,162.5	225,505.9	262,360.7	304,704.1	343,801.8

Sources: Bank Negara Malaysia, 2014

Table 1 shows the amount of customers' savings deposit in all Islamic banks available in Malaysia as outlined by the central bank of Malaysia. These data are based on customers' savings deposited in Ringgit Malaysia (RM), excluding the amount of Islamic banking scheme. The statistics reflects the banking trend from 2009 to 2013.

Data from Table 1 also reveals that customers' saving deposit in Islamic banks are growing every year. It further suggests an increasing demand for Islamic banks in Malaysia. The amount of savings deposited in Islamic banks have increased drastically from RM 199,162.5 million to RM 343,801.8 million since year 2009. The difference of RM 144,639.3 million shows a good growth prospect of the Islamic bank industry in Malaysia as the amount would further enhance the bank's performance.

With the evidence of growing saving deposit amounts in Islamic banks, it is apparent that people are aware of the existence of Islamic banks in Malaysia. Similarly, the available media news and articles also reported a growth in Islamic banks' performance (Akbar, 2015). In addition, Mair and Khan (2015) also reported that London is targeting to be the world center for the Islamic finance industry. This further supports Reuters's research (2014) which demonstrated a significant increase in the demand of non-Muslim customers for Islamic banks facilities and services. The popularity of Islamic banks, among both Muslims and non-Muslims, may be due to the perception that investment in Islamic products tends to yield consistent and/or better returns (Hannah, 2015).

Looking at the increasing awareness in and demand for Islamic banking in Malaysia and London, it would be interesting to know the reasons behind this. Thus, this study is conducted to analyze the factors that contribute towards the customers' selection on Islamic banking.

2. Research Objectives

- To find the relationship between bank reputation and customers' selection on Islamic banking.
- To find the relationship between convenience and customers' selection on Islamic banking.
- To find the relationship between religious value and customers' selection on Islamic banking.
- To find the relationship between cost and benefit and customers' selection on Islamic banking.

3. Literature Review

In 1983, the first Islamic bank – Bank Islam Malaysia Berhad (BIMB) that operates based on Islamic principles were introduced into the market (Haron, Ahmad, & Planisek, 1994). The emergence of Islamic bank has increased the choice in selecting bank services among the masses and among the widely cited contributing factors discussed by scholars are 1) Bank selection criteria 2) Bank reputation 3) Convenience 4) Religious value as well as 5) Cost and benefits.

3.1 Bank Selection Criteria

According to Md. Saleh, Mohamad Rosman, and Nani (2013), there are a total of 23 conventional banks and 17 Islamic banks in Malaysia. This further shows the great competitiveness between banks. Therefore, in order to be a successful bank, as Selamat and Kadir (2012) reported, the banks need to have the capability to understand and satisfy customers' needs, especially in this new era of globalization. Selamat and Kadir (2012) reported that a number of research has showed significant differences on customers' bank selection criteria. The common factors that have been studied in the past research are bank's reputation, convenience, staff quality, availability of ATM, service quality and speed, fees, family and friends influence, service variety, and so on (Almoossawi, 2016; Echchabi & Olaniyi, 2012; Md. Saleh et al., 2013; Nkamnebe, Ukenna, Anionwu, & Chibuike, 2014; Siddique, 2012; Yavas, Babakus, & Ashill, 2006).

Earlier, Erol and El-Bdour (1989) revealed in their research that customers' selection of banks based significantly on profit rather than religious motives. This study was supported by Amin, Abdul Rahman, Sondoh Jr, and Ang (2011), which also showed insignificant results on the factors of religious obligation and government support. Instead, they found that attitude, social influence, and pricing of Islamic bank are the main contributors to individuals' decision to choose Islamic banks. Nonetheless, there are also plenty of research (e.g., Almejyesh & Rajha, 2014; Amin, 2008; Amin, 2016; Echchabi & Olaniyi, 2012; Idris et al., 2011; Metawa & Almossawi, 1998; Subhani, Hasan, Rafiq, Nayaz, & Osman, 2012) reported that religiosity does play a role in selecting Islamic bank in various countries such as Malaysia, Tennessee, Pakistan, Saudi Arabia, and Bahrain. Moreover, Bley and Kuehn (2004), as well as Al-Ajmi, Hussain, and Al-Saleh (2009) found that religious sincerity appeared to be the strongest predictor of customers' preferences or selection for Islamic banking but not because of the increased knowledge of Islamic finance.

3.2 Bank Reputation

The importance of bank's reputation in the market, which is associated with higher profitability and sustainability of the bank, have been found to play a role in influencing people's decision when choosing for their banks (Bushman & Wittenberg-Moerman, 2012, Dinç, 2000). The reputation however may be rather subjective as it heavily depend on customers' view and impressions of the bank (Abdul Hamid, 2000 as cited in Almejyesh & Rajha, 2014). Echchabi and Olaniyi (2012) found that Islamic reputation of the bank turned out to be the most important criterion in choosing Islamic bank, while financial reputation and image were also found to be the customers' preference but to a lesser degree. Besides that, on top of revealing electronic service as the most important selection criteria, Muhamad et al. (2015) also demonstrated that customers from different education level showed no different in the bank selection criteria except on the bank reputation and image. More specifically, the two respondents feel more secured and safe when the bank has good reputation and image. Though bank reputation has been repeatedly found to influence the reason of bank preference among customers, the findings are by no means conclusive (Sayani & Miniaoui, 2013).

3.3 Convenience

In the research carried out by Lee and Marlowe (2003), convenience appeared to be the most important decision-making criterion in bank selection, followed by low service fees and friendly personal service. However, the researchers also found that customers have different definitions on “convenience”. Customers who are classified as brick-and-mortar-oriented tend to describe convenience in terms of the convenient location and hours of operation, whereas customers who are categorized as self-service-oriented tend to denote convenience in terms of the availability of ATMs and internet banking. Many past research have also reported convenience as one of the important bank selection criteria, which generally include convenient branch locations, access to branch locations, and availability of ATM services (e.g., Haron, Ahmad, & Planisek, 1994; Khaitbaeva, Al-Subaiey, & Enyinda, 2014; Md. Saleh et al., 2013; Rehman & Ahmed, 2008). In addition, Kaura (2013) also revealed that decision conveniences, access convenience, transaction convenience, benefit convenience, and post benefit convenience significantly improve customers' satisfaction on urban retail banking in India. In Malaysia, similar trend was also found by Echchabi and Olaniyi (2012) in which convenience factor does play a significant role in customer’s decision making process while choosing Islamic bank.

3.4 Religious Value

Religion can be expressed as a psychological associations and emotional relationship of a person to things (Kirkpatrick, 2005). And religion tends to influence and individual as it may be the foundation of one’s reasoning, principles, belief systems, and manners that one holds with devotion and faith (Tara, Irshad, Khan, Yamin, and Rizwan, 2014), Numerous research have been conducted in different countries, such as Malaysia, Egypt, Tunisian, United Arab Emirates, Jordan, to see the relationship and impact of Islam on people’s choice of banking (e.g. Abou-Youssef, Kortam, Abou-Aish, & El-Bassiouny, 2015; Amin et al., 2011; Bley & Kuehn, 2004; Erol & El-Bdour, 1989; Haron, Ahmad, & Planisek, 1994; Souiden & Rani, 2015).

In fact, a study in Lembah Klang, Malaysia, found that people who are exposed to higher formal religious education tend to be more religious and prefer Islamic Banking as compared to people who are casually religious (Wan Ahmad, Ab Rahman, Ali, & Che Seman, 2008). This was supported by Abdul Rehman and Masood (2012), Bley and Kuehn (2004), as well as Imtiaz, Murtaza, Abaas, and Hayat (2013) who also showed religious beliefs as the primary motivation or influential factor that lead to people’s selection of Islamic Banking in United Arab Emirates and Pakistan. There are many past researches which also found that although religion aspect itself did not attract people to choose Islamic banking, religious motives comes in at one of the top five reasons of choosing Islamic banking (Ergec, Kaytanci, & Toprak, 2016; Haron, Ahmad, & Planisek, 1994; Ramadan, 2013). For instance, Ramadan (2013) who examined the decisive factor of selecting Islamic bank among Jordanian, revealed that religiosity variable came second in terms of importance while friendly staff came first. Similarly, in the research conducted in Eskisehir, Turkey, religiosity variable appeared to be the fourth most important factors among Islamic banking customers (Ergec, Kaytanci, and Toprak, 2016).

3.5 Cost and Benefit

Cost and benefit can be defined as “lower service charge and average decent return” (Rashid and Hassan, 2009). Echchabi and Olaniyi (2012) researched cost and benefit based on the product prices, transaction fees, credit availability, and the profits of deposits. Numerous past researches have found the relationship between cost and benefit and their intention to use Islamic products/services throughout the world (e.g., Doraisamy, Shanmugam, & Raman, 2011; Dusuki & Abdullah, 2007; Echchabi & Olaniyi, 2012; Marimuthu, Chan, Lim, Low, & Tan, 2010; Thambiah, Ismail, Ahmed, & Khin, 2013). For instance, In Jordan and Pakistan, people tend to choose Islamic bank as they were motivated by the profit given by the bank (Erol & El-Bdour, 1989; Rustam, Bibi, Zaman, Rustam, & Zahid-ul-Haq, 2011). For the case of Malaysia, cost-benefit/relative advantage/profitability of the Islamic banks are indeed among the leading decisive factor but it is also coupled with its service quality, convenience, and friends’ influences. All these factors were found to have more significant variables as compared to religion per se (Marimuthu et al., 2010). In addition, there are also evidences that cost and benefit is a salient factor to choose Islamic banks among middle age customers compared to the youths (Asdullah and Yazdifar, 2016).

4. Analysis and Results

4.1 Correlation Analysis

Table 2 summarized the correlation results between the independent variables and the dependent variable obtained from SPSS output. Based on the results, bank reputation and convenience is the biggest contributing factor towards customers’ selection on Islamic banking. While, other factors like religious value and cost and benefit results show that there are very low correlations as well between those variables with the factors contributing towards the customers' selection on Islamic Banking.

Next, bank reputation has shown that there is a very low correlation between the selection on Islamic banking, convenience, and cost and benefit. Whereas, bank reputation indicate that the value for the factor of religious value showed that there is high correlation. Move on to the next factor which is convenience, there are very low correlation among all the variables of the selection on Islamic banking, bank reputation, religious value as well as cost and benefit.

The religious value has shown that there have very low correlations between the selection Islamic banking and convenience. However, the correlation result shows that religious value and bank reputation has a high correlation, while the result for religious value and cost and benefit indicate that it has a moderate correlation. Cost and benefit factor, showed that there are very low correlations between the selection on Islamic banking, bank reputation, and convenience. However, it shows a moderate correlation for religious value.

Table 2. Correlation Analysis (Results of Independent Variables and Dependent Variable) for Islamic Banking

		1	2	3	4	5
1.	Islamic Banking	–	.165**	.247**	.397**	-.169**
2.	Bank Reputation	.165**	–	.591**	.045**	.633**
3.	Convenience	.247**	.591**	–	.270**	.399**
4.	Religious Value	.397**	.045**	.270**	–	-.053**
5.	Cost-Benefit	-.169**	.633**	.399**	-.053**	–

** Correlation is significant at the 0.01 level (2-tailed).

4.2 Multiple Regression Analysis

In order to analyze the hypothesis, multiple regression analysis is conducted to test all the variables. The result of multiple regression analysis result is showed in Table 3.

The value of R^2 obtained from the SPSS result for Islamic banking (bank reputation, convenience, religious value and cost and benefit). As in table 3, it shows that .295 of the independent variables results of the selection on Islamic banking for this research study. It further indicates 29% of Islamic banking will provide the contribution towards the independent variables for customer selection on Islamic banking.

The composition of the force for Islamic banking (bank reputation, convenience, religious value, and cost and benefit) that contributes towards the customer selection on Islamic banking is that the bank reputation (β = .318), convenience (β = .169), religious value (β = .316) and cost and benefit (β = -.421).

Significant value indicates if each variable contributes to the hypothesis. Moreover, if the value is significantly less than .05, meaning that the hypothesis is being accepted. Table 3 shows the hypothesis result of this study.

Table 3. Multiple Regression Analysis for Islamic Banking

	B	Sig.	R^2
Bank Reputation	.318	.007	
Convenience	.169	.101	.295
Religious Value	.316	.000	
Cost-Benefit	-.421	.000	

Table 4. Table of Hypothesis

Hypothesis	**Standardized Coefficients (Beta)**	**Significant Value (Sig.)**	**Results**
H1: There is a relationship between bank reputation and customers' selection on Islamic banking.	.318	.007	Accepted
H2: There is a relationship between convenience and customers' selection on Islamic banking.	.169	.101	Rejected
H3: There is a relationship between religious value and customers' selection on Islamic banking.	.316	.000	Accepted
H4: There is a relationship between cost/benefit and customers' selection on Islamic banking	-.421	.000	Accepted

4.3 Overall Findings Based on the Research Objectives

To find the relationship between bank reputation and the customers' selection on Islamic banking

The first objective was to find the relationship between bank reputation and the customers' selection on Islamic banking. The first hypothesis that states there is a positive relationship between bank reputation and the customers' selection on Islamic banking was accepted. This is supported by the study conducted by Tara et al.

(2014) who also hypothesized a positive relationship between bank reputation and the adoption of Islamic bank. Similarly, Nauman Bisharat (2014) also found that bank reputation has strong influence on customers' general behaviors towards Islamic banks in Pakistan. In addition, other than seeing the positive relationship between Islamic bank reputation and Islamic banking selection, Rehman (2012) further reported a significant relationship between Islamic bank reputation and its image, and the network of branches.

To find the relationship between convenience and the customers' selection on Islamic banking.

Second objective emphasizes on the relationship between convenience and customers' selection on Islamic banking. This findings showed that there is no significant relationship between convenience and customers' selection on Islamic banking. As showed by Selamat and Kadir (2012), convenient location of banks had a minimal impact on non-Muslim and Muslim's bank selection decision. Similarly, in Singapore, Gerrard and Cunningham (1997) as well as Tan and Chua (1986) also found that location/convenience of banks is not the main influencing factors in selecting banks, in which Tan and Chua believed that Singapore is a relatively small country and most of the banks are conveniently located, which may also be similar to the case of Malaysia.

To find the relationship between religious value and the customers' selection on Islamic banking.

Next objective is to find the relationship between religious value and the customers' selection on Islamic banking. The findings revealed a positive relationship between religious value and the customers' selection on Islamic banking. As stated by Tara et al. (2014), religion appeared to be one of the major factors influencing people's tendency to adopt Islamic banking. This was supported by the research carried out by Idris et al. (2011) and Reeves and Bednar (1996). Furthermore, Rehman (2012) found that the impact of age on people's tendency to choose Islamic banking, wherein more senior people tend to be more aware and relate with Islamic concerns.

To find the relationship between cost/benefit and the customers' selection on Islamic banking

The next objective emphasizes on the relationship between cost/benefit and the customers' selection on Islamic banking. This relationship was supported by Doraisamy, Shanmugam, and Raman (2011) as well as Marimuthu et al. (2010) who found a significant positive relationship between customers' selection on Islamic banking and costs and benefits in Malaysia. Moreover, Metawa and Almossawi (1998) also revealed that the return rate of bank is one of the significant factor for customer to choose Islamic banks in Bahrain. Besides that, Rashid and Hassan (2009) also suggested that customers aged 31-40 years in Bangladesh tend to focus more on cost-benefit factor while selecting bank as compared to other age groups.

5. Conclusion

This study suggested the importance for bank providers to understand customers' preference and view from the customers' perspective, in order to attract more customers (including Muslims and non-Muslims) to adopt Islamic banking product or services. This study has further proved that religion is not the only influential factor in selecting a bank, but there are also other factors such as bank reputation and cost benefit that would influence one's decision on bank selection. Bank providers can further use this results to think of ways/methods to target the right population and to stay competitive with conventional banks. With this, bank managers can develop and strategize the right approaches to attract more customers to adopt Islamic bank.

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Deployment of Industrial Engineering in Japan after World War Ⅱ

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Abstract

This paper discusses the deployment of American-style management systems in Japan after World War Ⅱ. One of the major American management methods implemented in many countries after the war was industrial engineering (IE), an advanced form of scientific management originating in the United States. Such American methods played an important role in production management and rationalization as well as the Ford system. The primary issue was the implementation of the work factor (WF) method and Methods Time Measurement (MTM) for the deployment of IE. Thus, this paper examines the deployment of IE in Japan in relation to the problems of work measurement and method engineering, the role of industrial engineers, and the influence of institutions on the implementation and promotion of IE, such as the Japan Iron and Steel Federation. Through these discussions, this paper clarifies the Japanese characteristics regarding the deployment of IE and their significance.

Keywords: Americanization, Industrial engineering (IE), management system, Methods Time Measurement (MTM), productivity movement, work factor

1. Introduction: Research Topics

In the period immediately following the end of the war, productive forces and economic might significantly differed between European nations and the US as well as between Japan and the US. Thus, "catching up" became one of the most pressing issues in each country. The deployment of US technology and management methods greatly contributed toward addressing this issue; the requisite conditions for achieving this goal were created with US guidance and assistance.

Japan as defeated nations in the World War II received significant American leadership and support after World War II. The United States played significant role in development of economies in European nations and Japan after the war. Japan developed its enterprises, industries, and economy by deployed and adapted technology and management methods from the United States and became a major trading country.

The primary characteristics of US management methods deployed in the 1950s and 1960s were (1) management and production systems (industrial engineering, statistical quality control, human relations, and the Ford system); (2) management education methods; (3) responses to markets coinciding with advancements in mass production (marketing and public relations); and (4) the divisional structure. However, the deployment of American management methods and systems varies widely between a specific management system and method as well as between industries and corporations. Situations in the deployment of American management methods also differed between countries.

This paper analyzes the deployment of industrial engineering (IE) in Japan. Among American management systems, IE, an advanced form of scientific management that originated in America and gained broad acceptance after World War II played an important role in production management and rationalization as well as the Ford system. When in looking at IE, we see that work studies consider it the next level of development (Kirchner 1970, p. 440), and that the US had a decisively leading role in the IE field. A Siemens US study trip report in 1963, the end of the productivity movement, noted that the predetermined time method then being implemented in the world of capitalism was without exception developed and tested in the US prior to being made public. For example, WF (work factor) was developed in the US in the mid-1930s (*Siemens Archiv Akten*, 16020, Aus Theorie und Praxis des Industrial Engineering in den USA. Bericht über eine Studienreise September/Oktober 1963, p. 123), implemented after 1938, and then used internationally from 1952. In the International Management Conference held in September 1963, there was a discussion on issues of WF time standards and

WF use［*Bundesarchiv Koblenz*, B393/27, International Conference on Work Factor Time Standards (26-27.9.1963)］. MTM (methods time measurement) was developed by H. B. Maynard, G. J. Stegemerten, and J. L.Schwab in the 1940s at Westinghouse (*Siemens Archiv Akten*, 16020, Aus Theorie und Praxis des Industrial Engineering in den USA, p. 33; Maynard et al. 1948), and spread in many countries after the war.

However, these changes included the adaptations of systems to local conditions based on an overall structure of and relationship with Japanese capitalism in business management. Many factors influenced the introduction of IE in this country. How business management in Japan changed with the deployment of US technology and management methods? Along with commonalities with the US, what types of unique developments emerged? How were US management methods reformed to accommodate Japanese conditions? And how were the Japanese management style and characteristics created? What was the significance of these developments? This paper describes how American-style management systems were implemented in Japan and the resulting changes in corporate management.

Many studies approach the deployment of IE in Japan. However, these studies do not always identify which elements of American and Japanese management methods were combined, how they were hybridized, and which factors determined the hybridization (for these studies see books and articles cited in this paper). It is very important to elucidate how Japanese-style business management and its particular characteristics, conforming to Japanese conditions while still bearing on the Japanese management style, surfaced during the deployment of the American management method from the perspective of structural analysis. This paper will consider the problems stemming from the Japanese method of conforming to the American method, impacted by traditional and cultural factors in business management as well as institutional factors, and its relationship to the structural characteristics of Japanese capitalism.

This paper first examines social and economic background regarding the deployment of industrial engineering in Japan in Section 2. Next, in Section 3, deployment of industrial engineering in Japan will be considered. Furthermore, based on the aforementioned discussion, the Japanese characteristics regarding the deployment of industrial engineering methods will be clarified in Section 4. In Section 5, concluding remarks will be indicated.

2. Social and Economic Backgrounds Regarding the Deployment of Industrial Engineering in Japan

This section considers the social and economic background regarding deployment of IE in Japan. According to a 1956 report by an iron and steel productivity inspection team, the introduction of IE was highly necessary based on the assumption that the key difference between the productivity between Japan and the United States was due to IE (Nihon seisansei honbu 1956, pp.1, 4-5, 21-23, 98-99). In 1957, a study group was established in the Japan Iron and Steel Federation by eight companies and guided by E L. Fuse, an IE expert. Two years later, the group formed a committee that promoted the deployment of IE (Nihon tekko renmei tekko jyunenshi henshu iinkai 1969, pp.595-597, Yawata seitetsu shashi hensan jikko iinkai 1980, p.32). A significant contribution of IE to the American industrial world was that it indicated certain standards (Nihon tekko renmei IE shiryo kenkyukai 1958, p.35).

However, in Japan, when implementing IE for measurement and management, such standards were lacking, even in the latter half of the 1950s (Tekkokai 1957, pp.34-35). As a result, the purpose of work measurement became increasingly important. For instance, at the Mitsubishi Electric Corporation, the person in charge of work measurement played a major role in IE at the end of the 1950s (Hachimaki 1958, p.30). Under such conditions, a WF business agreement was reached between the Japan Management Association and the Work-Factor Company in 1958, which laid the foundation for introducing WF to the business world (Konno 1982, p.227).

The competitive environment in which Japanese companies were involved also promoted the deployment of IE. More specifically, among several large businesses with similar powers, which belonged to six industrial groups, excessive competition, over-investment for plants and equipment, and newly formed business alliances raised the necessity to introduce IE (Noguchi et al. 1965, p.229). Moreover, in 1962, the introduction and systematization of IE became necessary in response to the intensification of international competition and trade liberalization. Thus, the number of companies that introduced IE dramatically increased (Noguchi 1968, p.195, Nihon tekko remei jimukyoku 1962, p.71). In the Japanese iron and steel industry, a substantial reduction in the number of workers would be problem, even though it could be used as an anti-recession measure to set the standard time spread (Yasui 1986, p.201). In this industry, there were aspects that exceeded those in the American industry, such as the number of indirect personnel, including those in design, investigation, transportation, and administration despite the existence of excellent equipment and machinery (Miyajima 1963, p.239). Therefore, minimizing costs through IE became an important issue.

Furthermore, the introduction of a flow production system and the development of innovation also raised the significance of deploying IE. In addition, under the continuing buildup of production with automation, adjustments in the time of each process became important cost-effective measures.

In the 1970s, IE was particularly deployed for labor savings, cost reductions, and personnel arrangement in several industries, such as the iron and steel industry, under a shift from high economic growth to low economic growth, which was brought on by the oil crisis (IE mondai kenkyukai 1975a, pp.77-78). In the electrical industry, the recognition was strong of the standardization and guarantee of quality, which had been indispensable with the mass mobilization of young women in the workforce, the deepening division of labor in the factory, and the thoroughness of the mass production system (through the use of conveyors) (IE mondai kenkyukai 1975b, p.99; IE mondai kenkyukai 1975c, p.139).

3. Deployment of Industrial Engineering in Japan

3.1 General Conditions Regarding the Deployment of Industrial Engineering

Based on these discussions, this section examines the deployment of IE methods in Japan. We first consider general conditions regarding the deployment of IE. The WF method was introduced in 1950 and adopted in the following years while MTM was first implemented in 1957 (Indasutoriaru enjiniaringu 1959, p.81; Miharada 1965, p.28; Tsusho sangyosho gorika shingikai 1967, p.62). In the latter half of the 1950s, the introduction and adaptation of IE in industrial enterprises advanced under the productivity movement. However, IE still lacked unity, and its development focused on operational management. During this stage, emphasis was primarily on human engineering, system engineering, and method engineering (Noguchi 1968, pp.170, 196, 207-208; Nihon tekko renmei jimukyoku 1962, p.71). By the end of the 1950s, the WF method began to spread (Ono 1959, p.60), playing an important role in method engineering (Ikenaga 1962, p.786).

However, even in this period, unlike in the United States, the organization of IE in Japan was incomplete. At that time, setting work standards and time standards and training industrial engineers were urgent issues (Nihon seisansei honbu 1960, pp.22, 39-40, 58, 133-135; Ozaki 1959, pp. 362, 366). This reflected the fact that, whereas industrial engineers in the United States were known as professionals, they were considered non-professionals in Japan (Omura 1962, pp.915, 926).

In this way, the completion and systematization of IE became necessary. However, rather than adjusting the contents of IE content, Japanese companies placed greater emphasis on reshuffling distributed management based on work standardization (time-motion studies). Thus, the systemization of IE was delayed. In addition, Japanese companies addressed various methodologies for work rationalization (e.g., production management, cost control, etc.). However, in this period, the concept of function as the focus of IE in a company was still not sufficiently established (Noguchi 1968, pp.171, 196-197; Noguchi et al. 1965, pp.224-225, 228; Indasutoriaru enjiniaringu kokunai shisatudan 1958, p.232).

IE was eventually established and systematized by integrating scientific management techniques in the 1960s. (Inoue 1976, p.28). For instance, in the iron and steel industry, whereas IE activities were initially limited to work improvement, the focus on standard setting eventually increased (Nihon tekko renmei jimukyoku 1962, p.71). Moreover, predetermined time standard systems (PTS) used in Japan included the WF method and MTM. By the mid-1960s, the use of the WF method became quite widespread, exceeding that of MTM (Quick and Ikenaga 1965, pp.1100-1101; Bijinesu 1960, pp.69, 73; Konno 1982, 227). In contrast, in the United States, the most widely used method was MTM (Nihon seisansei honbu 1960, p.102; Nihon seisansei honbu 1964, p.42; Konno 1982, p.227). Therefore, the deployment of IE greatly differed between the two countries.

Even in the 1970s, IE activities that extended into various fields, such as workmeasurement, work improvement, standardization, quality control, process control, and cost control, were independently performed in companies. There were no IE activities in which each measure was connected to one another and integrated as a total system (Ono 1970, pp.26, 31). It is possible to see the shift from individual applications to general and systematic adaptations of IE from the latter half of the 1960s to 1970 (Hibi 1975, p.30).

In Japan, the education of industrial engineers had already become an important issue in the early 1960s (Furukawa et al. 1961, p.103). However, as a 1967 survey pointed out, industrial engineers were not regarded as professionals, and their main tasks focused on methods. In many cases, industrial engineers in Japan were more inferior than those in the United States, and their time studies primarily used stopwatches (Taniguchi 1967, pp.1197-1200). In addition, the situation of factory engineers greatly differed in Japan and the United States. For example, in the United States, since numerous examinations regarding production aspects were performed before shifting to production, factory engineers were not always necessary. Conversely, in Japan, investigations regarding production technology were not sufficiently performed. As a result, technical issues frequently occurred during the start of production, and many factory engineers were required in order to solve such problems (Ueda 1967, pp.135, 137). By the mid-1960s, the standard and system for wage setting had become the focus of IE, and system improvements were mainly performed in the American iron and steel industry. In contrast, the design and improvement of a total system, which consisted of personnel, machinery, and materials, had become the focus of IE in Japan. However, the process of setting standards concerning personnel was still incomplete at this stage (Uchiyama 1966, p.34).

One cause for such incompleteness in IE in Japan was the low abilities of the industrial engineers (Takeda 1967, p.580). As a result, around the end of the 1960s, greater emphasis was placed on method study and improvement rather than work measurement. In addition, standard time was generally employed as the standard of efficiency measurement, the basis of production planning, the calculation of personnel, and cost estimation (Omura 1969, p.16; Shida 1968, p.11). IE focused on other aspects of business management, such as standardizing work or setting standard values for management purposes (Juji 1968, p.6).

Furthermore, the conditions surrounding the deployment of IE significantly differed among industries. For example, IE advanced the most in the iron and steel industry and in the processing and assembly industries, especially in the automobile industry and the electrical industry. Finally, the differences among companies were also significant. For instance, in the mid-1970s, among small and medium-sized firms, the use of modern IE methods was rare (Hibi 1975, p.31). Hence, the following section examines the introduction of IE in the main industries as well as their representative companies.

3.2 Deployment of Industrial Engineering in the Main Industrial Sectors

3.2.1 Iron and Steel Industry

In this industry, IE achieved results in the field of method engineering. Improving business affairs and performing standard setting were two pillars of IE (Nihon tekko renmei junenshi henshu iinkai 1969, pp.606-607). IE for quality improvement and cost reduction was introduced in the first rationalization plans from 1951 to 1955 and fully utilized as an IE system in the second rationalization plans from 1956 to 1960. During this period, standardization for realizing consistency in production (under the introduction of automation technology) was promoted. Moreover, synthesization and systematization of IE were pursued, after which IE was introduced in earnest for the purposes of planning work duties, setting the standard amount of work, and overseeing its strict accomplishment (Inoue 1976 p.30). Furthermore, personnel assessments on a company-wide scale were implemented, and improvements in management functions, such as investigations regarding equipment capacity, process control, transportation management, and inventory control, became important (Nihon tekko renmei jimukyoku 1963, p.81).

The application of standard time to labor management developed the most around 1962, when personnel rationalization was necessary due to the recession at the time (Nihon tekko renmei junenshi henshu iinkai 1969, pp.607-608; Goji et al 1969, p.896). Thus, the reduction of workers based on the setting of standard time became the top priority in IE (Yasui 1986, p.207). During the 1960s, the importance of personnel rationalization, rationalization of contract management, and approach to management issues increased. Consequently, IE became increasingly important for top management (Nihon tekko renmei jimukyoku 1966, p.100; Nihon tekko renmei jimukyoku 1967, p.95). In fact, by the end of the decade, the scope of IE expanded into the design of management systems, analysis of management issues, productivity improvement, and cost reduction. IE was also applied to personnel rationalization in indirect departments (Nihon tekko renmei junenshi henshu iinkai 1969, pp. 605, 608). There were five overall goals: (1) improving work and equipment; (2) setting standard time for workers; (3) designing management systems; (4) providing consultations; and (5) other business-related activities. Furthermore, establishing regular personnel was an important part of many IE projects, followed by job and office work improvement, management of equipment, standard setting, and process control (Ono 1968, pp.65-670). Setting a standard time was applied to the new system of efficiency wages as well as conventional personnel assessments (Nihon tekko renmei jimukyoku 1968, p.103). From the late 1960s to the early 1970s, self-management activities played a significant role in method engineering and improving morale. Thus, IE that engaged in the promotion of self-management became increasingly important (Nihon tekko renmei jimukyoku 1972, p.80).

Cost reduction was also an important part of IE activities after 1973, especially during the oil crisis (Nihon tekko renmei jimukyoku 1974, p.80: Nihon tekko trenmei jimukyoku 1975, pp.100-101; Nihon tekko renmei jimukyoku 1976, pp.65-66; Nihon tekko renmei jimukyoku 1978, p.66). Subsequently, the role of IE was important in the implementation of fixed-cost reduction measures during the 1980s.To promote production efficiency in both the upstream and downstream processes of the organization, IE continued to focus on improvements from all perspectives (Tekko no IE 1984, pp.14-15).

3.2.2 Automobile Industry

The introduction of WF as a new method of standard setting made an impact, especially with regard to the ratio of labor costs to production costs, which was very high in the assembly industry (Kikuchi 1968, p.608; Sakano 1963, pp.220, 223-225). For instance, at the Nissan Motor Corporation, due to new product releases, constantly changing automobile models, and new factory openings, various problems, especially those related to factory layout and material handling, were widespread. In addition, issues related to cost reduction and equipment investment occurred (Takai et al. 1968, p.8; Omura 1959c, p.450; Sakano 1963, p.225). Under such conditions, the training of IE staff became an important issue. By the end of the 1950s, top management, such as those at the Toyo Kogyo Corporation, began to recognize the necessity of having IE staff members (Omura 1959c, p.450).

In 1955, at the Nissan Motor Corporation, imbalances in setting standard time via the stopwatch method and the adoption of a group premium wage system resulted in constant complaints (Tsusho sangyosho gorika shingikai 1967, p.73; Kyushu indasutoriaru enjiniaringu kokunai shisatsudan 1959, p.18). In response, the company completed a master table of all work-related activities, and a standard time was set for every section. The company-wide application of standard time via the WF method had begun, and the management system was established. In this case, suggestions for work improvement and efficiency control were the main fields of IE. In addition, the company pursued cost reductions for parts purchased from other companies. Such reductions were based on the guidance of work measurement and improvement methods for parts companies, decisions regarding various costs according to value analysis (VA), and the establishment of specialized lines (Nissan jidosha kabushiki gaisha somubu chosaka 1965, p.294; Kyushu indasutoriaru enjiniaringu kokunai shisatsudan 1959, p.18; Tsusho sangyo sho gourika shingikai 1967, pp.62-63, 79; Omura 1959b, pp.101, 103-104; Sakano 1963, pp.202, 206). Management of the number of work hours (mainly based on standard time) was also implemented. Whereas the WF method was primarily adopted for manual work, machining time was based on technological considerations and statistical methods (Tsusho sangyosho gorika shingikai 1967, pp.65-66).

IE departments at central-office levels were eventually established. Such departments not only played a role in top management but also engaged in IE activities at the factory level. (Tsusho sangyo sho gourika shingikai 1967, p.64). For example, at the Toyo Kogyo Corporation, a master table related to the standardization of work was created in 1949, after which the WF method was adopted in 1955. In 1958, work sampling was introduced and standard time was established. Moreover, improvements were made in measurement precision, and the rate of operation was realized (Toyo kogyo kabushikigaisha gojunenshi 1972, pp.301-302).

3.2.3 Electrical Industry

Whereas time studies utilized the stopwatch method until the mid-1950s, conversion to the WF method was achieved by the end of the 1950s. However, in this particular industry, MTM was still in its infancy; thus, it was not adopted. At that time, the representative companies in the field of IE continued to emphasize the following aspects: work standards and standard time, cost reductions, plant layout, standardization, and suggestion systems. Moreover, quality standards were established, after which technical alliances with foreign firms had a significant influence on such standards. This was a characteristic typically found in the electrical industry (Sato 1959, pp.266-267).

However, there were differences between the sections regarding mass-produced products and those related to individual order production. For example, for home appliances, in which mass production via conveyors was dominant, setting a standard time was achieved by the WF method, and in many cases, standard time was used for both process and personnel planning (Tsusho sangyosho kigyoukyoku 1969, p.105). In contrast, as large-sized individual orders were produced, the Kawasaku factory of the Fuji Electric Corporation employed the stopwatch method in time studies. It was not until the early 1960s that the WF method and MTM were adopted (Omura 1961, p.194).

Regarding individual enterprises, in 1950, the Mitsubishi Electric Corporation introduced the WF method to improve the estimation techniques of elementary motion. In 1951, the company introduced a training program for work-factor engineers, and by 1954, the WF value was adopted as the standard time value and company-wide standard time was established for both mass production and individual production (Mitsubishi denki kabushiki gaisha shashi hensansitsu 1982, pp.106, 275). In the Itami factory of this company, the core IE activities from the late 1950s to the early 1960s included the creation of a work-study subsection, which was responsible for conducting work performance measurements and making method improvements (Omura 1960, pp.170-172). In the mid-1960s, the Matsushita Electric Corporation particularly emphasized traditional IE rather than modern IE. This company also made an effort to improve material handling, realize premeditated production, shorten production schedules, and cut down the overall production period by introducing method engineering and conveyor systems (Daisanji IE kokunai shisatsudan 1965, p.18).

4. Japanese Characteristics in the Deployment of Industrial Engineering

Based on the foregoing discussions, this section will clarify Japanese characteristics in the deployment of industrial engineering. We can point out the following items constitute the main characteristics of IE deployment. In Japan, IE was promoted and developed in solidarity with the business world, as seen in the IE study committee in the iron and steel industry. There were no such efforts in foreign countries (Nihon tekko renmei junenshi henshu iinkai 1962, p.612). This reflected the situation in which the results of process studies by institutions, such as REFA in Germany that had traditionally played an important role since the rationalization movement in the 1920s, did not exist in Japan. Regarding supervisors at the workplace, first-line supervisors, which are comparable to foremen in the United States or meisters in Germany, did not exist in Japan. This shows that traditional IE was not utilized in factories and that the deployment of IE was still a rudimentary activity (Juji 1968, pp.7-8). In addition, foremen in the United States had considerable authority compared to those in Japan (Kasahara and Tezuka 1968, p.16; IE 1968, p.11).

Thus, the general foreman system was adopted in the iron and steel industry, which greatly advanced the deployment of IE. IE was systematically implemented in the workplace under the establishment of line and staff organization by the general foreman system. This was introduced in the Yawata Iron and Steel Corporation for the first time in 1958, after which it prevailed in many other companies. Substantial power over subordinates was given to general foremen, and the function of IE was mainly absorbed into staff organization. This process, in which the line manager (led by the general foreman) assumed the central role, became the primary function of IE (Yawata seitetsu kabushiki gaisha shashi hensan iinkai 1981, pp.706-707; Katsui 1968; Noguchi 1968, p177; Komatsu 1968; Sumitomo kinzoku kogyo kabushiki gaisha shashi henshu iinkai 1967, pp.169-170; Dai niji indasutoriaru enjiniaringu kokunai shisatsudan 1959, pp. 301-306). Thus, we can see an important character in that the general foreman, specified as a principal player in IE, was sometimes given responsibility for cost control, cost reductions, and overall labor management.

In the field of IE in Japan, there were problems related to work measurement (Ono 1968, p.70). However, the work measurement that was so popular in the United States and Germany was not thought to be a fit for Japan, and many corporations focused entirely on continuous method engineering (Juji 1969, p. 2). This showed that IE played a considerable role in the development of various improvement activities, which had been expanded in Japan. Unlike in the United States, where standard time was set in relation to wages and working hours, in Japan, it was also important to use the number of work hours as the standard for making improvements and evaluating results (Juji 1973a, p.9; Juji 1973b, p.47). Furthermore, upon implementation of the work-factor method, reforms were made to wage systems, particularly to wage rates along with job analysis (Inoue 1976, p. 29).

In the United States, "work standard" means the terms of a worker's contract. In American-style work management, work standard and work time had an apparent meaning. Conversely, in Japanese-style work management, the term only showed the content of the work to be performed. Thus, it was more effective to use standard time not as a standard for evaluating the worker but as the "time as the goal for a given work standard." In the United States, in job design, the necessary work for an organization is decided according to the nature of the work, after which it is assigned to an individual. In this regard, job design forms the terms of the contract. However, Japanese-style job design presents the overall goal of the work and leaves a certain amount of flexibility for the individual (Juji 1973c, pp.100-102).

Regarding the use of a predetermined time standard system (PTS), for example, work improvement, cost accounting, and cost estimate had the highest applications during the 1950s in both Japan and the United States. However, the application of IE in setting work methods (before shifting to production) was lower in Japan than in the United States. In contrast, such work planning and decisions regarding personnel were higher in Japan than in the United States. In this case, emphasis on the use of IE differed greatly between the two countries (Indasutoriaru enjiniaringu 1959, p.85).

In addition, IE was rolled out in connection with labor management functions. For example, different employment practices among Japanese corporations, such as the seniority wage system and lifetime employment, led to inconsistent labor targets for IE and differences among other IE elements (Ueda et al. 1967, p.539).

There were many cases in which American methods of manager education and supervisor training, such as TWI (Training within Industry) and MTP (Management Training Program), were used to implement IE. For instance, at the Toyota Motor Corporation, TWI and MTP were used for full-scale standardization, and they were also introduced in subcontracting enterprises to make company-wide improvements (Toyota jidosha kogyo kabushiki gaisha shashi henshu iinkai 1958, p.417; Toyota jidosha kabushiki gaisha 1987, p.227; Wada 2009, pp.521-524; Fujimoto 1997, pp.69, 117). The Yawata Iron and Steel Corporation also established a standard work method

(Nihon tekko renmei sengo tekkoshi henshu iinkai 1959, p.997). At the Fuji Electric Corporation, the introduction of TWI for training first-line supervisors became an effective means of developing IE (Fuji denki seizo kabushiki gaisha 1974, p.225). Meanwhile, IE was implemented for quality-control activities. For example, at the Kobe Steel Corporation, IE activities were developed as a part of its total quality control (TQC) effort to improve the company's constitution (Tekkokai 1964, p.21).

IE was originally developed with the two pillars of work measurement and method improvement. However, it was eventually applied to a wider field in Japan (Wada and Juji 1967, p.519: Nakayama et al 1960, pp.121-122). We can also see an important characteristic of IE in Japan since its activities could be divided into three stages: (1) a central office IE department, which offers services for top management and general managers; (2) an IE department, which provides services to the heads of production and plant managers; and (3) an IE section, which offers services for individual workplaces (Daisanji IE kokunai shisatsudan 1965, p.153). In the mid-1960s, most of the activities were implemented in Japan in the third stage, with work improvements, setting a standard time, work sampling, work measurements, cost estimations, and design and management of inspection instruments as the core functions. In the second stage, system engineering was carried out to some extent, even though it was not as wide as the third stage (Ueda 1966, pp.1277-1278). However, IE was not effectively diffused from the top to the bottom levels of management (Block 1964, p.515).

Although the use of IE methods increased, there were still many problems with regard to IE ideas, recognition of IE by line managers, and operations by industrial engineers. IE efforts were naturally obstructed by such issues (Daisanji IE kokunai shisatudan 1965, preface). The following five points can be considered relevant problems in the field of IE: (1) activities regarding operation systems and control systems; (2) activities related to troubleshooting and making improvements in existing systems; (3) the rate of IE activities, which were performed depending on the demands of line managers; (4) cases in which the number of personnel in the IE section was high; and (5) the fact that company-wide IE was insufficient or not established (Daisanji IE kokunai shisatsudan 1965, pp.177-178). Furthermore, in Japan, although the number of universities with IE sections in engineering departments increased, the spread of IE education was considerably late compared to that in the United States (Daisanji IE kokunai shisatsudan 1965, pp.146-147).

In Japan, the broad existence of parts companies and cooperating firms, such as subcontracting firms, supported the production system of large enterprises. Thus, detailed rationalization and improvement activities through the introduction of IE were promoted (Tsusho sangyosho gorika shingikai 1967, p.79; Miyajima 1967, p.331). Guidance and instruction in standard setting by large enterprises was a significant reason for building close inter-firm relationships and establishing production networks under Japanese subcontracting firms.

In the introduction of IE, influences from differences in the material traits and climates in Japan and the United States were significant. Among the many management techniques introduced from the United States, management methods directly related to "things," such as quality control (QC) and value analysis (VA), were taking root by the latter half of the 1960s. In contrast, management techniques related to human mental activities, such as IE, did not achieve good results. It is possible that such differences between Japan and the United States were one of the major causes. In contrast with American companies, in which work began after responsibilities were prescribed and the authority of each member was predetermined, in Japanese enterprises there were many cases in which a vague organizational system was in place and responsibilities were discussed after the work had begun (Dai sanji IE kokunai shisatsudan 1965, p.150; Tshusho sangyosho kigyokyoku 1969, pp.105-106, 133).

Even at the end of the 1960s, the recognition of management, including IE, was insufficient since the responsibilities of front-line supervisors were still uncertain. Thus, it was necessary to establish management standards for front-line supervisors and clarify certain responsibilities (Tsusho sangyosho kigyokyoku 1969, p.112). In the United States, based on pragmatic thinking, companies searched for a solution to the problem by focusing on methods without establishing particular theorems and systems. In other words, once a new method was discovered, it was widely used as the "standard." In contrast, such thought and spirit of pragmatism did not exist in Japan (Kuroita 1959, pp.317-319).

5. Concluding Remarks

From the perspective of this paper, to improve productivity at the time of introducing the American management method, the measures and elements that were directly related to improving "efficiency" (economic efficiency) were concerned with the development of productive forces; therefore, these principles were relatively, proactively, and widely introduced. One of such cases can be seen in the basic principles of industrial engineering, such as production management and labor management.

In contrast, there were many aspects of American-style management that did not necessarily conform at the time to the conditions in Japan. These included aspects with American characteristics, such as the culture and relationships shared among labor and management, value for management, management style, and management tradition/culture. Therefore, in many cases, there was strong resistance and opposition that prevented the introduction of these aspects, and it was only possible to introduce them by modifying them in the process.

Furthermore, in reality, there were many cases wherein the Japanese method of management was pursued, even though mechanisms and principles for improving efficiency were introduced. In particular, due to the influence of Japanese corporate traditions and management values and various systemic factors within companies, and industrial relations, many Japanese companies sought the Japanese-style adaptation. Zeitlin's research emphasizes the active altering of the American Model. Here, Zeitlin points out that there was selective adaptation of American technology and management that was tailored to the local environment, and that creative modifications and innovative hybridizations were observed. However, these modifications and hybridizations should not be understood as a negative phenomenon or indications of domestic resistance to the transfer process, or even as the mark of inevitable compromise. Rather, they should be realized in the positive light, i.e., the modifications originate from experimental work and innovative learning (Zeitlin 2000, pp. 11, 15–20).

Thus, the people involved in the industry took advantage of their experience, accumulated while decomposing, modifying, and re-concentrating the elements of the American model to best fit the local environment. By doing so, they reinterpreted, modified, and at times changed their country's practices and systems. Japanese industrialists had significant existing knowledge of American-style practices. Zeitlin points out that Japanese industrialists' prior familiarity with American-style practices enabled them to treat US technology and management not as a unitary model to be imitated wholesale, but rather as a suggestive point of departure for selective adaptation, creative modification, and innovative hybridization (Zeitlin 2000, pp. 38, 40–41). Mix of American and Japanese factors in management systems can be seen in introduction of the job-based wage under the deployment of the work-factor method.

When considering the deployment of IE in relation to important factors that effected on the implementation of such American management methods, influences of management values and management traditions and cultures, such as management values based on Japanese collectivism and mutual trust between company members and those emphasizing relationships between management and labor based on a weak contracting view can be seen in the following points. Work standards tended to be used not as the terms of workers' contracts but a loose standard, which was deeply concerned with characteristics of Japanese improvement activities. Standard work time was used as a benchmark in establishing goals of job improvement by general foremen and evaluating the results. Management values emphasizing the role of production spots and relationships between management and labor based on weak contracting view (organization and its operation in which relations of authorities and responsibilities was unclear) influenced the implementation of IE.

Next, examining the institutional factors impacting the Japanese-style of adaptation in the process of Americanization, special systems such as subcontracting system also influenced the deployment of American management methods. Such cases can be seen in the deployment and modifications of IE in subcontracting firms and affiliated companies under the guidance of large enterprises that were at the top of the pyramid of subcontracting system. Other cases can be seen in the role of business associations in promoting deployment of IE and influence of management system such as the general foreman system.

In relation to the characteristics of the structure of productive forces prior to WWII, delay in the development of productive forces in the heavy industries and the process and assembly industries before the war was prominent. These industrial sectors rapidly expanded after the war. Introduction of the flow production system and innovations including automation promoted the deployment of IE methods. IE was implemented as various rationalization measures, such as production control and cost control for the modernization of production and to decrease costs via rapid development of productive forces.

When comparing conditions in foreign country, Japanese characteristics in the deployment of IE can be clearer. For instance, in Germany, the issues of various materials and the establishment of ideas related to the definition, classification, and subdivision of standard time by REFA contributed to improvements at the industry level (Hartmann 1963, p. 125; Schlaich 1969, p. 234; Hämmerling 1960, p. 127; Schwartmann 1975, p. 205). In contrast, such a technically authoritative national organization did not exist in Japan (Hamabe 1961, p.46), and management centers and IE centers were only established during the research boom (Omura 1959a, p.33). Such differences had a significant effect on the introduction and development of IE in both countries.

Regarding the conditions in Germany, we see that the dissemination of IE was related to REFA activities, and was also greatly affected by US-based IE. REFA had researched and examined various predetermined time methods including MTM and WF for a long time, and as a result decided to support WF, obtaining a license to use and disseminate the method (Jaeckel 1961, p. 223, p. 223; Pilz 1961, p. 124). However, REFA did not, for the most part, deprioritize its own systems in promoting WF. In relation to the aspect of hybridization, we observe the following mix of American and German factors in management and production systems. Industrial engineering methods such as the Work-Factor Method and Methods-Time Measurement were incorporated into the traditional German REFA system. As a result, these US methods were not widely adopted in German industry, unlike countries such as Sweden, where the creator of MTM, H.B. Maynard and his consulting firm, were highly successful in selling the method to corporations (Kipping 2004, p 36). Thus, regarding the broad spread of American IE methods, a delay can be seen compared to Japan.

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Sharing Economy: Business Models and Regulatory Landscape in the Mediterranean Areas

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Abstract

The paper describes the state of the art of the sharing economy in an ecosystemic perspective including a discussion about the strengths and weakness of business models (apartment/house renting, couch-surfing, car sharing and ride sharing, co-working, reselling and trading) and regulatory and legal issues in some European countries such as: Italy, Spain Croatia and Slovenia. The work was carried out within "open DOORS", a project was co-financed by the European Regional Development Fund.

Keywords: sharing economy, collaborative economy, business models, online platforms, peer-to-peer

1. Introduction

The sharing economy "has been on an exponential growth curve over the last couple of years and has been the subject of considerable interest to the stakeholders and policy-makers across the globe" (http://www.ey.com/Publication/vwLUAssets/ey-the-rise-of-the-sharing-economy/$FILE/ey-the-rise-of-the-sharing-economy.pdf).

The term sharing economy (often used interchangeably with collaborative economy, collaborative consumption, and peer-to-peer commerce) refers to "networks of individuals providing goods and services to each other at lower cost than getting them through corporations. It also includes individuals who share, trade, or rent products and services on an as-needed basis rather than owning them" (Rifkin, 2011). On 2 June 2016, the European Commission published a Communication containing "A European Agenda for the Collaborative Economy" in which it defined the sharing economy as "business models where activities are facilitated by collaborative platforms that create an open marketplace for the temporary usage of goods or services often provided by private individuals" (European Commission, 2016). A key component of the sharing economy is the collaborative consumption defined in Berg & Fitter (2016) as a mechanism that balances the needs of individuals with the needs of the community. In this perspective, the traditional sharing, bartering, lending, trading, renting, gifting, and swapping, are redefined by using digital technology that is revolutionizing and mainstreaming the way people consume and share knowledge (Gata, 2015). The evolution brought about by digital technologies has taken the sharing economy concept forward and created opportunities as people can monetize their skills and suitably use underutilised resources. Digital technologies allow exploiting the production capacity potential. They enable sharing what people traditionally do not use full-time, e.g. houses and cars. They allow performing practices that promote the use and exploitation of properties promoting the re-use and access rather than purchasing ownership. But the sharing economy also has social impacts as it enriches relationships and enables a more sustainable approach to business. Indeed, the emergence of sharing platforms is changing the way industries such as food & beverages, travel and transportation, accommodation and services carry out their business, and are forcing a debate on new business models. The sharing economy is improving the resource utilization, increasing convenience, creating new employment opportunities, improving digital awareness and environmental benefits and sustainability. It allows spreading a more flexible and convenient business model (The Economist, 2013; Koopman et al., 2015). Whereas in the conventional business models, companies are providing consumers' access to companies owned products and services, in peer-to-peer models, companies are facilitating consumers' access to other consumers' properties or skills and competencies. These companies generally use an online platform or a marketplace connecting consumers that have certain assets and skills with consumers temporary needing them (Andersson et al., 2013). These new business models are becoming particularly disruptive for mobility, accommodation, catering and other kinds of services, because they are able to satisfy the same needs with respect to the conventional business models, at a significantly lower price. Starting from these considerations the paper provides an ecosystem vision of the state of the art on the sharing economy including a discussion on the economic point of view as well on policies, regulatory and legal issues.

The work was carried out within the "open DOORS" that is a project on the Sharing and Collaborative economy viewed as a driver for economic, social and territorial growth in the Mediterranean regions. The project is a project funded by ERDF in the Interreg Med Programme. More info on this project is available in the following website https://open-doors.interreg-med.eu/.

2. Related Work

The concept of the sharing economy has been widely discussed and it has been a subject of considerable interest to stakeholders and policy-makers across the globe. Rifkin claims that "sharing economy is the third industrial revolution" (Rifkin, 2011). The sharing economy, in some experts' opinion, will replace capitalism and socialism, which characterised the nineteenth century. The term sharing economy is often used interchangeably with the collaborative economy, collaborative consumption, and peer-to-peer commerce. Neither the collaboration among individuals for the use of shared resources is a new phenomenon. The novelty of the so-called Sharing Economy lies in taking advantage of the possibilities opened by the computer technologies that advanced at the end of the 20th century. This new technological framework reduces the informational asymmetries and transaction costs (by transaction costs, economists mean all the costs and inconveniences involved in an economic transaction) that affect these activities, increases the scale at which they are carried out, and allows them to be performed in the ways that are different from those hitherto known. However, as the European Commission states: "the collaborative economy often raises issues with regard to the application of existing legal frameworks, blurring established lines between consumer and provider, employee and self-employed, or the professional and non-professional provision of services" (European Commission, 2016).

So far, the literature has provided several definitions of "sharing economy and collaborative economy", such as:

- "An economic system in which assets or services are shared between private individuals, either for free or for a fee, typically by means of the Internet." (Stevenson, 2010);
- "Networks of individuals providing goods and services to each other at a lower cost than getting them through corporations. It also includes individuals who share, trade, or rent products and services on an as-needed basis rather than owning them" (Berg & Fawn, 2016)
- "A peer-to-peer-based sharing of access to goods and services" (Gata, 2015);
- "Any platform that brings together distributed networks of individuals to share or exchange otherwise underutilized assets. It encompasses all manner of goods and services shared or exchanged for both monetary and nonmonetary benefit" (The Economist, 2013);
- "The rental of something a user is not using such as a car, house or bicycle to stranger through a peer-to-peer service" (Koopman et al., 2015);
- "A peer-to-peer based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services" (Andersson et al., 2013);
- "A socio-economic ecosystem built around the sharing of human and physical resources. It includes the shared creation, production, distribution trade and consumption of goods and services by different people and organizations" (Hamari et. al., 2016);
- "Online platforms that help people share access to assets, resources, time and skills" (Matofska, 2014);
- "An economic system based on sharing underused assets or services, for free or for a fee, directly from individuals" (Wosskow, 2014);
- "An economic model in which individuals are able to borrow or rent assets owned by someone else" (Investopedia.com, 2017) ;
- "A business model that actually belongs to a 'family' with multiple organizational schemes: some of them are very simple – barter – other much more sophisticated – online exchange platforms, based on complex algorithmic software" (Botsman, 2015);

- “The use of digital platforms or portals to reduce the scale for viable hiring transactions or viable participation in consumer hiring markets (i.e. 'sharing' in the sense of hiring an asset) and thereby reduce the extent to which assets are under-utilised”. (Goudin, 2016).

The above definitions indicate that the sharing economy consists of more or less informal economic activities that include consumer transactions such as swapping, renting, reselling, co-owning, lending, and donating (With et al., 2013). Different types of objects can be subject to these sharing transactions, including physical resources like cars (Andersson et al., 2013), digital resources like computer files (Benkler, 2004) and intangible goods like experience (John, 2013). These economic activities strictly rely on the use of online platforms that allow people to share their resources each other.

There are many types of actors, activities and systems in the collaborative economy. These activities can be done for profit (e.g. Uber, BlaBlaCa and Airbnb) or for non-monetary purposes (Wikipedia). Some of the companies that have flourished in this area provide consumers with access to certain goods or services through a technological platform that greatly simplifies the corresponding transactions (Zipcar). Others are merely intermediaries, also through some technological device, between the subjects who exchange or share goods or provide certain services (Uber). Some of these activities are carried out in areas that have so far lacked specific legal regulations (TaskRabbit). Others, on the other hand, are carried out in markets that have been subject to significant public intervention (e.g. in taxi and accommodation sectors), which has greatly restricted the freedom of individuals wishing to take part in them.

A more optimistic approach to the sharing economy sees it as an economic opportunity, a more sustainable form of consumption and a pathway to a decentralised, equitable and sustainable economy (Gruszka, 2017). Collaborative economy systems, however, are not without problems. They can generate negative externalities: social costs that are not borne by those who carry out these activities but by individuals, who will probably cause the level of achievement of these activities to exceed that which would be optimal from the point of view of social welfare. It has been noted, for example, how neighbours of those who make their homes available to the public on platforms like Airbnb can suffer discomfort and damage that exceeds what is normal and reasonable in neighbourhood relations. As they are typically "one-shot players" who cannot subsequently be "rewarded" or "punished" by neighbours based on their good or bad behaviour, short-term users of homes offered through Airbnb have fewer inducements than long-term users when it comes to exhibiting neighbourly behaviour.

3. The Economic Implications

The sharing and collaborative economy represents a new economic paradigm driven by technologies. The scientific debate around the economic implications of the sharing and collaborative economy converges around issues such as new business models, new challenges for the tax system, productive model changes, productivity growth and labour market changes. In a general approach, we can say that the sharing and collaborative economy could affect the economic dynamics in different scales. Some authors assert that the sharing and collaborative economy could have the same impact on the Western economic model (mainly based on capitalism) as the incorporation of mass production, from the organization of labour to the nature of the social contract in a capitalist society. Therefore, we are in a change of era, a transformation process in which it is difficult to predict future impacts with the evaluation tools used in the past. Other authors state that peer-to-peer business enabled by digital platforms will constitute a significant segment of the economy in the coming years. It is likely that this transition will have a positive impact on economic growth and welfare by stimulating new consumption, by raising productivity, and by catalysing individual innovation and entrepreneurship (Sundararajan, 2013). A very recent piece of research estimates that 70% of Europeans (Apesteguia et al., 2016) and 72% of Americans (Smith, 2016) are involved in sharing economy activities. As stated in a recent position paper published by four European consumer organizations, “although much has been written about the promise of sharing and collaborative economy and its potential benefits, it is a largely under-researched area and relatively little is known about its true impact on society, the economy, and the environment”. The sharing and collaborative economy is accused of eroding labour security and generating inequality. The new sharing economy is "largely based on evading regulations and breaking the law” and subjects consumers to substandard, possibly unsafe products (Schor, 2014). As Codagnone remarks, “a number of potentially positive and negative effects can be identified in digital labour platforms. They can increase the pool of employers and workers by removing barriers and reducing transaction costs, improving matching, increasing human capital specialisation, with potential net welfare effects such as more efficient labour markets and increased employment. This may also increase productivity. However, the distributive effects are less clear, depending on whether there will be a long-tail or superstar effect. On the other hand, bias, frictions and mismatches could counter any positive effects. As they create precarious forms of employment, digital labour markets could also be the source of social risks and costs.

Temporary work can lead to precarisation, blockages to social mobility and wage penalties. In spite of emerging indications, the evidence for these effects is still limited and not conclusive"(Codagnone & Martens, 2016).

Finally, some collaborative economy systems and those who intervene systematically in them have been also accused of evading taxes and even social security payments, which not only undermines the interests directly protected by tax and social security legislation but also distorts competition to the detriment of 'traditional' companies operating in the same sectors that do observe the relevant legislation. Similar criticisms have been made concerning the disrespect shown for the standards established to protect the interests of consumers, users and workers. In a more limited view, it could be argued that the sharing and collaborative economy could affect existing economic ecosystems through three types of shocks:

- New collaborative or sharing projects invent a new business and therefore generate new economic activity. In these cases, the impacts will be focused on how the economic ecosystem would adjust after the shock of a new economic activity. It is in this dimension where we can analyse shifts and pressures to generate a change in the production model. In this sense, the collaborative economy can be a driver for socio-economic development through different types of innovation
- Existing collaborative products or services provided by "traditional" producers. In this case, the new supply will modify the competition conditions of the market and the impacts will be focused on the changes needed to guarantee a fair coexistence. In this case, the main economic impact could be the increase of efficiency in a context where traditional systems of production and consumption imply very high levels of underutilization of certain resources and the overexploitation of others. The case of passenger cars is paradigmatic. It is estimated that they remain parked between 92% and 96% of their useful life and that a surprisingly high percentage of urban land is devoted to this purpose. The new car sharing systems make it possible to reduce these percentages, thus reducing the exploitation of urban land, and have the potential to produce positive externalities in the fight against Climate Change and the de-pollution of our cities, since they meet the same mobility needs with fewer cars and parking spaces. The main demand is a specific legislation that takes into account peculiarities and allows a balanced approach to the multiple legitimate interests at stake, since pre-existing regulations do not always give a clear and proportionate answer to the problems posed by the widespread adoption of these models derived from the possibilities offered by modern information technologies.
- Products offered by traditional economics in regulated or restricted environments. These products would affect collaborative economy activities carried out outside the scope of the existing regulation. Such cases require a different kind of response and thus point to the need for further reflection.

4. Methodology

In this section we describe the methodology adopted to define the business models for the sharing economy. This discussion was based on the existing models proposed in the literature. We started from analysying many models, considering, in particular, the studies about the Internet based business models. Kalakota and Whinston (1997) classify them into two categories: Business-to-Business (B2B) and Business-to-Consumer (B2C). Timmers (1999) identified ten types of business models: e-shops; e-procurement; e-malls; e-auctions; VCs; collaboration platforms; third party marketplaces; value chain integrators; value chain service providers and information brokerage, trust or other services. Weill and Vitale (2001) offer different atomic business models: content provider; direct-to-consumer; value-net-integrator; shared infrastructure; intermediary; VC and whole-of-enterprise. Turban et al. (2002) categorize business model into three different categories: business-to-business (B2B); business-to-consumer (B2C) and consumer-to-consumer (C2C). In Focazio (2001) and Madu and Madu (2002) authors distinguish: Business to Business (B2B), Business to Consumer (B2C), Consumer to Business (C2B), and Consumer to Consumer (C2C). In the next sections we cross the business models provided by Turban et al. (2002) with the three dimensions (Platform Type, Transaction and Business Approach) that characterizes the sharing economy.

5. Business Models in the Sharing Economy

Being successful in the sharing and collaborative economy means building business models based on features such as trust, authenticity and transparency with your customers. Business models represent the core aspect of any company; they involve "the totality of how a company selects its customers, defines and differentiates its offerings, defines the tasks it will perform itself and those it will outsource, configures its resources, goes to market, creates utility for customers, and captures profits" (D'Andrea et. al., 2011).

In Chaharbaghi et al. (2003) three interrelated strands that form a business model have been identified:

"characteristics of the company's way of thinking, its operational system, and capacity for value generation". Despite their generality, these three elements can be brought to a more specific level. For instance, the features of the company's way of thinking essentially pertain to a strategic dimension, while the capacity for value generation can be considered from a resource-based perspective. In Kaplan & Norton (2004), the authors provide a useful framework for analysing businesses as profit models. The framework is based on a long tradition of classifying firms into "internally consistent sets of firms", referred to as strategic groups or configurations.

These groups are often used to explore the determinants of performance (D'Andrea et al., 2014). The "traditional" business models present an important disadvantage; they are limited by the ways customers can be reached (D'Andrea et al., 2015). Companies developed a mailing list, a brochure, a radio/television/print message that spoke to what the company believed was a typical potential customer, but often, these communications would mainly be focused on explicating the products or services the organization offered rather than being focused on the needs, and therefore, on customer benefits (Ferri et al., 2012). Moreover, the organization was offering the communication to everyone in the market in the hopes of reaching their target.

With the advent of Web 2.0 technologies, a new generation of business models for the sharing and collaborative economy has been developed. With these "new" business models, companies have the possibility of using market segmentation more effectively than ever before. Within these new business models, collaborative consumption is "made by the activities of sharing, exchanging, and rental of resources without owning the goods. This sharing economy began to spread widely by sharing the unused resources between individuals"1.

The type of resource was extended to intangible services and the products/objects that can be shared among companies (Business2Business - B2B) or between companies and consumers (Business2Consumer - B2C) and among consumers (Consumer2Consumer (C2C) (Cho et al., 2013).

In a study conducted by Rozin (2004), the sharing economy between companies (B2B) was defined as "collaborative activities to lend unused goods and services, which are expected to be in excess if individual companies own them, owned by a company to another one, or to invest and use the goods and services jointly with another company". Lately, this model has attracted growing interest from researchers and managers. Rozin (2004) analyse the processes and methodologies to create a global B2B brand, describing the B2B marketing strategy and using the customer's learning perspective. Recent years have seen a growing interest in research on B2C models. An important aspect is the understanding of consumer online buying behaviour in the initial and post-acceptance stages (Ferri et al., 2013; Guzzo et al., 2015, 2016). Moreover, a key element for adoption is that generally, people tend to rely on the opinion of those who are considered leaders or experts in a particular field. Furthermore, a positive testimony of other users about the products or services they would like to buy, rent or exchange is a strong persuasive element that contributes to the promotion of the sharing and collaborative economy (Ferri et al., 2008). This phenomenon is called "social influence"; it refers to changes in a person's behaviour after an interaction with other people, organizations and in general with society (Guzzo et al., 2014). Many studies have shown an increasing interest in customer retention in B2C models from diverse perspectives (González, 2003).

Finally, C2C models include any transactions among consumers. Current studies in the C2C field are not as extensive as the studies in B2B and B2C fields. There is a need to develop new sharing economy models that take C2C into consideration. The business models that are emerging from the sharing economy are most interesting in terms of the new markets they offer to the end-users. Business models can include different platform types (business to business, business to consumer and peer-to-peer markets) related to different kinds of transactions (market, alternative and hybrid). According to the platform and transaction type, different business approaches can be identified: profit-driven, hybrid and mission-driven (see Figure 1). We adopted the definitions of market, alternative and hybrid transaction as given in https://www.shareable.net/blog/whats-a-%E2%80%9Cresponsible-sharing-economy-startup%E2%80%9D.

1 http://climatekoti.re.kr/kboard/user/kboard_display_main.php?abstraction=&mode=view&num=70spage=1&gasi_name=%&gasi_code=board&key1=&key2

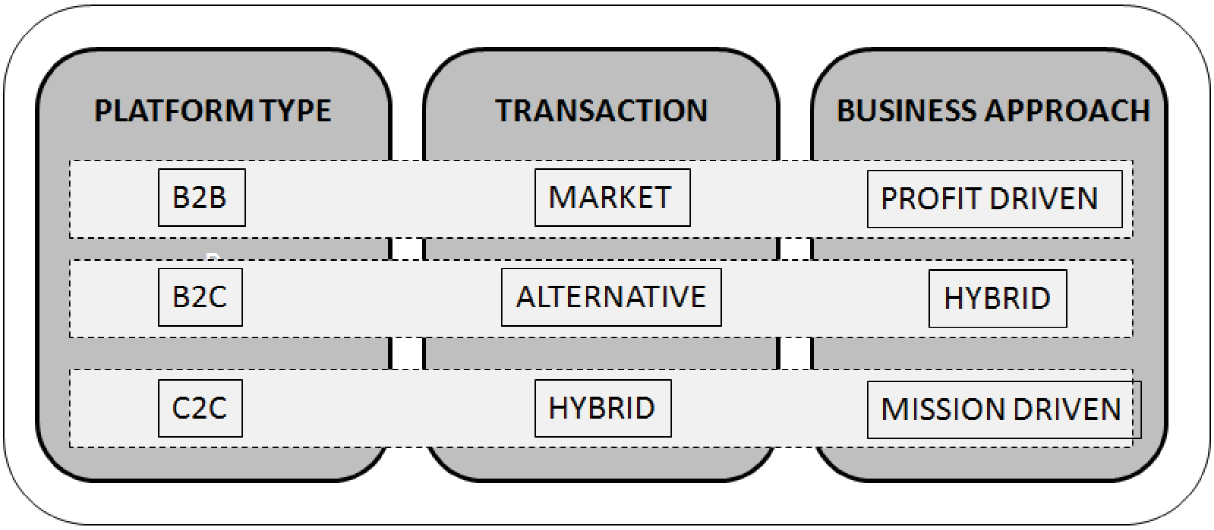

Figure 1. Components of sharing economy business models

The sharing and collaborative economy business models are set up to support collaboration between companies (B2B) to develop common strategies and find suitable business partners to accept or assign profitable orders. B2B platforms can help companies perform more efficiently and enhance their internal operations, cooperating expeditiously to generate market transactions according to a profit-driven business approach. These platforms allow companies to ensure the movement of the supply chain and the manufacturing/procuring processes.

The platform can also target the consumer. This is the case B2C platform types, developed to support companies, which perform direct sales on the Web. The B2C market is used to acquire and retain new customers with alternative transactions (sale, transfer or other disposition, directly or indirectly, including through an asset sale, stock sale, merger, amalgamation, plan of arrangement or other similar transactions) that reduce marketing costs. The aim of B2C platforms is to create alternative market transactions according to a hybrid business approach that boosts sales figures and enables cost-effective market segmentation and analysis. The main advantages of B2C platforms mainly consist in the reduction of both transactions costs and market entry barriers. Moreover, B2C platforms allow instant communication, worldwide accessibility, personalized products and services, adaptability and cooperation. However, the implementation of B2C platforms also presents disadvantages such as the reorganization of business processes, management transformation, credibility gap between technologies and business requirements.

Finally, the value proposition of C2C platforms consists in facilitating e-transactions between two consumers, where one consumer offers or sells something to the other one (https://www.heropay.com/glossary/ecommerce/). While the seller needs to pay a fixed fee to sell their products, the buyer can bid without paying any fee (hybrid). The business approach is mission-driven and is aimed at introducing and normalising social practices based on values such as collaboration, sharing, improving the connection with a community. In C2C platforms, sellers can post their personal items on the Internet cheaply compared to the high cost of storage space rental. Another benefit is that many small businesses can obtain a higher profitability over a C2C platform compared to a physical store due to the reduction of overhead costs when conducting e-business transactions. As for the disadvantages of C2C platforms, they are related to credit, payment and distribution. At present, most Internet users worry about the security of electronic payments. These different platforms have become so successful that they have started to disrupt the traditional markets. Beyond the implications for businesses, the sharing and collaborative economy could assist with broader societal change and increase the resilience of communities. The most widespread business model deployed by sharing and collaborative economy companies features an online marketplace through which the demand for certain assets or services amongst peers is matched with the ownership of those assets and services by other peers.

The next sub-section discusses some examples of B2B, B2C and C2C platforms apartment/house renting, couch-surfing, car sharing and ride sharing, co-working, reselling and trading). The benefits and weakness that characterise each of them are described in detail.

Apartment/House Renting

Renting a house or apartment through an online community marketplace is an alternative to home ownership due to financial or time constraints. The basic idea behind this model is to connect people looking to rent their homes to people who are looking for accommodation. The new element is the speed and the scale at which the business model, together with the development of high-speed Internet, has made short-term home rentals possible. The essential elements of apartment/house renting are shown in Table 1.

Table 1. Benefits and weakness of apartment/house renting platforms

ESSENTIAL ELEMENTS OF APARTMENT/HOUSE RENTING		
APARTMENT/HOUSE RENTING VIA ONLINE COMMUNITY MARKETPLACE	BENEFITS	WEAKNESSES
✓AirBnB ✓Wimdu	✓ Profitability ✓ Flexibility	✓ Property will get damaged

Examples of renting apartment/house through an online community marketplace are the following:

- AirBnB[2] (B2C) is essentially an online platform through which ordinary people rent out their spaces as accommodation for tourists.
- Wimdu[3] (B2C) is an online platform based on peer-to-peer property rental that advertises properties (from single rooms to full apartments) for short-term lettings.

These online marketplaces vary widely, ranging from a living room futon to an entire island (D'Andrea et al., 2011), but typically involve a private room or an entire apartment or house (Guttentag, 2015). It has contributed to a significant decline in the number of traditional travel agencies, which have been forced to focus more specifically on complex and higher-end purchases (Bachman, 2013; Candela & Figini, 2012; Juman & Quinby, 2013; Shaheen et al., 2001). The reason can be found in the advantages that this new form of renting apartment/house offers. The first is profitability; the online platform gives homeowners the possibility of renting their apartment/house for a short or long period of time without having to go through long administrative procedures. Closely linked to this is the possibility to choose the dates when homeowners want to rent out their accommodation (flexibility). Moreover, they have the freedom to choose who they rent the properties to. Another important advantage is the social aspect; in fact, hosting can facilitate the building of new friendships. Despite the benefits, there are concerns for hosts and guests. The greatest risk for hosts is that their property might get damaged. While most transactions occur without incident, there are stories of entire houses being trashed by dozens of party-goers when the online community marketplace hosts thought they were renting to a quiet suburban family, or an instance when a host came home to find his property had been damaged, items had been stolen and the place was littered with meth pipes. The main concerns for guests might be that the property does not match the description or that the host is unresponsive to their needs. Both hosts and guests can help minimize the risks by using online community marketplace features such as Host Guarantee, profiles, reviews, Verified IDs, secure payment and messaging functions.

CouchSurfing

CouchSurfing is a C2C community of over 5 million members in 97,000 cities around the world that connects travellers and locals who meet offline to share cultures, hospitality and adventures – whether on the road or in their hometowns. The idea of CouchSurfing is to bring together people from all nations of the world to promote the sharing of culture and thoughts by offering free accommodation with the bonus of the member's company and tips. The essential elements of CouchSurfing are shown in Table 2.

[2]https://www.airbnb.it/

[3]http://www.wimdu.it/

Table 2. Benefits and weakness of CouchSurfing platforms

ESSENTIAL ELEMENTS OF COUCHSURFING		
COUCHSURFING PLATFORM	BENEFITS	WEAKNESSES
✓CouchSurfing	✓ Free accommodation ✓ Meet new interesting people ✓ Live local hangouts	✓ Fear for physical safety or personal possessions ✓ Rules to follow ✓ Housework

CouchSurfing provides the opportunity to meet with them, share life experiences and have fun and laugh. Learning about other cultures allows guests to become more tolerant towards other nationalities and gain personal knowledge: “when you get to experience personally you can grow as a person[4]". The possibility of having a temporary home away from home without monetary exchange is the fascinating aspect of Couchsurfing. Closely linked to this is the advantage to meet new interesting people, which allow guests to learn more about the culture and traditions of different places. Another important advantage is the possibility of living the local hangouts (the best restaurants, the pubs with the most "vibe") and visiting places that wouldn't make it into tourist guidebooks. Travelling is not only about ticking off all the historical sites listed in the guidebook, but also to experience different cultures, try new food and see how others go about their day to day lives. Obviously, there are a number of cons. One of the biggest ones is that people really don't know anything about where they're staying or who they're staying with. This can generate fears for physical safety or personal possessions. Moreover, the accommodations may not be as nice as initially presented (room may be small or the couch may be uncomfortable). Another disadvantage is that guests have to follow any rules set by the host. Some hosts give guests all the freedom and give them a key to let themselves in and out. Others have certain times by which guests have to be in and out of the property and certain rooms they're not allowed to use. Some hosts may also require guests to do housework (washing the dishes or cleaning the room).

Car sharing and ride sharing

Car sharing and ride sharing are new phenomena in the current economy. These examples of sharing economy aim to provide all the benefits of car ownership at a lower cost than traditional car rental or taxi services. They are prevalent in American and Canadian cities. The basic idea of car sharing is renting a car for short trips; car sharing organizations charge by the minute or by the hour, period after which the vehicle will be available for another driver. Car sharing allows drivers to find a car for their specific short-term needs. People can enjoy the advantages of private cars without the costs and responsibilities of ownership (Costain et al., 2012).

By using some services like Car2Go (B2C), it is possible to commandeer a shared vehicle, owned by a for-profit or non-profit organization, and pay for the driving time. Costain et al. in (Cohen et al., 2008) found that car sharing in Toronto was often used for off-peak travel or during weekends due to the reduction of public transportation and low traffic congestion. The concept of ride sharing is similar to the idea of a taxi. By using apps like Uber (B2C) and Lyft (B2C), it is possible to hail a ride from drivers in their personal cars.

[4]http://www.couchsurfing.org/about.html/mission. Quoted: 05.11.2011

Table 3. Benefits and weakness of ride sharing and car sharing platforms

ESSENTIAL ELEMENTS OF RIDE SHARING AND CAR SHARING		
RIDE SHARING AND CAR SHARING PLATFORMS	BENEFITS	WEAKNESSES
CARSHARING ✓Car2Go ✓ Lyft **RIDESHARING** ✓Uber ✓ Lyft	✓ Saving money (monthly payments, gasoline, oil changes and maintenance, parking and insurance). ✓Reduction of air pollution and energy dependency ✓Reduction of parking infrastructure and road expansions ✓Improvements in personal health due to an increase in biking and walking	**CARSHARING** ✓ Property -Too much planning ✓Need to book ahead of time ✓Location: access-related issues. **RIDESHARING** ✓Liability (additional insurance needed) ✓-Lack of guarantee of car availability.

Several studies have analysed the costs and benefits of car sharing (Cervero & Tsai, 2004; Huwer, 2004; Katzev, 2003; May et al., 2008). These studies found that ride sharing and car sharing eliminate the fixed cost associated with auto transport (e.g. purchase, registration, insurance) and reduce costs related to public transport (taxi or car hire). This new way of commuting is very useful for occasional drivers. Other benefits are the reduction of the number of cars on the road and the need for parking spaces, which can then be used to develop parks and urban green spaces (Merkel, 2015). There are also health-related benefits because people who frequently use ride sharing and car sharing tend to sell their own cars and switch to biking and walking. Depending on the circumstances, both ride sharing and car sharing can be used for commuting. However, if people live in a small town or rural area, vehicle sharing does not offer as many advantages.

There are some weaknesses in this form of sharing economy. For example, car sharing requires a lot of planning. Some people think that this process takes a lot of time and tend to look for other solutions. Additionally, the demand is high and a sometimes car sharing services are not able to satisfy all the requests, which means that it is necessary to book ahead of time. This is a disadvantage for drivers who want immediate solutions and leads clients back to car rental. Other concerns are related to location, because sometimes car sharing services are far from the clients or difficult to reach. The limitations of car sharing are at the same time the strength of ride sharing. Among the risks associated with ride-sharing services is the issue of liability. For example, if there is an accident, people in the car may be held liable for it. To avoid this type of complications, service users take out additional insurance. Another disadvantage is the lack of guarantee that a car will be available when it is needed; for example, it is difficult to find available cars on rainy days or during rush hour.

Co-working

Co-working spaces are becoming a new horizon of urban centres. They make possible to spread overhead costs among hundreds of workers in different fields. With the financial crisis of 2007/2008 and the subsequent global recession, several collaborative, shared working spaces, called co-working spaces, were born worldwide (DeBare, 2008). This tendency represents a way to share the costs of one big office space with other freelancers or entrepreneurs with perks that they might not get at home, such as conference rooms, espresso machines, phone lines, Wi-Fi connections and spaces for creating opportunities for socializing (Leforestier, 2009). Several cities have at least one co-working hub. Examples of co-working spaces are the following:

- Minneapolis-St. Paul's COCO[5] (B2B) is a destination for building ventures and exploring new possibilities in the company of other creators. It offers the membership that provides access to multiple co-working locations, meeting venues and educational and social events.

[5] https://explorecoco.com/

- Chicago's The Coop[6] (B2B) is a co-working space in downtown Chicago that is open year-round. It hosts freelancers, designers, small businesses and start-ups.
- Austin's Link Co-working[7] (B2B) holds twenty offices of varying sizes, from one-person rooms to 15-people suites. It has common spaces, including a kitchen and a hangout spot. It offers open plan co-working, small meeting room spaces, conference room rentals, office space, dedicated desk space and event space.

Table 4. Benefits and weakness of Co-working platforms

ESSENTIAL ELEMENTS OF CO-WORKING		
CO-WORKING PLATFORMS	BENEFITS	WEAKNESSES
✓Minneapolis-St. Paul's CoCo ✓ Chicago's The Coop ✓ Austin's Link Co-working	✓ Free -Low cost work environment ✓ Mutually beneficial partnerships ✓Brings together complementary talents	✓ Fear Money ✓Noise ✓Wasted time ✓Transport ✓Being presentable

This kind of sharing economy has several advantages for workers. Firstly, it contributes in providing an atmosphere that encourages social interaction, giving them the opportunity to meet potential partners, future collaborators and technical experts; moreover, the emotional intelligence is increased just by working together. Workers can benefit from a friendly and collaborative environment to foster their innovation and creativity (Lonoff Schiff, 2014). In addition, co-working allows impoverished start-ups to have a workplace (e.g. a desk). Freelancers and professionals can work in a dynamic environment at a relatively low cost. Costs are significantly lower than those of a small office. In some cases, these spaces also work as accelerators for exciting start-ups. There are also some disadvantages; in fact, co-working spaces are not as quiet as private offices and interruptions can always happen.

Reselling and Trading

Reselling and trading refer to forms of sharing economy that use popular marketplaces for goods, such as eBay, Craigslist and Kidizen. Sellers can obtain value from things that they do not use and buyers obtain goods at a lower cost. People can sell anything on eBay by just setting up an account, taking some pictures of the item and listing it. Another user can find the item, bid for it and buy it directly. There are other popular online auction sites where users can sell peer-to-peer (eBid.net, webstore.com, onlineauction.com, ePier.com). An example of B2B platform for professional sellers is Amazon Business. The difference among these sites is the listing fees (the prices paid to sell something). Examples of reselling and trading platforms are the following:

- eBay[8] (B2C)
- Craigslist[9] (B2C) is a classified advertisements website that includes sections for personal ads, housing, jobs, and gigs, resumes, for sale, items wanted, services, and discussion forums. It started out as a small email list by Newmark, who had just moved to San Francisco.
- Citizen[10] (B2C) is an online marketplace for used children's toys and clothing.

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[6]http://coop.onedesigncompany.com/

7http://www.linkcoworking.com/about/

[8]http://www.ebay.com/

[9]https://www.craigslist.org/about/?lang=en&cc=gb

[10]https://www.kidizen.com/

[4]https://services.amazon.com/amazon-business.html?ld=usb2bbslpsubnav

- Amazon Business[4] (B2B): allows professional sellers to have a targeted way to reach business customers on Amazon. “With a full suite of tools to enable B2B ecommerce, small businesses to large enterprises will find new ways to engage professional customers in supply chain relationships”.

Table 5. Benefits and weakness of reselling and trading platforms

ESSENTIAL ELEMENTS OF RESELLING AND TRADING		
RESELLING AND TRADING PLATFORMS	BENEFITS	WEAKNESSES
✓Mi eBay ✓Craigslist ✓Kidizen ✓eBid.net ✓ webstore.com ✓onlineauction.com ✓ePier.com ✓Amazon Business	✓ Save money and time ✓Save fuel and energy ✓Wide choice and price comparison ✓Availability	✓Delivery delays ✓-Costs and returns ✓-Taxes and duties ✓-Buying more than needed

Dozens of e-commerce business owners share the major advantages and disadvantages of selling via Amazon, eBay, Etsy (https://www.cio.com/article/2836077/e-commerce/pros-and-cons-of-selling-on-amazon-ebay-and-etsy.html). Prices are usually cheaper on the web because there are no warehouse or staff costs. It is more convenient because people can sell at home, quickly and at a convenient time. In online shopping, there is a wide choice of products from all around the world, some of which cannot usually be found in traditional outlets. Furthermore, it is possible to easily check prices and compare them with other sites with just a few clicks. Another benefit is the availability; most internet sites offer delivery within a few days. There are also some disadvantages to online reselling. Customers can experience delivery delays since some sites still use traditional carriers. Sometimes taxes and duties for goods outside the European Community are expensive and the goods are not as cheap as they seem. Also, returning a purchase can have an added cost. Finally, there is the risk of shopping addiction. It is very easy to buy and spend more than intended.

6. Regulatory Implications of the Sharing Economy at National and European Levels

The economic, environmental and social effects of the sharing economy will depend on institutional changes still to come. Institutions do not only regulate activities on sharing platforms but also shape the future development of the socio-technical infrastructure that emerges as the sharing economy scales up (Frenken & Schor, 2017). Since its inception, the EU has been in favour of the collaborative economy. In “A European Agenda For The Collaborative Economy” (European Commission, 2016), the Commission refers to the benefits that digital platforms can bring to Europe, highlighting the importance of ensuring that these platforms guarantee "fair working conditions" and remembering that they are also subject to "fiscal regulations". In fact, Neelie Kroes, Vice-president of the European Commission and European Commissioner for Competition between 2004 and 2009, has said that the emergence of digital platforms is an unstoppable process that means greater economic efficiency, adding that going against them is a mistake. Many authors have concluded that the current regulatory framework is not fit for purpose (e.g. e-Commerce Directive). Codagnone underlies that there is a debate between proponents of self-regulation who argue that formal regulation is costly and serves to protect vested interests and the proponents of extending the reach of formal regulation to sharing platforms in order to correct market failures that private parties cannot overcome on their own. The regulatory debate and the policy responses to the challenges posed by some sharing economy platforms are very fragmented in the EU (Codagnone & Biagi, 2016). Thus, the question that arises is how and to what extent EU rules apply to the sharing economy and whether the impact of EU law is to increase or, on the contrary, to decrease legal certainty in this field. It is certain that the EU could, through harmonization or otherwise, override national disparities and help create an internal market for collaborative economy. (Hatzopoulos & Roma, 2017) Placing the phenomenon of the sharing economy in a legal framework is a difficult process due to its diversity, heterogeneity and propensity for change. This calls into question a number of regulatory matters and poses new questions for European-level regulators. The normative regulation of the sharing economy seems like an obvious area that can confer benefits. However, currently the European debate on normative regulation of sharing economy services is very fragmented; there are those radically against any intervention (Cohen & Sundararajan, 2015; Koopman et al., 2015), those who are in favor of some form of regulation (Cannon & Chung, 2015; Gobble, 2015; McLean, 2015; Ranchordas, 2015; Rauch & Schleicher, 2015; Sunil & Noah, 2015; Zrenner, 2015) and those that propose very rigorous interventions such as transportation services (Daus & Russo, 2015) or taxes (Oei & Ring, 2015). This deregulation can lead to serious problems for companies growing and operating across European borders. In order to solve these problems and to develop a normative regulation of the sharing economy at European-level, several major issues need to be addressed (Munkøe, 2017):

- **Employees/contractors**: the first crucial issue to solve is whether sharing economy providers are considered as employees or independent contractors. This is an important issue because employees have certain rights with regards to working conditions that are not considered for independent contractors.
- **Business entities/private individuals**: if the provider is a business entity it can meet numerous administrative and regulatory requirements. So if the sharing economy provider is an independent contractor, it is important to consider whether and under what conditions it has to be considered a business entity rather than a just private individual.
- **Contractual relationship**: another range of questions is about the contractual commitment between somebody (business entities/private individuals) that uses a sharing economy platform and the service provider.
- **Insurance**: some degree of trust can be established between strangers; in this sense sharing platforms have to guarantee their users against mishaps.
- **Taxation:** incomes from sharing services have to be declared and taxed; authorities have to find ways for ensuring proper oversight of these income streams.
- **Externalities:** a major problem is also represented by the negative externalities. In most cases, the temporary citizens are tourists that tend to be noisier than permanent residents.

In this perspective, in June 2016, the European Commission presented a guidance to support consumers, businesses and public authorities in the collaborative economy. The Communication "A European agenda for the collaborative economy" provides guidelines on how existing EU law should be applied to this dynamic and evolving sector. The main points of these guidelines are:

- **To harmonize the rules of the EU countries:** the aim is to harmonize the rules of the EU countries in order to have legislation in this field guided by common rules and objectives. In fact, some services like Uber have been accepted in the UK, while in other countries have been oppressed. The guidelines harmonize the various national rules facilitating companies that have to address 28 different national laws.
- **To minimize the prohibitions to services like Airbnb:** Brussels has criticized some measures, such as those designed by Berlin forbidding citizens to offer for rent the whole house Airbnb or similar services without prior authorization by the city administration and underlines the importance of minimizing the ban on services like Airbnb.
- **Days limited to rents of houses:** the Commission is in favour of soft measures, such as the introduction of limits on the number of days in which people can give for rent their own apartment or a room on sharing sites like Airbnb. Restrictions are necessary for the uncontrolled increase in rents of which it was accused the platform.
- **The Uber drivers as employees.** This is one the most debated point among the actors of sharing economy that must be solved. According to European Commission, it is not a commitment of Uber to set tariffs for its employees, otherwise, they would become real employees, and therefore would need to sign an employment contract with them, with all the additional costs for the company.
- **Okay for the rating to increase customer confidence.** Brussels is in favor on the issue of the rating, the mechanism that many platforms use to increase customer confidence. It is the same used by Uber for drivers that more are rated by customers; more are reliable and higher is their rankings.

Moreover, business authorisations or licenses should be requested only where strictly necessary and not for example where platforms act as intermediaries between consumers and those offering the service. Member States should also differentiate between people providing occasional services and providers acting in a professional capacity by establishing thresholds based on their activity. Service providers and platforms have to pay taxes like:

tax on personal income, corporate income and Value Added Tax. Member States are encouraged to simplify and clarify the application of tax rules. The EU Member States should review and revise existing legislation according to this guidance. In response to the growing importance of the sharing economy, several European member states have looked for normative regulation of the sharing economy.

Within the "open DOORS" project four European countries are involved: Italy, Spain Croatia and Slovenia. In the following section examples of normative regulations of these countries are illustrated.

Italy

Italy is the country that has the major number of users and people aware of what is the so-called "sharing economy. The development of the sharing economy activities and projects, inspired by the collaborative economy principles, is a task of the "Sharing Italy" an Italian Sharing Economy Association (AISE) founded in 2014. The AISE offers several services for educating enterprises and workers to the use and diffusion of sharing economy solutions.

At the normative level in March 2016, the Innovation Parliamentary Intergroup presented a law proposal (the Sharing Economy Act) at the Chamber of Deputies of the Parliament, aimed at regulating the sharing economy activities. The basic idea of this law proposal is "to share goods and services, but in some cases, it has become a real business, which has to be regulated in order to protect the already existing sectors in the market". This law proposal states that all platforms have to sign up to a sharing economy registry and provide documents for the AGCM's (competition authority) approval. Another key point is the introduction of tax rates. Article 5.1 of this bill states that the incomes up to 10 thousand euros will be named as "non-professional income deriving from sharing economy" and will be taxed at a 10% rate. Incomes over € 10,000 will be cumulated to autonomous or dependent working incomes, and will be taxed according to the relative tax rate. These quotas will be paid to the authorities as taxes. This allows a distinction between amateur and professional operators respecting the criteria suggested by the EU Commission.

In Italy, a strong and intense debate on the Uber application there was which led to a sentence of the Milan Tribunal affirming the illegality of UberPop. UberPop is not officially legal and it is considered not enough safe for users. Uber services have been criticized by regular taxi drivers due to a highly increased competitiveness. Rules in Italy establish that "Uber taxi drivers cannot stand in the streets and take random passengers looking for a lift, but they have to wait in arranged areas and agree by phone for the service, before taking them in the car".

Spain

In Spain, an association of sharing economy companies has been established "Sharing Espana", composed by 26 members including international ones such as BlaBlaCar and Airbnb, and also local initiatives such as SocialCar and Chicfy.

The current normative regulation of the sharing economy is determined by law 5/2011 of 29 March on Social Economy that establishes "a common legal framework for all entities in the social economy determining building measures for them". In December 2014, Uber has been banned nationally and is now trying to re-enter the Spanish market by working with drivers who carry a valid professional VTC license. In 2015, Blablacar was sued by bus companies that claimed that its drivers should be considered as commercial enterprises. In 2015 it is of major importance also the law 43 of the 9 October, which regulates the organizations of Third Sector of Social Action considered as the interlocutor with the central government. The law defines "building measures those public authorities can take on their behalf". In March 2016, the Spanish regulator (CNMC) published preliminary results of a study on the collaborative economy that recommend eliminating some "unnecessary restrictions" such as "unnecessary or disproportionate quality and security requirements" limiting the development of the collaborative economy. Some important eliminations concern: "limits on the total number of vehicles, restrictions on the territory covered by the licenses, the introduction of disproportionate amounts of compulsory insurance coverage, compulsory working hours, limited numbers of licenses per person, a ban on having different drivers per license, the need for an administrative authorisation for hired car with driver activities, and prohibitions for looking for clients in the streets". Concerning the vacation rental sector the elimination of limits concern "the prohibition on renting permanent residences or single rooms, the use of a moratorium to postpone the introduction of new apartments, the obligation to include the apartments in a registry, a minimum and a maximum number of days for renting, and limits according to the type and location of the apartment" According to the document, a users' reputation is very important in the sharing economy, in fact, it allows reducing the asymmetric information between the company and the customer. For this reason, heavy regulations for taxis and hotels are not needed.

Croatia

In Croatia, the government of the Republic of Croatia accepted, on the 30th of April 2015, the Strategy for the Development of Social Entrepreneurship 2015 – 2020 that represents a focal point for all interested stakeholders wishing to form any organization. The legal forms of social enterprises can be: limited liability public company, limited liability private company, institutions cooperative, associations, foundations, credit union and mutual insurance company. Various activities are performed within these social enterprises such as cultural, intellectual, tourism, production, agriculture, etc. The work towards social enterprises development is complemented further by state institutions contributing to the development of public policies such as the Ministry of Social Policy and Youth, the Ministry of Labour and Pension System, the Ministry of Business and Trade and the Government Office for Cooperation with NGOs.

Regarding sharing economy related to transportation, Uber officially arrived in Croatia October 2015. In this country, Uber had no problems related to bureaucracy and perceived resistance from local taxi services, by working diligently to make its service legal in Croatia. UberPop, a service that allows owns a car to be an Uber driver, is not available in the country and it is illegal. UberX instead which only employs licensed drivers is legal.

Slovenia

The normative regulation in Slovenia presents different problems for sharing economy services mainly with respect to the tourist accommodations. A number of Slovenian laws regulating tourist accommodations are adverse to the Airbnb idea of offering accommodations to travellers. In particular, the major problems Slovenian providers are facing through Airbnb are the registration of activity and taxable rents. A proposal for modernisation of regulations suggest a simpler registration of apartments, electronic registration of guests, and electronic payment of tourist taxes, plus suspension of the time limit of five months a year (http://www.rtvslo.si/news-in-english/airbnb-in-slovenia-when-rigid-rules-hinder-occasional-business/360416).
The first response of the Ministries (Economy, Interior, Finance and Public Administration) to their initiative is encouraging. They are all in favor of the solutions which would facilitate this activity through Airbnb. On considering Uber, it wants to launch two services in the Slovenian: Uber Ljubljana the first in the world to offer rides in electric cars, and UberX, the most common service in Europe. However, the country has to update its legislation before Uber come to Slovenia. In fact, the existing one does not support Uber's business model and the Infrastructure Ministry is changing the road transport act. European Commission's recommendations on sharing economy will be taken into account when drafting the changes. According to Uber's Central and Eastern Europe director Rob Khazzam in Slovenia, only licensed drivers who will pass Uber's training will be able to drive the company. Users will call a ride via its platform with the app will calculate the cost of the ride and payments will be made with a card to prevent tax avoidance.

7. Discussion and Conclusion

The sharing and collaborative economy is a complex concept that appeared at the end of the 20th century and has recently become the subject of a deep social, political and academic debate. The discussions, often very controversial, focus on aspects such as its definition and classification as well as its economic and regulatory/legal dimensions. These debates range from the consideration of the sharing economy as a new disruptive paradigm that can deeply transform the economic and social model of world capitalism, to the perception that it is a new neoliberal adaptation that puts at risk the working conditions, the protection of consumers and the equality on which the European social model is based. However, there is no doubt about its growing economic importance. According to recent studies, economic activities linked to the collaborative economy show growth rates much higher than those shown by other economic sectors. Some estimates suggest that in 2015 sharing economy generated a stunning $15 billion in revenue and it “is expected that in 2025 more than $335 billion in revenue will be generated by the main industries in the sharing economy” (PwC, 2015).

Being successful in the sharing economy means for companies building business models that are based on features such as trust, authenticity and transparency with customers. The sharing economy business models are set up first and foremost to support supply collaboration between companies (B2B) to develop common strategies and find suitable business partners in order to accept or assign profitable orders. B2B platforms help companies to perform efficiently and enhance the internal operations, cooperate expeditiously for creating market transaction according to a profit-driven business approach. The advantage of these platforms is that they allow maintaining the movement of the supply chain and the manufacturing/procuring processes. An important disadvantage refers to their practical use, in particular, linked to the capacity of the market to adopt new technologies; in a market, where companies do not use new technologies, the application of B2B platforms is complicated and does not enhance the efficiency of business operations. Some examples of sharing economy business models (apartment/house renting, couch-surfing, car sharing and ride sharing, co-working, reselling and trading) are discussed in the paper underlining benefits and weakness that characterise each of them. Moreover, a discussion on policies and regulatory/legal issues are provided.

8. Limits and Potential Future Research

The paper proposed only a part of the study carried out in the "open DOORS" project analysisng the business models and the normative regulations of European countries involved in the project. The analysis of the business models can be improved in future researches on the basis of the geographical scale, considering experiences and platforms used at local, national and transnational level. Moreover, in the paper examples of normative regulations of some European countries (Italy, Spain Croatia and Slovenia) are being discussed. Member States are encouraged to simplify and clarify the application of tax rules. The EU Member States should review and revise existing legislation according to this guidance. Therefore, a discussion on the normative can be extended from the countries involved in the case studies of the "open DOORS" project to Eropean level. This will allow facing some important challenges such as:

- bringing back the debate around the justification or elimination of entry barriers and the liberalization of certain economic sectors (such as the taxi sector) involving the sharing economy concept and its different actors. For this reason it is necessary to define new policies, new regulations and new approaches which engage the different actors of society.
- providing services that were previously unknown and therefore need to be analysed in depth. Since this is an enormously complex task, it is essential to differentiate between the uses that suppliers make of these platforms, whether they are intended to generate savings, profit or to improve the socialisation and sustainability by the environmental point of view.

It is important to have in mind that the core of the sharing economy is that different people are in touch building networks. For this reason "open DOORS" project decided to create the MedShare Network for Sharing and Collaborative Economy in the Mediterranean Area "to contribute to a smarter, more sustainable and more economically and socially inclusive European Union" (https://open-doors.interreg-med.eu/news-events/news/detail/actualites/valencia-declaration-on-sharing-collaborative-economy/).

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Liquidity Issues in the Banking Sector from an Accounting Perspective

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Abstract

The recent financial crisis highlighted the inability of financial markets of being always able to cope with the liquidity needs of banks. This gave rise to a great attention to the issues related to the liquidity in the banking sector.

Stakeholders interested in assessing the liquidity profile of a financial institution can rely on data provided through its financial statements. This demonstrates the strong influence that the accounting discipline can have on it. Accounting standards can play an important role in depicting the liquidity profile (and the associated risk) of an entity, as they contribute to produce information useful to predict timing, uncertainties and amounts of its future cash flows.

The objective of this theoretical study has been to investigate the contents of the IASB Conceptual Framework and of some of its standards, i.e. IAS 7, IFRS 7, IFRS 9. In particular, the aim of the analysis has been to verify if the financial information requested by the regulation is adequately useful and relevant in order to assess the liquidity profile of a financial institution. In our opinion, the IASB discipline still presents some deficiencies on this aspect, in particular for entities operating in the banking sector.

Keywords: bank, business model, cash flows, disclosure, liquidity, financial instruments, measurement

JEL: M40, M41

1. Introduction

Before the recent financial crisis, market players used to neglect the importance of the risks connected to the liquidity. Indeed, it was customary to think that liquidity needs could be easily addressed by recurring to well-developed capital markets. Consistently, even regulators for the banking sector did not provide a common framework concerning the liquidity and the liquidity risk. The latter was not even taken into consideration as an autonomous risk in the Basel II Framework (BCBS, 2004).

In spite of that, the recent crisis revealed the deficiencies of that approach and the effects that a liquidity shortage could produce on single financial institutions as well as on the whole economy. These effects were even greater for the banking sector, whose prevailing activity still consists in collecting and deploying funds. Banks traditionally collect resources through deposits or bond issues. They use these capitals to provide funds to customers or to invest in securities portfolios with the dual purpose of generating financial revenues and to establish cash reserves, according to the *deposit-funded model*. Alternatively, banks can get cash resources through the process of securitization of receivables. This can be done by recurring to special purpose vehicles, according to the *market-funded model* (Mottura & Paci, 2009). Additionally, the evolution of the banking business, from an Originate To Hold (OTH) to an Originate To Distribute (OTD) model ([i]), made the business of a bank even more complex.

As a consequence, market players started seriously worrying about issues related to the liquidity. Indeed, it was revalued as being essential for preserving the stability of the entire financial system as well as the reliability of single institutions. For entities, for example, the greater is the liquidity, the greater is the possibility to adapt to unexpected needs and opportunities becomes. A condition of illiquidity, on the contrary, prevents the possibility to regularly carry out any activity.

These circumstances highlighted the need for a regulation. Unfortunately, however, the liquidity is not an easy notion to define and, hence, to regulate. First of all, a distinction has to be introduced between the endogenous and the exogenous liquidity concepts (Banks, 2014). The *Endogenous Liquidity* refers to the aspects specific of an institution and mainly within its direct control. A company can reasonably manage its endogenous liquidity by analysing its liquidity profile and assuming appropriate choices regarding the structure of assets' portfolios and securing liabilities. This concept of liquidity affects both the management and the financial reporting perspectives of a bank. The liquidity profile of a company changes every day and, as a consequence, managers need information in order to appreciate, to monitor and to deal with it (management perspective). On the other side, stakeholders and regulators are interested in the liquidity profile of the banks. Both of them can collect information about it through the financial statements (financial reporting perspective). The *Exogenous Liquidity*, instead, refers to the variables that are not under the direct control of any single institution. Nevertheless, sometimes, the actions of single individuals can contribute to influence it.

This paper focuses on the concept of endogenous liquidity of a bank, from the financial reporting perspective. The basic idea is that the information disclosed through the financial statements should be adequate to allow its readers to comprehend the liquidity profile of an entity. According to it, the study intends to analyse some of the current accounting regulation affecting the liquidity, in order to verify if the financial information requested are adequately useful and relevant for this purpose.

The focus of this study is directed to the current accounting regulation. However, the assessment of the liquidity may clearly be affected by many other factors (i.e. earnings management, conservatism, smoothing, etc.), that we plan to address in future works.

It is also obvious that all the activities of a bank can influence its liquidity; nevertheless, it still largely depends on its core business, which is mainly connected to financial instruments. Therefore, the research is restricted only to some accounting standards, in particular:

- IASB Conceptual Framework;
- IAS 7 – Statement of Cash Flows;
- IFRS 9 – Financial Instruments;
- IFRS 7 – Financial Instruments: Disclosure.

The rest of the paper is organised as follows. *Section 2* analyses the concepts of liquidity, pointing out the differences between its main components; it describes the *liquidity risk* and outlines connections with *accounting*. *Section 3* addresses issues related to the accounting discipline, underlining some critical points. *Section 4* synthesizes the reached conclusions.

2. Liquidity, Risk and Accounting

2.1 Liquidity

Due to its importance in our study, it is useful to start clarifying the concept of liquidity. This section contains an overview of the different meanings associable to the liquidity concept. It also sheds light on the risks associated to the liquidity and on its links with the accounting regulation.

Liquidity ([ii]) is not an easy notion to define and does not have a univocal meaning. Even focusing the attention only on the endogenous liquidity, it can be seen at least from two points of view, the static and the dynamic one. From the *static* point of view, it can be intended as a stock. It coincides with cash and cash-equivalents available at a given time as the result of past events. It can be investigated through the construction of a cash flows statement that allows the understanding of how corporate transactions produced or absorbed it. However, the liquidity can also be seen from a *dynamic* perspective. Differently from the previous one, this interpretation does not take into account just the cash and the cash-equivalents available at a given time, but it considers the company's ability to fund its growth or to meet its obligations as they come due without incurring unacceptable losses (Banks, 2014; Duttweiler, 2009). The focus is shifted from a *stock* to a *dynamic* dimension ([iii]). In this way, the concept of liquidity should not be intended as a synonym of available cash and cash equivalents; it embraces a broader meaning. Not surprisingly, over time there have been different ways of understanding the liquidity depending, in turn, on why liquidity was required ([iv]). For instance, we can refer to the following theories from the recent literature:

a) Adam Smith saw as basic source of bank liquidity short-term loans advanced to finance salable goods on the way from producer to consumer (*Real Bills Theory of Liquidity*);

b) Moulton saw the liquidity in the *ability* to sell or shift loans from one to another bank than in the repayment of the loans themselves (*Shiftability Theory of Liquidity*);

c) Prochnow looked again at loans - rather at investments - as source of liquidity. However, according to his approach, the liquidation of a loan was not connected to the sale of the assets, nor to the the shift of the terms of the loan, but to the anticipated income of the borrower (*The Anticipated Income Doctrine of Liquidity*);

d) during the 60's, banks started to raise cash through access to new or additional funds. The *Liability Management View of Liquidity* (*or Illiquidity*) was the tool through which the bank collected the funds and managed the balance sheet growth;

e) in the last few years, banks started to simultaneously manage the asset and the liability sides of their balance sheets, according to the basic premise of matching the quantities of their asset and liability portfolios from a liquidity point of view (*The Balance Sheet Management View of Liquidity*).

Ultimately, therefore, from a dynamic point of view *the* liquidity *can be defined as the company's ability to fund its growth or to meet its obligations as they come due, without incurring unacceptable losses.*

Accordingly, in order to understand the liquidity profile of a company does not seem sufficient to put attention only on its cash and/or cash equivalents, as well as on words from its cash flows statements: they capture only an historical accounting perspective, while is needed a prospective one too. Moreover, this information is partial; actually the liquidity reflects several components that must be investigated. These elements are the *Funding Liquidity*, that refers to liabilities from which the cash can be drawn; the *Asset Liquidity* that relates to the availability of assets which can be sold or pledged in order to obtain cash; the *Liquidity Contingencies*, connected to forthcoming events, that can impact on future cash flows (Banks, 2014).

2.2 Liquidity and Risk

Each entity, carrying out its own business, faces many types of risks (Knight F.H., 1921). A rough distinction can be made between *operational risks*, consisting in losses affecting the operating activity, and *financial risks*. The *Market Risk* is a kind of financial risk involving losses in *on* and *off-balance* sheet positions due to adverse movements in market prices. The *Credit Risk*, that is another financial risk, refers to losses due to uncertainty in a counterparty's ability to meet its financial obligations. The *Liquidity Risk* is a financial risk too. It refers to losses arising from a lack of cash or of its equivalents, as well as from the inability to obtain it (through funding at an economically reasonable levels or through selling/pledging assets at their carrying prices), in order to meet both expected and unexpected obligations (Banks, 2014) ([v]). The liquidity is inversely related to the risk for the entity of becoming illiquid (Nikolaou, 2009).

In theory, if a firm could own assets and liabilities well matched (in terms of their duration) and if it could keep them until their maturity, assuming the absence of new transactions, then it should not face the liquidity risk. With these conditions, indeed, maturing assets will provide funds needed to repay liabilities as they come due. Such a model, however, is not truthful; it is static and ideal. It could be true neglecting the maturity transformation, that characterizes the function of intermediation of the banks and of the financial institutions; and ignoring the contingencies and their impacts on future scenarios. Accordingly, all entities, especially the financial ones, must consider and manage the liquidity risk. The comprehension of the liquidity risk requires the assessment of its components, which are (Banks, 2014): the *Asset Liquidity Risk*, due to the inability to convert assets into cash at the expected value ([vi]); the *Funding Liquidity Risk*, arising from an inability to access unsecured funding sources at an economically reasonable cost in order to meet obligations ([vii]); the *Joint Asset/Funding Liquidity Risk,* that occurs when the *Asset* and the *Funding Liquidity Risks* jointly happen. It gives rise to systemic liquidity risk, consisting in the drainage of liquidity circulating in the whole financial system; the *Liquidity Mismatches Risk*, that happens when maturities of assets and liabilities do not match, leading to divergent cash inflows and outflows over time and to the consequential losses; the *Liquidity Contingencies Risk*, that refers to losses resulting from unexpected future events absorbing liquidity flows.

2.3 Liquidity and Accounting

The liquidity profile of a company and the connected risks cannot be disjointed from the accounting regulation. Since the information useful to be acquainted with an entity are produced according to accounting rules and are widespread through the financial reporting, the above mentioned components of the liquidity and of the liquidity risk could be influenced by the accounting discipline.

The values ascribed to the recognized assets should be predictive of the amount of cash flows that will be potentially produced by the company at the moment when these assets will be realized. In addition, the provided disclosure should offer the information useful in order to understand, if not clear, the times in which these assets will be realized. Therefore, it is reasonable to expect that the asset liquidity risk might be influenced by accounting regulations. In this case, particular attention should be given to the policies concerning the measurement and the disclosure regarding the assets. In particular, in the asset measurement, accounting standards should be able to assign appropriate carrying values, as they are the starting point to identify future cash flows.

The accounting discipline could potentially influence the liability side too. In this case, its impact may vary depending on the aspect upon which emphasis is given. When the focus is on the funding liquidity, interpreted as the bank inability to settle obligations with immediacy, it is important to know the amount of cash needed to cope with the liability and the moments in which the money has to be available. From the accounting point of view, policies concerning the *measurement* and the *disclosure* become important. If reference is made to the funding liquidity risk, that is the inability to access unsecured funding sources at economically reasonable costs in order to meet obligations, accounting rules do not play a direct role. In this case, the bank's ability to obtain new funds rather depends on its reputation, which could be reflected in its rating profile. However, if the bank adopts a *market-funded model*, with financial resources obtained through the securitization of receivables rather than through the deposits or bonds (*deposit-funded model*), reference should be made to the asset liquidity risk.

During the last years, banks started to manage concurrently assets and liabilities, matching their quantities from a liquidity standpoint, according to the *Business Model* pattern (Cinquini & Tenucci, 2011; EFRAG 2013a). In these circumstances, it is important to know the cash flows that will be absorbed or produced from investments managed simultaneously, with details of their times of occurrence, otherwise the company could run into a situation of liquidity mismatches risk. As a consequence, accounting standards should be consistent with a portfolio strategy. Banks transfer funds from savers to borrowers; because of the gap between lending agreements and often shorter liabilities, the loan activity may expose the bank to the liquidity mismatch risk. In order to mitigate it, the bank can maintain some of its assets as a cash reserve and/or invest a portion of its available funds in financial instruments, other than in loans and/or prefer more liquid instruments as investments. Banks take these decisions adopting a *portfolio approach*: they disregard single investments and consider jointly assets and liabilities, consistent with the management strategy. Since these decisions respond to different business models, criteria for classification and measurement of involved financial instruments should be consistent with this rationale. Otherwise, the focus on single financial assets or liabilities may lead to an improper classification/measurement of items in the statement of financial position and provide a misleading liquidity representation of the entity.

The accounting discipline should also require to provide information about the liquidity contingencies risk. In this case, the risk is linked to losses caused by unlikely future events. The accounting discipline cannot request the recognition of elements within the financial statements, rather, it should require to produce disclosure about the awareness of the risk of unlikely future events that could absorb cash flows in the future.

Furthermore, financial analysts usually adopt ratios and margins in order to assess the liquidity profile of a company. In the accounting literature, for example, liquidity is often calculated in terms of net liquid assets*,* expression of a firm's financial position (Pizzo, 2010; Pizzo, Moscariello & Vinciguerra, 2015). Other traditional measures used in practice are: **a**) the *Liquidity Gap*, defined as the difference between volatile liabilities and liquid assets (Culp, 2001); **b**) the *Funding Ratio,* useful to observe the structural *Liquidity Risk* in a bank's balance sheet. It is calculated as the sum of available funding above *n* years divided by the sum of assets maturing above the same period, (Matz & Neu, 2007); **c**) *Ratios* referring to cash inflows and outflows for a defined period, usually a short one (Matz & Neu, 2007; Duttweiler, 2009); **d**) the *Liquidity stress testing and scenario analysis*, that is a recent metric considering if the entity is able to meet its obligations over a short time period in a severe stress scenario. Even the Basel Committee (BCBS, 2013; BCBS 2010) introduced the *Liquidity Coverage Ratio* (LCR), in order to evaluate the short-term resilience of a bank's *Liquidity Risk*, and the *Net Stable Funding Ratio* (NSFR), to promote resilience over a longer time horizon.

These references show that the comprehension of the liquidity profile of a financial institution is built on data provided through the financial statements. This highlights the strong influence that the accounting discipline can have on it.

3. Weaknesses of the IASB Discipline from the Liquidity Perspective

In accordance with the previous contents, it is reasonable to assume that the accounting rules may exert an influence on the financial information regarding the liquidity profile of a financial institution. In this section, an investigation on the contents of the conceptual framework and of certain accounting standards will help us to understand if they require information that are adequate in order to make financial statements *useful* and *relevant* in assessing the liquidity profile of a bank.

The analysis will concern only some accounting principles. It is undeniable that the liquidity profile of a bank is affected by many accounting standards. However, the impossibility to analyse all of them drove the choice to focus only on those that have been deemed more influent for the banking sector. Therefore, the attention will be focused on the IASB Conceptual Framework for Financial Reporting (IASB, 1989; IASB, 2010); the IAS 7 - Statement of Cash Flows (IASB, 2007a); the IFRS 9 – *Financial Instruments* (IASB, 2014); the IFRS 7 – *Financial Instruments: Disclosure* (IASB, 2007b).

3.1 The Conceptual Framework for Financial Reporting

The IASB Conceptual Framework for Financial Reporting (CFFR) states that the objective of general purpose financial reporting (GPFR) is to provide financial information to existing and potential investors, lenders and other creditors useful to make decisions about providing resources to the entity. As accounting data represent the basis for taking economic decisions, they should be relevant and give a faithful representation, providing correct signals to their users. The CFFR asserts that these stakeholders need information useful to help them in assessing the prospects for *future net cash inflows* to an entity. So, they "*need information about the resources of the entity* [and] *claims against the entity*" (IASB, 1989; IASB, 2010), useful to predict future cash flows, to assess liquidity and the ability to obtain financing (IASB, 2010).

Although one of the objective of the Conceptual Framework is to provide information regarding the future net cash inflows to an entity, useful to assess its liquidity, the IASB does not clarify what is the meaning of liquidity ([viii]). The Conceptual Framework should delineate the concept of liquidity and of its various components, since this might be useful as guidance in the interpretation of financial information.

Also the concept of *Business Model* is not sufficiently clarified in the Conceptual Framework (not even in the Exposure Draft - Conceptual Framework for Financial Reporting (IASB, 2015). Entities, especially ones operating in the banking sector, in the management of their financial assets and liabilities take on a business model based on the portfolio approach. The adopted business model influences the evaluation criteria to be implemented and, therefore, the information provided. It should be noted however that the Exposure Draft - Conceptual Framework for Financial Reporting introduces the concept of *Unit of Account*. That is "*the group of rights, the group of obligations or the group of rights and obligations, to which recognition and measurement requirements are applied*." (IASB, 2015). The objective of the Unit of Account is to provide useful information to stakeholders about the entity's future cash flows.

Although the introduction of the concept of Unit of Account improved the contents of the Conceptual Framework, the inclusion of both the liquidity and the business model concepts could help to make its contents more complete and make it a better guide for the preparation and understanding of the GPFR.

3.2 IAS 7 - Statement of Cash Flows

The objective of the IAS 7 - Statement of Cash Flows is to require information about the historical changes in cash and cash equivalents of an entity through a statement, which classifies the cash flows in operating, investing and financing activities (IASB, 2007a). The IASB states that, thanks to this information, users of financial statements should be able to assess the liquidity of the entity, its ability to generate cash and cash equivalents, its necessities to use those cash flows. Moreover, historical cash flows information could be used as an indicator of the amount, timing and certainty of future cash flows (IASB, 2007a) ([ix]).

First of all, it is necessary to point out that the notion of cash equivalents could be different for companies operating in the banking sector. According to IAS 7 definitions, "*cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value*" (IASB, 2007a). Differently, banks, in identifying the assets that can be treated as cash, may focus their attention on HQLA – High Quality Liquid Asset; between them, they can even consider "*long-term government securities available as a collateral for refinancing transactions with a central bank*" (EFRAG, 2015a).

Concerning the liquidity, intended as *the company's ability to fund its growth or to meet its obligations as they come due without incurring unacceptable losses*, it depends (mostly) on assets and liabilities existing at the reporting date. As a consequence, the statement of cash flows, made at the end of the reporting period, cannot provide sufficient information useful to assess the liquidity profile of an entity; it can just provide indirect information on it, showing past changes in cash and cash equivalents and their reasons. However, even this indirect information could be incomplete from a liquidity perspective; we are thinking, for example, about changes due to non-cash movements (i.e. fair value changes; foreign exchange rate changes; commencement of a leases (EFRAG, 2015a)) and for which is not requested a reconciliation statement (i.e. especially for financial assets and financial liabilities). Moreover, as financial assets and financial liabilities are held according to a portfolio view, information provided with reference to individual classes of assets and liabilities could be meaningless.

In addition of being indirect and incomplete, the information can be misleading too. In the banking sector, the adopted distinction between operating, investing and financing activities is meaningless and could conduct to provide distorted information. Such as, for example, when "*the purchase of some financial assets* (are) *presented as investing outflows, but if these investments are transferred to a different category, their ultimate sale or redemption is presented as an operating cash flow*" (EFRAG, 2015a). This aspect may lead to doubting the relevance of information provided.

Finally, the IAS 7 could be completed with the explicit analysis of the meaning of liquidity; moreover the difference between the concept of liquidity and the notion of cash flow should be clarified. The standard could also be improved through the introduction of a different point of view, reflecting characteristics of companies operating in the banking sector. Financial institutions usually operate according to a different concept of cash equivalents and a distinctive meaning of operating activities. These actions could make historical information about changes in cash and in cash equivalents more relevant and faithful.

3.3 IFRS 9 - Financial Instruments

Assets and liabilities of financial institutions consist almost exclusively of financial instruments. Subsequently, the IFRS 9 is one of the main documents to be investigated, even if it does not explicitly refer to banks. After a brief description of its contents, in this paragraph we illustrate its weaknesses in providing sufficient useful and relevant information concerning the *liquidity*.

The IFRS 9 has the objective of establishing "*principles for the financial reporting of financial assets and financial liabilities that will present relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of an entity's future cash flows*" (IASB, 2014). To this end, it identifies different methods of measurement, depending on the adopted *Business Model*. In particular, financial assets can be measured at *Amortized Cost* (AC), at *Fair Value Through Other Comprehensive Income (*FV-OCI*)*, or at *Fair Value Through Profit and Loss* (FV-PL) according to both the entity's business model for managing the financial assets and their contractual cash flow characteristics (IASB, 2014); financial liabilities are measured at *Amortized Cost,* unless some exceptions (IASB, 2014).

A financial asset shall be measured at AC when it is held within a business model whose objective is to collect contractual cash flows and the contractual terms give rise, on specified dates, to cash flows that are solely payments of principal and interest on the principal outstanding (IASB, 2014). This method of measurement is suitable to provide useful information to predict future cash flows for financial instruments held to maturity, considered that value fluctuations occurring before their expiry do not impact their cash flows. On the other hand, financial asset owned for trading shall be measured at FV-PL. In this case, the fair value, as an *exit price* (IASB, 2011), better reflects potential cash flows connected to financial instruments owned for trading. Besides these two extreme situations (financial instruments held to maturity and those held for trading), an entity can own financial instruments that, although held in order to collect contractual cash flows, can be sold if occur some requirements connected to the Business Model. For example, financial assets hold in order to collect contractual cash flows could be sold: a) if there is an increase in the asset's credit risk and they do not longer meet the credit criteria documented in the entity's investment policy (IASB, 2014); b) to manage credit concentration risk (IASB, 2014). In these circumstances, the IFRS 9 states that financial assets shall be measured at FV-OCI overcoming the limit of the previous version of the IFRS 9 (Vinciguerra & Cipullo, 2014a; 2014b). An entity may also use the Fair Value Option (at initial recognition, instead of FV-PL, if it eliminates, or significantly reduces a measurement or recognition inconsistency) or measure equity instruments at FV-OCI.

In general, the criteria suggested from the standard for measuring financial instruments provides carrying values useful in order to identify future cash flows.

However, it should be noted a concern about the *hybrid contracts*. According to IFRS 9, if a hybrid contract contains a financial asset, an entity shall measure the *entire hybrid contract* according to measurement methods as previously described. The standard does not allow the "bifurcation" between the embedded derivative and the host instrument. So that, carrying values (of the host and of the embedded parts) should be able to express future cash flows associated with the specific underlying financial instrument. However, if the bifurcation is not granted, the embedded value will be linked to the measurement criteria of the host part and, in some cases, the prediction of cash flows associated with the financial instrument in its entirety could be undermined. As in the case of a financial asset with an equity conversion option: it "*would not have contractual cash flows that are solely principal and interest and would be measured at FV-PL because the return on the instrument would not only reflect the time value of money and the credit risk of the instrument; rather, the return would be linked to the value of equity*" (EFRAG, 2013b); or when the host is hold for trading and the entire hybrid contract has to be measured at Fair Value, even if the embedded component returns reflect just the time value of the money and the credit risk. On the other side, IFRS 9 allows the "bifurcation" for financial liabilities. This approach introduces differences in the treatment of financial assets and financial liabilities and is not consistent with the bank's business model, where assets and liabilities are considered under a portfolio perspective. The decision of the IASB increases complexity and risk of not complying with the business model's rationale and introduces asymmetry in accounting for financial assets and financial liabilities (EFRAG, 2015b). From the liquidity point of view, it can also alter the usefulness of the information provided.

From a further analysis, were also evident the following frailties: **a**) the standard, in defining the interest rate, refers to the liquidity risk (IASB, 2014), as a component of the risk premium, (EFRAG, 2013b; EBA, 2013a) but does not clearly specify to which notion of liquidity it is referring to; **b**) despite the crisis of 2008, the standard does not take into account the the notion of illiquidity of financial instruments, whereas it might be advisable do not measure the illiquid instruments at Fair Value (European Association Co-operative Banks, 2013); **c**) the possibility afforded by the standard of choosing different options, leaves room for accounting choices (EBA, 2012).

Moreover, information required by the standards in certain cases could suffer from some limitations. Between them, for instance, there are:

- differences between the carrying value and the associated liquidity potential (namely, the liquidity obtained in the event or realization);
- disparities between timing and economic maturity of certain items;
- occurrence of unrecognized and unrecognizable items (for example, the bank's rating profile and its reputation, although not recognizable, can influence its ability to access funding, as well as the bargaining power in trading; moreover, there are future events that may affect cash flows while non presenting conditions for recognisability).

These gaps should be filled by disclosure, whose analysis is the object of the next section.

3.4 IFRS 7 - Financial Instruments: Disclosure

For readers' convenience, here the main aspects regarding the IFRS 7 have been summarized following a previous work (Vinciguerra & Cipullo 2014c), to which refer for a deeper analysis.

The IFRS 7 requires entities to provide narrative disclosure to integrate and improve the information value of quantitative data. Entities are expected to offer information that enables users to evaluate the impact of financial instruments on their performance and financial position; the nature and extent of risks arising from financial instruments to which the entity is exposed and how the entity manages those risks (IASB, 2007b).

The main issues associated to the IFRS 7 contents and related to the *liquidity* and to the *liquidity risk* relates to three main aspects.

The first one deals with "***What***" should be disclosed and concerns *values*, *maturities* and *timing* of cash flows.

As carrying ***values*** could diverge from the financial instrument's liquidity potential, in order to complete the information already required by IFRS 7, entities could present a table of reconciliation and explain the causes for differences. Entities could also provide information on the amount and the composition of liquidity reserves and on stocks of assets available for liquidity purposes, free of regulatory, legal or contractual charges and that could be used as collateral or pledged to secure liabilities (i.e. unencumbered assets); summarise encumbered and unencumbered assets in a tabular format by balance sheet categories, including collateral received that can be re-hypothecated or otherwise redeployed (FSB, 2012). Unfortunately, is still missing a clear and internationally accepted definition of asset encumbrance (EBA, 2013b; EBA, 2013c). Indeed, IFRS 7 requires to disclose only fair values of collaterals and financial assets pledged to secure liabilities (BCBS, 2013), but does not give many references to the amount of liquidity reserves detained for liquidity management, except for deposits at Central Banks (IASB, 2007b), as well as criteria used to identify the so called High Quality Liquid Assets (IASB, 2007b). Disclosure should be given about contractual and/or expected ***maturities*** of *on* and *off-balance* sheet items and ***timing*** of cash inflows and outflows, divided in time buckets or bands, built using different assumptions (normal and stressed period - *scenario analysis*). The reference to contingencies, commitments and unrecognized items, such as intangibles, could be useful in order to properly depict the liquidity situation of the bank. For each bucket, the difference between assets giving origin to cash inflows and liabilities giving origin to cash outflows, would provide the "*Cumulative Funding Gap*", useful to assess maturity mismatches for each period of time. For demand or non-maturity deposits, loans with pre-payment options and structured notes, cash flows could be ascertained using the bank's maturity estimates for certain balance sheet items; additional disclosure should explain assumptions used in the assessment of *behavioural liquidity characteristics* when these materially differ from the contractual maturity (FSB, 2012; FSB, 2013). Concerning this point, IFRS 7 states that an entity shall disclose a maturity analysis assessing an appropriate number of time bands; in determining cash flows and bands banks must refer on contractual maturities, with no reference at expected or behavioural liquidity characteristics or *off*-balance sheet items. In case of demand deposits and for all items to which are connected a range of possible maturities, cash flows are included on the basis of the earliest date on which the entity can be required or is permitted to pay (IASB, 2007b). Entities are also asked to disclose how hedging activities may affect the amount, timing and uncertainty of its future cash flows (IASB, 2007b). Definitively, the standard appears quite poor relative to these issues, as it does not consider timing and economic maturity (quite typical for banks) of certain liabilities and cash flows associated to unrecognized items.

The second aspect relates on "***How***" previously identified information should be disclosed. On this aspect, more than required by IFRS 7 (a split between qualitative and quantitative information and a representation of significant concentrations of liquidity risk, in asset/funding liquidity), an addition of tables and their explanations could be a useful complement; a disaggregation of information about values and maturities according to different currencies, geographical areas, markets, counterparties and business lines, could enable a better assessment of the concentration of the liquidity risk in each identified segment (CFA, 2013). The overall quality of disclosure could be improved by providing definition of key terms, inputs and assumptions for indicators used to assess liquidity and funding positions; narrative commentary on contractual maturity; analysis of financial assets and liabilities other than figures and connections with the entity's strategy and objectives in terms of funding and liquidity (ESMA, 2013). A better portrait of liquidity also requires more information as (EFRAG, 2008): a) whether assets can be easily sold or refinanced in order to raise funds (asset liquidity); b) the stability and diversification of sources of funding, including regular and potential sources resulting from the occasional sale or refinancing of assets (funding liquidity); c) stress analysis, including testing whether the liquidity buffers would be sufficient to face the occurrence of a stress scenario (liquidity contingencies).

Finally, it is important to determine "***When***" information should be disclosed. As liquidity is not a static concept, (ECB, 2006), disclosure provided in financial statements may not be enough for investors to ascertain the liquidity risk of a bank, making appropriate to periodically integrate it by the use of some other documents, such as risk reports ([x]), operating and financial reviews, management commentaries ([xi]).

In summary, more disclosure, than those already requested, are needed in order to provide information useful to assess the liquidity profile of financial assets and liabilities.

4. Conclusions

The objective of this theoretical study has been the investigation of the contents of some accounting standards in order to verify if their requirements are adequate to ensure *useful* and *relevant* financial statements to assess liquidity profiles in the banking sector.

To this end, it was first analysed the concept of liquidity, underlying the difference with the notion of cash. For the purposes of this survey, the liquidity was defined as *the company's ability to fund its growth or to meet its obligations as they come due, without incurring unacceptable losses.* Then, connections between the liquidity and the business risks were presented, highlighting the peculiarities of the liquidity risk. The influence of the accounting discipline on the information regarding the liquidity was also pointed out, emphasizing its importance in the process of evaluation of the financial position of an entity.

Subsequently, the contents of the IASB Conceptual Framework and of the accounting standards considered most relevant in the banking industry (IAS 7; IFRS 9; IFRS 7) have been analysed.

Despite its intention to provide information regarding the future net cash inflows to an entity, useful to assess its liquidity, the Conceptual Framework lacks to define or to sufficiently clarify the concept of liquidity. It is also missing the concept of Business Model, notwithstanding the importance it plays within the context of companies operating in the banking sector.

The *IAS 7 – Statement of Cash Flows* ignores to consider the differences between the liquidity and the cash flows. It provides information, that could be used in order to predict future cash flows, that are indirect and incomplete. This information could be also misunderstood because of the distinctive meaning of the operating activities in the banking sector.

The *IFRS 9 – Financial Instruments*, in its improved version (compared to that of 2010), besides a problem concerning the treatment of the hybrid contracts, still does not fully explain the meaning of liquidity, does not take into account the notion of illiquidity and leaves room for accounting choices.

The *IFRS 7 – Financial Instruments: Disclosure* still miss to require some of the information that could be needed to assess the liquidity profile of financial assets and liabilities.

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Notes

i In the Originate to Hold Model (OTH) a lender makes a loan with the intention of holding it through maturity, as opposed to selling it to other financial institutions and/or investors, as in the case of the Originate To Distribute Model (OTD).

ii Liquidity and Solvency have different meanings. The latter is "the condition of having sufficient funds to cover losses. […] is a function of capital adequacy." (Matz, 2011a). However, they are somehow connected: "A positive status of solvency is a precondition for being liquid. As liquidity, in contrast to solvency, is solely cash related, it is possible to be solvent and illiquid at the same time" (Duttweiler, 2009).

iii For other references regarding the definition of liquidity see: CSBS – Conference of State Bank Supervisors, Interagency Policy Statement of Funding and Liquidity Risk Management, 2010; AAA – American Academy of Actuaries, "Report of the American Academy of Actuaries Life of Liquidity Working Group", Washington, DC, 2000; BIS – Basel Committee on Banking Supervision, Principles for Sound Liquidity Risk Management, 2008;

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iv "Just as current thinking on why we need liquidity has gone through an evolutionary process that has, in major respects, returned to old and sometimes abandoned ideas, concepts about liquidity sources have also evolved and returned, in part, to previously disregarded concepts." Matz, Leonard M., Liquidity Risk Management, 2011a, Appendix A, Xlibris.

v Other definitions are available in Duttweiler R., Managing Liquidity in Banks – A top down approach, Wiley, 2009, p. 10; in CIA – Canadian Institute of Actuaries, Liquidity Risk Measurement, March 1996, p. 4; in Culp C.L., The Risk Management Process – Business Strategy and Tactics, Wiley, 2001, chapter 17.

vi It can also depend on "the possibility that the financial institution could lose access to one or more markets because of concerns about the following: its own creditworthiness; the creditworthiness of a major counterparty; generally stressful market conditions." (Matz, 2011b).

vii See also Drehman and Nikolau, Funding Liquidity Risk: Definition and Measurement, BIS – Bank for International Settlements, Working Papers No 316, 2010.

viii The concept is missing also in the Discussion Paper DP/2013/1 - A Review of the Conceptual Framework for Financial Reporting as well as in the Exposure Draft ED/2015/3 Conceptual Framework for Financial Reporting

ix According Lawson and Lee ex post and ex ante cash flow reporting is useful in order to assess firm liquidity. See: Lawson G.H., Cash Flow Accounting, Accountant, October 18, 1971, pp.386-389; Lawson G.H., The Rationale of Cash Flow Accounting, in Cees Van Dam (ed.), Trends in Managerial and Financial Accounting, Leiden, The Netherlands: Martinus Nijhoff Social Sciences Division, 1978, pp. 85-104; Lawson G.H., The Measurement of Corporate Performance on a Cash Flow Basis: a Reply to Mr. Egginton, Accounting and Business Research, Spring 1985, pp.99-108; Lee T.A., A Case for Cash Flow Reporting, Journal of Business Finance, Summer 1972, pp.27-36; Lee T.A., Reporting Cash Flows and Net Realisable Values, Accounting and Business Research, Spring 1981, pp.163-170). Staubus asserts that cash flow potential incorporates the amount, timing, risk and cost of capital features that determine the market value of a prospective cash flow stream. See: Staubus G.J., Cash Flow Accounting and Liquidity: Cash Flow Potential and Wealth, Accounting and Business Research, Vol. 19, No. 74, 1989, pp. 161-169. According to the CFA Institute the Direct Method (to prepare the Cash Flow Statement) "better equips investors with the information necessary to appraise a company's liquidity, assess its earnings quality, and make more realistic cash flow forecasts". CFA Institute, Financial Reporting Disclosures. Investor Perspectives on Transparency, Trust and Volume, July 2013, p. 92

x For an analysis of the risk disclosure practices in other sectors, see: Aureli S., Salvatori F., Investigation of Risk Management and Risk Disclosure Practices of Italian Listed Local Utilities, Financial Reporting, 2013(1); Buzzichelli F., Di Pietra R., Risk Profile Disclosure Requirements for Italian Insurance Companies: Differences in the Financial Statement Preparation, Financial Reporting, 2013(1).

xi For an example related to liquidity disclosures in the MD&A see: Cole C. J., Corporate Liquidity Disclosures: A Review, The Journal of Corporate Accounting & Finance, November/December 2012, pp. 65-77.

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The Effect of Climate Change Semantic Expressions on Perceptions and Attitudes Towards Decarbonisation

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Abstract

This paper is proposed to clarify the effectiveness of semantic expressions used to designate climate change in France context, i.e. "*réchauffement climatique*" ("global warming"); "*changement climatique*" ("climate change"); and "*derangement climatique*" ("climate imbalance"). An experimental study (sample size N = 126) based on 'linguistic semantics' approach is conducted in order to assess the effect of these expressions on concerns, perceptions risk and sensitivity regarding Climate Change (CC). Our results show that the expression "*réchauffement climatique*" ("global warming") is the most appropriate from a statistical standpoint. It increased the importance of the problem (salience of this issue) relative to other societal issues (e.g. unemployment, social justice, crime, etc.); it also enhanced participants' sensitivity (respondents' emotions associated with CC) more than the other expressions. We can still note however a strong difference in impact among the expressions if we were to calculate their impact on the basis of risk perception and communication objective. Results showed that when focusing our communication campaigns on nature, it would be preferable to use the term "*changement*" ("change"), when focusing our communication on social level, it would be preferable to use the term "*réchauffement*" ("warming"), whereas the term "*dérèglement*" ("imbalance") becomes the most suitable in seeking to build a communication campaign focusing on economic aspects. Semantics therefore should be selected depending on the communication objective.

Keywords: climate change, communication, linguistic semantics, perception

1. Introduction

After a long period of media controversy (Zaccaï et al., 2012), scientific work has proved that climate change (CC) is real, abrupt, irreversible and it can only be minimized (Solomon et al., 2008). The empirical evidence which is now becoming more obvious indicates that we have entered a new disturbing geological era, called the Anthropocene (Crutzen, 2000). That is to say, CC has anthropogenic sources (Álvarez-Iglesias et al., 2012), and therefore can be attributed to human activities (Cook et al., 2013), such as, the elevated consumption of carbon. The expected effects of CC are tragic (IPCC "Intergovernmental Panel on CC", 2007). Minimizing these effects calls for immediate new actions and consumption lifestyles, which means committing to a "social-ecological transition" that will eventually lead to "decarbonisation". Each consumer is then expected (Jackson, 2005) to minimize his greenhouse gas emissions (GHG).

This expectation is increasingly important since it is supported by public authorities who are inclined to favour political incentives over legislative constraints (Bérard & Companion, 2014). This choice involves an imputation of CC responsibility on individual behaviour (Frémeaux & Lalucq, 2014; Wells et al., 2010). The fight against the macro-phenomenon of CC becomes an individual micro-behaviour concern - with the deployment logic of "conduct of carbon conduct" understood as "government of people's carbon dioxide emissions that does not work through the state system, but through people's governing of their own emissions (...), a government enabled through certain forms of knowledge (measurements and calculations of one's own carbon footprint) certain technologies (the turning of carbon emissions into tradable commodities) and a certain ethics (low-carbon lifestyle as desirable)" (Paterson & Stripple 2010, p. 347). The incentive policies developed here are somehow grounded in the Foucauldian framework of governmentality (Foucault, 2004). They aim to sensitise public opinion related to the issue of CC (Comby, 2009), sensitization which appears to be currently realized: as Bozonnet notes (2012, p. 206), CC is in France, fully "appropriated by public opinion and integrated into its overall perception framework". The growth in risk perception and sensitivity in (western) societies today about CC is due to the high media coverage (Boykoff, 2007).

Nevertheless, despite the many efforts of media and stakeholders (scientists, governments, NGOs, etc.) to create awareness and to promote adaptation strategies around CC, consumer behaviours have not evolved and are not often as responsive as expected by communications specialists. Actually only a small number of consumers are effectively engaged in alternative models of consumption and practices such as low-carbon footprint, low-carbon technologies, low-carbon food, etc. For instance, carbon labelling is not one of the important factors that influence the process of most consumers' purchasing behaviour. However, a behaviour is considered as environmentally friendly since it does not harm directly or indirectly the natural environment, but rather if it helps to protect and/or restore it (Giannelloni, 1998). Indeed, the transition into the eco-innovation system through real environmental behaviours seems difficult. As a result, carbon intemperance persists and the situation of CC has become increasingly critical.

A large number of scientific studies, particularly in social psychology research, have indicated that consumer inertia or inaction is due to various obstacles that may hinder behavioural change which could be adaptive or could help to mitigate CC (Swim et al., 2010). These hurdles are dependent on several factors, including: personal reasons, social representations, philosophical convictions, psychological beliefs, etc. According to Gifford (2011), these barriers actually enter within the frame of the dragon of ecological inaction. Yet, other impediments can also emerge, such as, economic difficulties in changing one's domestic behaviour (e.g. the high price of pro-ecological products such as the solar panels), the educational level, cultural orientation, etc. In this research, we assume that consumer apathy on this issue is not due to the lack of information and/or understanding but rather to the errors in communicating about CC. This could be attributed to the intricacy and deficiency of marketing tools used as means to spread this phenomenon, that is maybe, the bad choices and/or the misuses of "visuals" and "expressions" used to communicate about CC. The marketing "CC" is therefore responsible for the lack of change in the behaviour of consumers. In short, it is globally counterproductive. In this paper, we focus on the effectiveness of expressions used to designate climate change.

To examine this idea, we set our research in the fields of marketing, psychology and semantic linguistics. We investigate the effectiveness of social marketing as a communication technique aimed at encouraging consumers to adopt pro-environmental behaviours (e.g. minimizing their GHG emission). More specifically, we assess the effective use of climate change communications (CCC) which are semantics (specific expressions) exploited in the description of the problem to reduce. In other words, we first explore the impact of semantics related to CC on the audience's emotions, mental and symbolic representations. We then investigate further this influence by assessing consumers' behavioural intentions to decarbonise.

This research was generated for various reasons. Firstly, in order to fill a void in consumer behaviour and marketing literature regarding the topic of CCC. Indeed, CC is both a consumer behaviour issue -, i.e. consumer behaviour is the key to the solution as being the cause of the problem - and a marketing fallacy - "it is no longer a scientist's problem, it's now a salesman's problem" (Futerra, 2009, p. 2). Secondly, on account of the lack of scientific knowledge about the impact of CCC on consumers' engagement in pro-environmental behaviours (O'Neill et al., 2013). Thirdly, because of the failure of CCC campaigns targeting consumer behaviour change. The purpose of this paper is twofold. First, in the light of the existing literature, several problems are stated which affect the "effectiveness" of communications used by associations (or NGOs) aimed at changing consumer behaviour to make them embrace the logic of "carbon sobriety". The second step is to test this idea by using an experimental method.

The linguistic failures of climate change communication

The emerging field of linguistic ecology or eco-linguistics is aimed at elucidating the manner in which the language of ecosystems and ecological problems could be influential (Cohen, 2010; Harré et al., 1999). In this case, eco-linguistics contains a set of assumptions related to the theories of Humboldt-Herder and Sapir-Whorf, whereby linguistic practices have cognitive effects and unconsciously shape representations of the world, which are always culturally constructed (Halliday, 2001, p. 179). On this theoretical basis, eco-linguistics specifically examines the evolution of lexicons dedicated to ecological issues. Syntactic games like passivation and agentivity, nominalisation and nominal composition also produce decisive effects on the perception and understanding of ecological issues (Lechevrel, 2008; Stibbe, 2006). This line of reasoning induces the prescriptive idea (and not merely descriptive and explanatory) that effective understanding and positive behaviour require a change in modes of expression (Stibbe, 2012). The issue of ecological transition also involves linguistic solutions, i.e. a lexical and epistemic creativity that enhances the mobilisation of imagination.

From this perspective, conceptual metaphors are important inasmuch as they allow for effective guided attention, given that they impact mental representations and call for action (Lakoff & Johnson, 1980). Conceptual metaphors also facilitate the cognitive appropriation of scientific data (Nisbet & Mooney, 2007) and intervene in the cognitive construction of a problem (see below under the Methodology section).

In a study on the linguistic analysis of reports published by IPCC, Barkemeyer et al. (2016) showed that CC information stands out in terms of understanding and is typically perceived differently by audiences. According to Nicholson (2005), in Anglophone countries, a literal interpretation of imagery often accompanies variations in terminology used to discuss CC (e.g. greenhouse effect, global warming, hole in the ozone layer, etc.). In the French context, communicators use many expressions to designate the CC phenomenon. Three expressions, in particular, are commonly used to describe the problem at hand: "réchauffement climatique" ("global warming"); "changement climatique" ("climate change"); and "dérèglement climatique" ("climate imbalance"). These expressions are used indifferently in speeches and are thus understood to be strictly synonymous. From a connotative perspective however, semantic contents vary across the associated ideas and related emotional registers. These semantic contents sensitise and mobilise in various ways (i.e. they are more or less "relevant"). No empirical justification is given to explain this aspect. Are these expressions effective in designating CC? Should existing expressions be replaced by others with a more positive impact on consumers' involvement in this topic? As noted by Nerlich et al. (2010), it was important to identify the right expression (semantic) and check whether people were listening. To answer these questions and fill the research gap, we have tested the effectiveness of these three French expressions.

2. Methodology

Our research methodology was based on an experimental design that investigates the influence of current CCC on people's perceptions and attitudes to mitigate CC. We resorted to linguistic semantics (i.e. the study of meaning relations) to examine their concerns, risk perception and sensitivity in response to the modern-day terminology used to describe the CC phenomenon.

Linguistic communication study using experimental semantics

Experimental semantics seeks to empirically support the core hypothesis of the cognitive linguistics field by accumulating a set of scientific results based exclusively on experimental data. Experimental semantics is derived from the original postulates of cognitive linguistics, and especially from the fact that the elementary structures of language allow us to access concepts, including the most abstract among them (Gibbs, 2007; Matlock & Winter, 2014). From a cognitive linguistics perspective, language ability is seen as a general faculty of the mind that underpins all human cognitive processes. In addition, experimental semantics is a part of the cognitive linguistics tradition, insofar as it focuses on how we make sense of our experiences in the world through the perceptual and interpretative properties of language. Experimental semantics thus examines the extent to which our knowledge of the world, situations and circumstances shapes our language (Lakoff & Johnson, 1980; Nerlich & Clarke, 2007). Accordingly, it falls within embodied and situated approaches to language, endeavouring to demonstrate that the meaning ascribed to things by individuals is expressed by linguistic contexts, which in turn depend on individuals' experiences in the world (Lakoff, 1987; Talmy, 2000). Experimental semantics therefore serves to connect the update processes through which individuals develop an ability to create and interpret the elements of their own environment (Croft & Cruse, 2004; Geeraerts, 2006).

Matlock and Winter (2014) noted that experimental semantics research encompasses the study of both literal and figurative language. Most experiments conducted on literal language test the main characteristics of the conceptualisation process (i.e. the meaning process) of language, as identified by cognitive linguistics. From this perspective, the meaning process is analysed through the lens of: i) the links between signs and mental spaces, i.e. "perspectival meaning" (e.g. Stanfield & Zwaan, 2001); ii) the links between signs and experience as well as language use, i.e. "usage-based meaning" (e.g. Tomasello, 2003); iii) the shared dimension of meaning, i.e. "encyclopaedic meaning" (e.g. Zwaan et al., 2002); and lastly iv) the evolutionary dynamics of meaning construction, i.e. "dynamic meaning" (e.g. Horton & Rapp, 2003). In these kinds of experiments, participants often complete a narrative understanding task after being exposed to a discourse whose content and semantic modalities vary depending on the experimental conditions.

Studies carried out on figurative language are concerned with the manner in which rhetorical figures (particularly conceptual metaphors since the seminal works of Lakoff and Johnson, 1980) shape the way we think and act. This effort taps into the conceptual foundations of language (Gibbs & O'Brien, 1990) and, more precisely, tests the notion that figurative language is the product of our embodied experiences in the physical and social world (Johnson, 1987; Lakoff, 1987, 1993). Regarding metaphors, Lakoff and Johnson (1980) pointed out that they are not only literal but conceptual as well; so as not to be reduced to words, they are also non-verbal. According to these authors, metaphors lodge into concepts and help organise our thinking. Metaphors establish an assimilation not only between two terms, or else they would solely be literal, but between two concepts. Metaphors are "conceptual" since they reflect a mechanism whereby two "conceptual domains", one abstract (called a "target domain") the other more often concrete ("source domain"), are linked to one another. Lakoff and Johnson (1980) explained that the link between these two conceptual domains is built as follows: target domain "A" is enhanced by source domain "B" as "A" IS / IS NOT "B". For example, in the DISCUSSION IS WAR metaphor, the experience of a debate is understood in terms of wartime experience (Lakoff and Johnson, 1980, p. 14). As a result of this metaphor, our perception of the concept of a "discussion" is altered, primarily in the way we characterise the experience of a discussion argument using everyday language. As such, expressions can thus be used, like: "we have demolished his argument", "our affirmations are indefensible", or "he has attacked every weak point in my argument" (examples from Lakoff and Johnson, 1980, p. 14). This use of language is then subsequently modified in the associated behaviour we adopt, e.g. giving up the discussion (i.e. beating a retreat), or opting for a line of argument that corresponds to our correspondent as "adversary" (i.e. choosing war strategies and tactics). Based on these theoretical proposals, research conducted in experimental semantics has sought to reveal the impact of figurative language on our understanding and interpretation of things in the world. Many conceptual metaphors have been studied in experimental studies. Such is the case for metaphors like: TIME IS A MOVING OBJECT (Boroditsky and Ramscar, 2002), SOCIAL DISTANCE IS A SPATIAL DISTANCE (Matlock, 2011), and LOVE IS A JOURNEY (Gibbs, 2013). In these experiments on conceptual metaphors, the impetus always lies in showing that the source domain exerts an influence on people's understanding of the target domain.

In the present research, we argue for the use of experimental semantics in testing the language failures of the "living with less carbon" communication programs mainly because experimental semantics is likely to elicit questions in line with the cognitive construction of the CC problem statement. Experimental semantics might also be of interest in revealing that the three expressions used as CC synonyms, i.e. "global warming", "climate change" and "climate imbalance", actually mean different things. In other words, their semantic contents might activate different imaginaries in participants' minds since the meaning of each expression does not give rise to identical representations of CC as regards, for instance, the salience of this issue and the notion of self-efficacy. Along these lines, we tested the three common expressions ("*réchauffement*"/"global warming", "*changement*"/"climate change" and "*dérèglement*" *climatique/*"climate imbalance") through an experimental protocol in which participants were asked to read a text dedicated to CC. This text was two pages long (771 words) and recounted all the CC challenges society faces. Three experimental conditions were defined on the basis of a single independent variable: "semantic expression used". This independent variable had three modalities, corresponding to the three expressions of CC mentioned above. The text was thus converted into three different versions depending on the expression used. The participants (N = 126), who were the same as for the collage part, were randomly assigned to the three different experimental approaches. Following the collage construction and reading tasks, participants responded to a questionnaire designed to measure the output variables, which were: i) the perceived relative importance of CC among other societal issues; ii) the perception of CC causes and consequences (note: these first two questions provided an idea of individual perception and certainty about the CC risk); iii) the participant's sensitivity to CC (this output variable enabled assessing respondents' emotions associated with ecological issues); and iv) socio-demographic information about the participants (e.g. age, gender, family status).

3. Analysis and Results

The data analysis focusing on the data collected through questionnaires.

3.1 Analysis of Questionnaires

The objective of this part is to determine whether any of the terms "changement" ("change"), "dérèglement" ("imbalance") or "réchauffement" ("warming") had more influence than the others on participants' responses. The purpose of these questionnaires was to explore the relationship between the semantics used and the ability to generate ecological imaginaries. After being exposed to the textual stimuli, respondents completed questionnaires designed to measure their concerns, risk perceptions and sensitivities regarding CC.

3.2 Ranking the Importance of Climate Change

To measure the level of participants' concern, we introduced a "barometer" type of question, in asking them to rank the importance of CC versus other problems in our society, e.g. unemployment, social justice, crime, pensions, school operations, immigration, tax burdens, terrorism and housing. We used an ordinal scale from 1 to

10, with 1 being the most important issue and 10 the least. Through this first question, out intention was to determine if one of the three terms had a greater impact on how participants rate the climate phenomenon. Results indicated that the expressions dedicated to CC do indeed have an influence on how most participants rate this issue compared to other societal problems (see Table B.2). The difference is significant (F = 4.597, p = 0.012). Our analysis specified that participants exposed to the text containing the stimulus “réchauffement climatique” (i.e. “global warming”) classified this issue higher among other societal issues, meaning that participants place great emphasis on this expression. When “global warming” is employed, they actually ranked the climate phenomenon in third position (M = 3.3). However, with the expression “changement climatique” ("climate change"), this phenomenon was rated in fourth position (M = 4.3), while “dérèglement climatique” ("climate imbalance") led to a 5th-place ranking (M = 5.1). The term “réchauffement” (or "warming") therefore had more impact on respondents' ranking of CC than other terms. Two justifications can be given for this extra importance ascribed to the term "warming". On the one hand, this term carries a temperature distinction (réchauffement = warming) that has become fairly obvious of late, at least in France, while on the other hand, the popularity of this term in the media has probably made it more meaningful to the general population. Our overall results have also shown that CC was not classified as a priority for French people; at best, it came in third place, behind "unemployment" and "social justice" issues. Furthermore, results of the rank correlation method indicate that the climate phenomenon was negatively correlated with the first two key themes, i.e. "unemployment" (r=-3.06) and "social justice" (r=-0.84) (see Table B.3). The concern over CC increased in the opposite direction from that of these other problems. In other words, the level of concern for CC in French society only increases once the level of interest in other problems decreases.

3.3 Risk Perception Analysis

The objective of measuring this variable is to assess the intensity of climate risk perception at various levels (i.e. environmental risks, economic risks, social risks, political risks, health risks and psychological risks). We assumed that this variable would vary depending on the expressions used in the textual stimulus. To confirm this supposition, participants were invited to answer a couple questions reflecting two components of the risk perception variable (i.e. intensity of danger and certainty regarding the danger). The first question pertained to the intensity of potential multiple dangers and was formulated as follows: "Would you say that [‘climate change’/’global warming’/’climate imbalance’] represents [‘a great danger’/’danger’/’not much danger’/’no danger’] for/at [‘nature’/’health’/’an economic level’/’a social level’/‘politics and international relations’/’your personal well-being’]?". The second question then focused on the certainty of consequences and was expressed as follows: "Would you say that you are [‘not sure at all’/’pretty sure’/’sure’/’absolutely sure’] that [‘climate change’/’global warming’/’climate imbalance’] represents a danger for/at [‘nature’/’health’/’an economic level’/’a social level’/‘politics and international relations’/’for your personal well-being’]?". These two dimensions of risk perception were assessed using a four-point verbal / numerical rating scale ranging from 1 for ‘great danger’ to 4 for ‘no danger’ on the first question and from 1 ‘not sure at all’ to 4 ‘absolutely sure’ on the second question. The data analysis was conducted by following Cunningham's risk perception measurement procedure (Cunningham, 1967). Data collected were thus analysed by calculating a multi-index, set up as the product of the two ratings (intensity and certainty of dangers). According to this procedure, these two dimensions related to risk perception were analysed complementarily (Volle, 1995), i.e. whereby an index value of 16 indicates low risk while a 1 value stands for high risk.

The results of Cunningham's procedure showed that the intensity of perceived risk for all participants was ‘average’ (M = 5.4). According to Volle (1995), if the measurement scale result yielded ratings between 4 and 8, then the risk perception is average. The participants were thus probably sceptical as regards the risk associated with CC. Moreover, we calculated the risk perceptions reported by all levels using the expressions (environmental, economic, social, political, health and psychological). Results show that participants perceived a different level of risk for each expression used. For example, with the term “dérèglement” ("imbalance"), they perceived greater risk at the economic and international levels; in contrast, the term “changement” ("change") induced perceptions of greater risk for nature, and when employing “réchauffement” ("warming") participants perceived greater risk on the social and psychological levels.

We completed this risk perception measurement using ANOVA. The goal of this test was to discern the differences in perceived risk regarding the expressions used and then check the statistical significance of this effect. ANOVA results indicated that individuals had an average risk perception under the three experimental conditions ($4 < M < 8$). The differences however were insignificant (F = 1.487; p = 0.230) (see Table B.4). We can interpret that the expressions used do not affect or present a significant primary effect on risk perception. These expressions therefore were not useful or effective in increasing social perception of the climate risk.

Furthermore, it is important to point out that before analysing the results of these questions, we measured the value of coefficient alpha to assess the reliability of both scales, with $\alpha > 0.65$. It can therefore be concluded that both questions are sufficiently accurate to be considered in our study (see Table B.5).

3.4 Environmental Sensitivity

The interviewee's sensitivity, as expressed in favour of the environment, was measured using 5-point Likert scales ranging from 1 (not at all agree) to 5 (completely agree). This scale was developed by Zaiem (2005) to assess the degree of emotion that an individual attaches to environmental issues. It seemed necessary to us for this variable to be measured within the scope of the present research given its impact on ecological behaviour.

An ANOVA analysis was undertaken to compare the average sensitivity with respect to the expressions used (Table B.6). The ANOVA revealed a primary effect of the expressions on participants' sensitivity ($F = 8.780$; $p = 0.000$). These results also showed that the term “réchauffement” ("warming") was the most favourable in influencing participants' sensitivity to the environmental issue compared to the other terms. Its average was higher ($M = 4.08$) than that of the other terms: “changement” ($M = 3.82$) and “dérèglement” ($M = 3.57$). According to these results, let's conclude that it would be better to use the term “réchauffement” when communicating CC provided the objective is to increase citizens' sensitivity.

Furthermore, we were interested in ascertaining which expression respondents preferred to use when explaining the climate phenomenon in their collage descriptions. Results indicate that the term “réchauffement” was the most commonly used (137 times by all participants, while the terms “déréglement” and “changement” were listed 73 and 46 times, respectively). These results also show that participants exposed to the terms “déréglement” and “changement” still preferred the term “réchauffement”. It can therefore be concluded that “réchauffement” is the term most readily marked and memorised in the mental imaginations of participants. Results from our analysis of quotes confirm the outcome derived by experimental semantics on the relevance of terms ascribed to CC.

4. Discussion and Conclusion

Our experiment explored the impact of linguistic contents of CCC on how people perceive this environmental issue. We can generally conclude that CCC has a direct effect on personal imaginations and perceptions. However, this impact was not an effective way of engaging French people in pro-climatic actions. Conversely, it was effective at increasing their affect and conceptualization on the CC problem. It seemed easier to perceive the risks and existing problems through, rather than the solutions.

Concerning the relevance of the semantics used, these results reveal that the term “*réchauffement*” ("warming") was the most appropriate from a statistical standpoint. This term increased the importance of the problem relative to other societal issues; it also enhanced participants' sensitivity more than the other terms. We can still note however a strong difference in impact among the expressions if we were to calculate their impact on the basis of risk perception and communication objective. For example, results showed that when focusing our communication campaigns on nature, it would be preferable to use the term “*changement*” ("change"), whereas the term “*dérèglement*” ("imbalance") becomes the most suitable in seeking to build a communication campaign focusing on economic aspects. Semantics therefore should be selected depending on the objective and target population. It is important to take the following steps: segment the messages, study the combinations (images and terms), address the audience, and determine how the message should be transmitted in order to achieve an increasingly personalized "*one-on-one*" communication.

By demonstrating that CC is a marketing problem, all stakeholders and NGOs in particular should reset their strategies of communication and find another register that will motivate people to engage in authentic actions to reduce carbon emissions. For effective transmission, a new language it required (new terms), a language for action that will increase the “techno-market” and “sustainable lifestyle” imaginaries called for (Levy & Spicer, 2013), i.e. which support a positive vision and foster technical and scientific ways to reduce the problem. CC must be treated in terms of "packageable solutions" (Williams, 2000). Using solution-orientated framework would help inspire action to reduce CC (Moser & Dilling, 2007). The shift in the emphasis of CC discourses from problem to actions is necessary to increase an optimistic visualization of the problem and to boost sustainable actions. If not, “climate apocalypse” imagination problems, which are already widely presented, will overshadow likely solutions. In short, consumers need to be aware, responsible and know what actions to take in order to manage the problem (Wells et al., 2011). It is therefore important to stop using climate communications that appeal to terror language and catastrophic future. These communications increase individuals’ scepticism, apathy and anti- CC behaviours. Our findings supported the studies that show that the appeals based on negative emotions could backfire and undermine the expected effects and objectives of the messages (Akil et al., 2017 ;

Moser & Dilling, 2011; O'Neill et al., 2009).

The decision of eco-friendly consumption is associated with and dependent on the source of self-worth (Brook, 2005), values and norm systems (Fritsche et al., 2010) of the consumer. It is therefore essential to showcase pro-environmental cultures and people's connection with nature (Schultz et al., 2004), as well as green skills in our societies to make the transition towards a sustainable society. It also seems important to increase the carbon labelling of products and services, which will allow the consumer to become more familiar with this environmental consumption system. Increasing the use of ecological nudges also hinders the worsening of CC by steering the consumer towards green acts automatically.

Our work enriches the corpus of marketing literature through the concepts imported from psychology and climatology to explain the impact of CCC on consumer perceptions and intentions to decarbonise. This is the first paper that investigates in detail the interaction between "linguistic semantic" as representations of CC as social marketing tools to increase the involvement of French people on CC issue. This paper is aimed at obtaining the scientific contributions discussed in other disciplines and absent in ours about the causes of consumer inaction against messages related to anti-CC appeals, unlike to studies on tobacco, road safety, alcohol and drugs abuse which are widely explored. Our mission was to contribute scientifically in reducing GHG by guiding and assisting stakeholders and NGOs in particular to create and develop effective communication strategies for low-carbon consumption. The main challenge is to involve consumers in the ecological transition behaviour via innovative communications carried out by stakeholders in the various fields concerned.

Some limitations have emerged in our study that certainly reduces the internal and external validity of our research. The first of these limitations concerns the population studied. We interviewed participants living in the west of France, and the choice (homogeneity of sample) of this population impacts their statistical and geographic representativeness. To reduce the "selection bias" concerning our sample we only chose people from this region. Therefore, the results of our study may not be explored and generalized to all western societies, despite all the precautions we took with regards to their age, gender distribution, socio-professional category and scales translation. The second is in relation to the stimulus used. In this research, the participants were presented with a text dealing with climate issues.

This text may have induced certain participants to respond positively to validate our hypotheses or to feel valued socially in our eyes and/or in society. In effect, this limitation doesn't impact negatively the internal validity of this research because our goal is to examine the ranking of the importance of CC in relation to the expressions used and not to other problems in society. As a result, the adverse effects on the internal validity of the study are non-existent. This study has demonstrated the impact of CCC on consumer behaviour perceptions and tendencies to decarbonise. It would be important for a future research to replicate this study. For instance, we could measure CCCs effect on the buying behaviour of consumers (real acts actions). Another experiment can be considered by adding other expressions also used in the French media, like "atmospheric pollution". A study of word associations between CC visuals and/or expressions like that of a collage would also be relevant for future research. Furthermore, it will be essential to assess the participants' memorization of CC expressions and imagery presented in the media and then analyse the link between their responses and the informational or emotional content of the expressions and images. Again, it is necessary to largely apply this experimental protocol in other European and Francophone countries to see if the results will be confirmed. This will help to test the external validity of our results. Finally, the validity of our research could be increased if the impacts of CCCs on people's behaviours are compared in with those in other regions and cities.

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Directors' Remuneration and Firm's Performance: A Study on Malaysian Listed Firm under Consumer Product Industry

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Abstract

Remuneration is broadly used as an incentive that affects decisions made and strategies planned by directors which cause great impact on firm performance and profitability. This study aims to investigate the directors' remuneration of the consumer products sector focusing particularly on Malaysian listed companies under Consumer Product Industry. These firm's performances are measured by return on assets (ROA) and return on equities (ROE). This study consists a sample of 40 Malaysian listed companies for the period of 2012 to 2014. After controlling for board size, CEO duality, firm size, firm age, and leverage; the regression results show director remuneration has positive relationship with firm performance (measured by ROA and ROE). This suggests that high remuneration is able to motivate and retain directors in order to perform their duty and work harder for the best interest of shareholders. The result also shows all variables affect firm performance differently. For future research, we recommend that this study be expanded using more samples from other industries and other measurement of firm performances such as growth and ratings.

Keywords: remuneration, director and firm's performance

1. Introduction

Directors can generally be classified as executive directors and non-executive directors. The executive directors are highly responsible for the operation of the business which involves developing and implementing strategic plans to create sustainable value for firms in term of firm performance on behalf of the firm's shareholders. In contrast, the non-executive directors play a role in monitoring the executive directors as well as providing consultation and recommendations on running the organization. In this paper, remuneration data of both the executive and non-executive directors are jointly termed as directors' remuneration. The total remuneration received by directors can be in various components including fixed pay portion and variable short term incentives to recognize individual merit. This study includes only cash-based remuneration.

Remuneration is broadly used as an incentive that affects strategies planned and decisions made and adopted by directors which cause great impact on firm performance and profitability. It may also be simply known as a reward to the directors in realization of their efforts and hence it can motivate directors to perform their duties well and work harder for the best interests of shareholders.

Remuneration not only shapes how directors behave but also help to retain talent through attractive remuneration since directors are viewed as a scare asset. Remuneration policy is one of the key factors in an organization's success. However, majority of these organizations are not exploiting this tool to the fullest.

As level of directors' remuneration and its relationship to firm financial performance has become a very controversial issue, public and policymakers such as governments, firms, and regulatory bodies have become more concerned on the impact of director remuneration on firm performance. Public has been highly focused on the growth of the levels of remuneration in contrast to the growth of firm performance. Therefore, there is a need to sensitize the executives to align their remuneration to firm's accounting performance measures as their pays are directly linked to shareholder's wealth maximization. According to Bebchuk and Fried (2004), they found that CEO salary has not been closely linked to firm performance. Bebchuk and Grinstein (2005) further suggested that the increase of executive pay beyond the growth of performance was observed from the year of 1993 to 2003.

In the Malaysian content, corporate governance such as disclosure of directors' remuneration still generally remain conservative and lacks transparency as compared to most developed countries such as the United State (US), the United Kingdom (UK) and Australia. Only some Malaysian firms disclose remuneration paid to directors due to their performance. Little attention has been given to developing countries such as Malaysia though there is increasing empirical evidence on corporate governance in developed markets. This causes the extent of the directors' remuneration affecting the superior firm performance as an example of economic value added (EVA) to be unobservable in Malaysia for recent period. Hence, the impact of directors' remuneration on firm performance is important to help policymakers and shareholders do strategic planning in director remuneration.

2. Literature Review

Principal agent theory has been widely used by empirical researchers to explain the relationship between remuneration of agent (director) and the benefit of principal (shareholders) in terms of firm performance. According to Murphy (1985) and Jensen and Murphy (1990), Principal-agent theory can be used to justify the positive correlation between executive remuneration and firm performance. The linkage between director remuneration and firm performance should provide an attractive incentive for firm to succeed. These studies provided the insights into the ambiguous relationship between executives' remuneration, firm performance and effectiveness of corporate governance.

The positive relationship between executive remuneration and firm performance has remained strong among several empirical studies (e.g. Lewellen, Loderer, Martin & Blum (1992), Carpenter & Wade, 2002; Leonard, 1990). Based on the study conducted by Lewellen et al (1992), they found that executive compensation and firm performance has a positive relationship. They concluded that those firms which pay better will perform better. There is some evidence that higher levels of pay are associated with executive human capital (Carpenter & Sanders, 2002; Leonard, 1990). According to Hogan and Mc Pheters (1980), firms that acquired better and higher skills level of executive requested a higher pay in labor markets. Remuneration package can assist firms compete for high performers who contribute to firm's future successes (Gerhart, 2000). Besides, remuneration tends to increase willingness to work, self-efficacy and high performance. Michaud & Gai (2009) hypothesized that directors such as CEO who received higher pay tend to work harder and then succeed to improve firm's financial performance. The researcher found that only cash bonus had a significant positive effect on performance of firm.

Murphy (1985) examined 72 U.S firms from 1964 to 1981 and found a strong positive correlation between executive compensation and firm performance (measured by shareholders' return and realized growth in sales). Jensen and Murphy (2004) added that the immediacy and tangibility of cash awards can provide stronger incentives than uncertain paper gains in equity plans. Bruck, Liu, and Skovoroda (2008) concluded that the executive payment positively relates to the past and current firm financial performance. In contrast, Kutum (2015) found no significant relationship exists between CEO remuneration and bank performance in Canadian Banks except a weak positive relationship with return on assets (ROA).

There is also a lack of consistency and mixed results in Malaysia. Additionally, all these studies focused on non-financial firms. Jaafar et al (2012), who focused on family-owned companies, found directors' remuneration has a positive relationship with firm performance. Similar results were obtained by Syaiful, Effiezal and James (2012), they found that in Malaysian family firms, directors' remuneration significantly affects the board motivation in improving firm performance. Directors' remuneration being significantly related to ROA have been supported by Yatim (2012) In addition, a study by Hassan et al (2003) on Malaysia firms' performance before and during the Asian financial crisis (i.e., 1996 to 1998) found a weak positive relationship between director remuneration and firm performance. In contrast, Tee and Hooy (2009) examined a sample of government-linked companies (GLCs) from 2001-2006, and found a negative relationship between directors' remuneration and company performance (measured by lagged return on equity). However, Dogan and Smyth (2002) and Abdullah (2006) found no evidence that directors' remuneration has an impact on firm performance.

Core et al (1999) reported that excess CEO compensation has a negative association with stock returns and operating performance. Whereas, Croci, Gonenc, and Ozkan (2012) found that CEO compensation is negatively related to performance in family firms. Aduda (2011) applied a regression model to examine relationship between Kenya commercial bank's executive compensation and firm performance and found negative non-significant relationship between executive compensation and financial performance. On the other hand, Alshimmiri (2004) examined Arabic Emirates real estate investment trust (REIT) sector and found that there is a negative relationship between executive's cash remuneration and REIT companies' performance (measured by ROA and ROE).

3. Methodology

3.1 Sample

In terms of sample selection, this research was carried out by obtaining secondary data and information from Bursa Malaysia official website, companies annual reports and DataStream databases. The sample of this study comprised of 40 Malaysian listed companies from Consumer Product Industry over 3-year period between 2012 until 2014. Listed firm was chosen because under Malaysia Code of Corporate Governance, these companies are required to disclose the information of executive pay structure and the level of remuneration in annual report.

The remuneration information is collected manually from annual reports available online in Bursa Malaysia official website. The data was collected from annual reports for three years from 2012 until 2014. The sampled return on asset (ROA) and return on equity(ROE) information was drawn from publically available standardized financial databases such as DataStream. Besides, the director board size and the number of executive directors' data were extracted manually from the annual reports of the respective companies. While, other firm level data for the other variables were gathered from Thompson Reuters DataStream.

3.2 Regression Model

This study employed multiple regression analysis to examine the relationship between the firm performance, and director remunerations and other control variables. The model attempts to identify the factors that are likely to have explanatory power towards the firm performance. The Model of this study is expressed as follow:

Firm Performance (FP) = f (Director remuneration, board size, CEO duality, firm size, firm age, leverage)

Hence our function can be estimated under the following model:

$$\mathbf{FP_{i,t} = \alpha + \beta_1 DREM_{i,t} + \beta_2 BOARD_{i,t} + \beta_3 DUAL_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 FAGE_{i,t} + \beta_6 FLEV_{i,t} + \epsilon_{i,t}}$$

Whereby;

<u>Dependent variable</u>

FP which is expressed in the following terms:

EVA = the firm's economic value added
ROA = the firm's return on asset
ROE = the firm's return on equity

<u>Independent variable</u>

DREM = director remuneration for the firm i at year t

<u>Control variables</u>

BOARD = the firm's board size for the firm i at year t
DUAL = the firm's CEO duality for the firm i at year t
FSIZE = the firm's size for the firm i at year t
FAGE = the firm's age for the firm i at year t
FLEV = the firm's leverage for the firm i at year t

4. Results and Discussion

4.1 Descriptive Statistics

Table 1 presents the summary statistic for this study. As shown in the table the mean of economic value added (EVA) for the sample companies in is -0.6033 and varies from -67.6 (minimum) to 79.31 (maximum). The gap between the minimum and maximum score is quite high for them. The standard deviation is 19.004. EVA is used to measure both internal and external performance which calculated by deducting cost of capital from operating profit, adjusted for taxes. The second proxy for dependent variable is ROA. ROA is measured by dividing a firm's net income by its total assets. An analysis of Table 1 reveals that the average ROA for sample companies is 6.9% and ranging from -1.3% to 21.6%. The standard deviation is 4.5%. The third measurement of dependent variable is ROE. ROE is measured by net income divided by common equity. The mean of ROE for the sample companies is 11.12%. The range of minimum and maximum is between -2.43% and 56.27%. The standard deviation is 8.01%.

Table 1. Summary of Descriptive Statistics

Variable	Mean	Min	Max	Std. Dev.
EVA	-0.603	-67.600	79.310	19.004
ROA	0.069	-0.013	0.216	0.045
ROE	0.1120	-0.0243	0.5627	0.0801
REM	13.929	10.692	16.372	1.477
BOARD	7.967	3.000	12.000	1.782
DUAL	0.142	0.000	1.000	0.350
FSIZE	12.803	10.811	15.416	0.933
FAGE	22.450	3.000	53.000	13.689
FLEV	32.981	0.130	93.040	38.714

The variables such as director remuneration, firm size in Table 1 is transformed into a natural logarithm. In fact, natural logarithm helps the variables to distribute the value to normal. Table 1 also exhibits the descriptive statistics related to mean of the log director remuneration (REM). The range of minimum and maximum is between 10.69195 and 16.37176. The standard deviation is 1.476886. Furthermore, the mean (median) for board size (BOARD) is around 7 to 8 directors. Board size is calculated by the number of directors in company. CEO Duality (DUAL) is dummy variable, the mean is 0.1416667 indicates that only 14.16% of the CEO holds chairman post simultaneously. Other control variable which is firm size (SIZE) is measured by natural log of total assets of the companies; the log firm size had an average of 12.80291. The range of minimum and maximum is between 10.8106 and 15.41611. The standard deviation is 0.9327618. The mean of the firm age is 22.45 years. The range of minimum and maximum is between 3 to 53 years. The last control variable which is the leverage (LEV) has an average of 32.981%. The range of minimum and maximum is between 0.13% and 93.04%. The leverage is measure by dividing total liabilities per total assets. The gap between the minimum value and maximum value is quite high.

4.2 Pearson's Correlation Coefficient

Table 2 shows that EVA has positive correlation with BOARD at 5% and negative correlation with DUAL and SIZE at 1% significant level. Next second performance measurement, which ROA has positive correlated with ROE and DREM and has negative correlation with FLEV. All of them have significant level at 1%. The third dependent variable which is ROE is positive correlated with REM at 1%. It also has negative correlation with DUAL. DREM as independent variable has positive relationship with FSIZE and FLEV at 1% significant level. Meanwhile, control variables BOARD has negative correlation with DUAL and FAGE at 1% and 10% respectively. FLEV and FAGE has positive correlation with FSIZE at 1% significant level. There is no correlation exist between FAGE and FLEV.

Table 2. Pearson's correlation

	EVA	ROA	ROE	DREM	BOARD	DUAL	FSIZE	FAGE	FLEV
EVA	1								
ROA	0.009	1							
	0.922								
ROE	-0.03	.838***	1						
	0.741	*0.000*							
DREM	-0.011	.289***	.417***	1					
	0.901	*0.001*	*0.000*						
BOARD	.196**	-0.101	-0.066	0.095	1				
	0.032	*0.272*	*0.475*	*0.300*					
DUAL	-.238***	-0.144	-0.176	-0.073	-.235***	1			
	0.009	*0.117*	*0.055**	*0.427*	*0.010*				
FSIZE	-.316***	-0.027	0.071	.358***	-0.013	0.176*	1		
	0.000	*0.767*	*0.438*	*0.000*	*0.892*	*0.055*			
FAGE	0.043	0.052	0.001	-0.019	-0.171*	0.151*	.476***	1	
	0.645	*0.576*	*0.890*	*0.840*	*0.062*	*0.099*	*0.000*		
FLEV	0.018	-.299***	0.088	.283***	0.047	-0.049	.239***	-0.061	1
	0.845	*0.001*	*0.34*	*0.002*	*0.614*	*0.593*	*0.008*	*0.506*	

*, **, *** indicate significance at the 10%, 5% and 1% levels, respectively.

4.3 Multiple Regression Analysis

Table 3 presents panel data analysis results of EVA (model 1), ROA (model 2) and ROE (model 3). In order to see the relationship between director remuneration and these variables, our equations model was re-estimated by replacing the dependent variable EVA by ROA and ROE. Director remuneration is expected to have a positive significant relationship with firm performance in term of ROA and ROE. As presented in Table 3, the coefficient value of director remuneration is 0.007 in regression model 2, and 1.201 in regression model 3. As shown in model 2 and 3 in Table 3, there was a positive significant relationship between director remuneration and firm performance in term of ROA and ROE which p-value at level of significance at 0.01. It implies that director remuneration is positively affecting firm performance in our sample in term of ROA and ROE. The higher the remunerations directors received, the better the firms perform. Better remuneration can maintain the quality of the directors and encourage directors to work harder which can improve the firm performance as a whole. This result is consistent with prior study by Jensen and Murphy (1990) and Bebchuk and Fried (2004). Prior studies suggest that firm that provides high remuneration tend to motivate directors to work harder. Hence, directors can apply their knowledge, skills and experiences to enhance firm performance and keep long term success (Michaud & Gai, 2009). However, our finding indicates that if EVA is used to proxy firm performance, it shows positive insignificant to director remuneration. This outcome is consistent with study done by Defina, Harris and Ramsay (1994).

Table 3. Summary of Multiple Regression Analysis

	Model 1 (EVA)	**Model 2 (ROA)**	**Model 3 (ROE)**
Constant	32.753	-0.029	-12.882
	1.218	*-0.489*	*-1.137*
DREM	1.214	0.007***	1.201***
	0.930	*2.562*	*2.184*
BOARD	1.598*	-0.004***	-0.582
	1.633	*-1.649*	*-1.412*
DUAL	-10.665**	-0.026***	-4.900***
	-2.150	*-2.339*	*-2.344*
FSIZE	-5.427**	0.003	1.008
	-2.288	*0.572*	*1.008*
FAGE	0.312**	0.000	-0.016
	2.148	*0.234*	*-0.255*
FLEV	0.030	0.001***	0.004
	0.666	*-4.043*	*0.202*
R^2	0.128	0.207	0.128
Adjusted R^2	0.082	0.165	0.082
F	2.774	4.916	2.773
Sig	0.015	0.000	0.015

*, **, *** indicate significance at the 10%, 5% and 1% levels, respectively.

As shown in Table 3 board size has negative relationship with ROA at 10% significant level and positive relationship with EVA at 1% significant level. Theoretically, authors such as Jensen (1993) concluded that companies with oversized board of directors tend are more likely to become less effective and may decrease their efforts and resulting higher degree of free-riding. He added that large boards cause poor communication and decision making problems. Hence, it is difficult for a large board to coordinate and monitor management. In other words, a large board may reduce the effectiveness of board monitoring and therefore lower firm performance. On the other hand, some argue that there are positive relationships between board size and firm performance. When the board size grows large, more resource networks and independent and professional views can be brought to board.

The third variable which is CEO duality has negative relationship with firm performance in all model. The results provide evidence that CEO duality is negative and significantly suggesting a lower firm performance for those who play dual role of CEO and Chairman of Board. The results show a negative relation between CEO duality and the firm performance, significant at the 0.01 level for both all dependent variables (EVA, ROA & ROE). These results confirm our findings and suggest that a CEO who is also chair of the board tends to decrease the firm performance than a CEO who does not hold both positions. This finding is in line with Conyon (1997) who found the separation of chairman and CEO post might potentially alleviate agency problems. According to Jensen (1993), the presence of CEO duality may cause difficulty in controlling the management; as it tends to be biased towards the management's interest which may cause less effectiveness of the board functions, thus lower firm performance. The finding is further explained by Conyon and Peck (1998), they point out that a combined role of Chairman and CEO would trigger a potential conflict of interest while carrying out these separate responsibilities. This negative effect can be explained by the fact that CEO duality is widely seen as against good governance practices. Thus, this can explain our results of CEO duality have a negative impact on firm performance (ROA and ROE).

As shown in the table 3 above, firm age is found to be an insignificant variable to determine firm performance for ROA and ROE. This result is consistent with the research done by Ghosh (2006), who found that firm age was an insignificant variable based on 462 manufacturing companies. However, the coefficient of firm age indicates a significant positive relationship between EVA and firm age at 1% significant level. This result is in line with the studies done by Coad, Segarra, and Teruel (2013) who that found the evidence of firm improves with age. This may be due to older firms have steadily improved their productivity, hence create higher growth of profits and lower debt ratios. This relationship can also be explained by the theory of learning by doing, which stated that firms are more likely to improve their productivity efficiency over time by learning from their past experiences (Balik & Gort, 1993).

A negative relationship was found between firm size and their firm performance when economic value added (EVA) is used to proxy firm performance. Nevertheless, the results for ROA and ROE as proxy for firm performance show there is positive insignificant relationship between firm size and firm performance. Results in Table 3 shows a significant negative relationship between the size of firm and EVA with a coefficient of -5.427. This indicates that any increment in size of the firm will decrease the firm performance. The reason behind is firm's expansion in the size could incur a greater increment in capital cost proportion as compared to the earnings generated. This outcome is consistent Issham et al (2008) as they also concluded that large size and government linked firms are more likely to have lower EVAs. Same result also has been found by Hudaib and Haniffa (2006). One possible explanation has been suggested by Hannan and Freeman (1989) which is smaller firms are tend to be more creative, innovative and willing to change in order to enrich their values.

The last variable which is FLEV has a positive relationship with ROA at 1% significant level. The positive impact of leverage towards firm performance has been supported by many studies (Akhtar et al., 2012; Ward & Price, 2006; Sharma, 2006; Myers, 2001). Jensen (1986) mentioned that leverage reduces the free cash flow problems therefore increase firm's performance.

5. Conclusion and Implication of the Study

This study provides evidence of positive significant relationship between director remuneration and firm performance in terms of ROA and ROE. We suggest that high remuneration may able to motivate and retain directors in order to perform their duty and work harder for the best interest of shareholders. The results also show CEO duality and firm size has a negative significant relationship with firm performance. Meanwhile, firm age and firm leverage show a positive significant relationship with firm performance. Nevertheless, Board size shows mixed results with firm performance when using different proxies.

The results in this study can be used as a guidance for investors during their investment decisions making. The main finding of the research shows that directors' remuneration is positive significantly related to firm performance (measured by ROA and ROE). This study contributes to a better understanding for investors as how directors' remuneration tends to create value and increase firm profitability. Next, this study can be used to help managers to gain a better insight on how to enhance firm performance. By providing higher remuneration, directors will be motivated to work harder and increase productivity, this will boost up firm performance as a whole. This research also assists managers to develop more effective strategies in order to prepare organizations for a rapidly changing business environment. Our study also recommends the managers to have close monitoring on director remuneration, CEO duality and leverage, as these factors do have an impact on the firm performance.

This research also tends to provide some useful references to the regulator; such as the need of Bursa Malaysia to enforce the rules and regulations of disclosure especially those factors that are found to be significantly affecting the firm performance. With good corporate governance such as monitoring of director remuneration, the public, investors and employees will be more well protected and treated equally in order to create a transparent capital market in long run. We suggest future research may include a broader sample from other industries or countries and testing on other measurements of firm performance such as growth and ratings.

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The Factors Affecting Jordanians Housewives Consumption Behavior: A Qualitative Approach

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Abstract

Based on the findings of semi-structured interviews with (N=129) Jordanian housewives, this study examined the psychological, social, and marketing influences on the purchase and consumption behavior of Jordanian housewives. Overall, the findings of this study showed that the purchase decisions of the housewives were motivated by necessity to satisfy basic needs and the family appeared to be the main influencer affecting the housewife purchase decision. With regards to the factors prohibiting consumption, inflation appeared to be the main factor discouraging housewives from making purchases. A number of managerial implications and suggestions are also presented.

Keywords: consumer issues, Jordan, public policies, buying behavior

1. Introduction

Families are the main component of any society in the world, that is due to them being the ones who present ideas of purchase, determine their time and place, and determine the quantities purchased to meet the needs of these families (Solomon et al. 2016). In our current societies, families are forced to modify and develop their commodity and service needs as a result of their ever changing psychological and social needs (Obeidat, 2017). Moreover, since housewives have the most influence on the purchasing behavior of the family, various studies and scientific research have focused and continue to focus on their views of the factors affecting the purchase behavior of the family (Schiffman and Wisenblit, 2014). Consequently, this study will mainly focus on the attitudes of the Jordanian housewives toward the purchasing process and the role of psychological and social factors affecting their consumption behavior.

The current difficulties in the Middle East have triggered a series of economic issues to the Jordanian consumer (Ammonnews, 2012). From the continuous increase in inflation rates, increasing taxes on almost every product category, decline in income levels, the shrinking of the middle class, to the youth unemployment levels reaching almost 30% (Obeidat, Obeidat, Obeidat, and Xiao, 2016). Consequently, the importance of this study is that the so-called Arab Spring has begun to fade now, which necessitates the need to identify the changes that have occurred in the patterns of consumption and consumption of families in general in light of the current socio-economic political reality.

The importance of this study stems from the fact that it examines the psychological and social factors affecting the purchasing decisions in the Jordanian family from the housewives point of view of. The identification of these factors influence on the consumption behavior of the family as well as determining the impact of the family and reference groups and their social status on purchasing and consumption decisions of the Jordanian housewives will help in finding solutions that helps correct errors in this behavior, which in turn, will positively affect the family and the general economy, in addition to increasing the sense of economic security in the family and on the health of family members psychological and social wellbeing.

As a result, this study will aim to identify the most influential factors affecting purchasing and consumption in the Jordanian family, In addition to determining the underlying motives of the families before and during the purchase.

2. Literature Review:

It should be noted that there are dozens of studies that have attempted to identify the different effects of psychological, social, demographic and cultural factors on the purchasing and consumer behavior of individuals and families, in multiple societies and in different environments (Schiffman and Wisenblit, 2014; Cross, and Plank, 2015; Hartmann et al. 2017).

Pride, (2008) and Avello et al. (2011) points to the effect of psychological factors on consumer behavior such as motivations, direction, quality, learning and type, as well as the influence of beliefs and attitudes previously held by the consumer about the product of interest. Kytö et al. (2017) examined the influence of the consumer emotional state and found a positive link with the purchase intention and decision.

The study of Murray, (1991) has indicated that consumer purchasing activity is affected by previous marketing experiences in addition to activities that are implemented to satisfy the needs and family desires. Alekam et al. (2017) and Slater et al. (2010) also examined the impact of the four p's on the purchase and consumption behavior and found a significant influence. Another study of interest by Solomon, Dahl, White, Zaichkowsky, and Polegato, (2014), identified the impact of the availability of marketing information about the available goods and the associated quality and appropriateness of prices with purchasing behavior. The study of Minnema et al. (2017) also found an influence of reward programs on purchase intentions and behavior.

Furthermore, some studies focused on the impact of social factors on purchasing and consumer behavior, which included family, reference groups, relatives and cultural culture, among others, as well as the impact of cultural factors, culture and social classes (e.g. Schiffman, Kanuk, and Wisenblit, 2015). The study of Bai et al. (2015) in addition to Belk (1975) found an influence of social factors on the consumption behavior of a sample of household owners. In the same context, the Ali et al. (2017) study found a main predictive influence of the personal factors on the rules and fundamentals of purchasing and consumption. Other studies, such as Turley and Milliman, (2000), Mattila and Wirtz, (2008), Sherman, Mathur, and Smith, (1997) and Fransman and van Timmeren, (2017) all confirmed the impact of these psychological and social factors on purchasing behavior.

In Jordan, the study of Obeidat (2017), confirmed the impact of demographic, commodity and seller factors, as well as the impact of some external factors in influencing purchasing behavior. Consequently, due to the lack of studies examining consumption behavior and the factors affecting it in Jordan, this study aims to identify the impact of the psychological and social factors of Jordanian households on their purchasing and consumption decisions and at a difficult economic stage. After analyzing the previous studies the current study will try to answer the following question:

1- What are the main factors psychological, social, and marketing factors influencing the purchase decision of Jordanian housewives?

2- What is the most influential factor affecting the purchase decision of Jordanian Housewives?

3. Methodology

In order to examine the main factors affecting Jordanian housewives consumption and purchase behavior, an exploratory Qualitative approach was chosen from a purposive sample of (N=129) Jordanian housewives, a suitable sample size seeing as the majority of qualitative studies use a sample size between 50-70 (Saunders, Lewis, and Thornhill, 2007; Bryman, and Bell, 2011). Moreover, the study population included a selection of all the areas located in the Greater Amman City, which includes the different sectors of Jordanian society. The housewives were interviewed in malls, supermarkets and shops located in various areas of East and West Amman and the northern and southern suburbs. Students from the 27-year Master's Program at Amman Arab University and the University of Jordan conducted interviews in order to give sufficient time and attention to the studied sample.

Furthermore, the interview manual was presented to a group of experts specialized in marketing and psychological-social studies to verify the suitability of the questions for the objectives of the study. Semi structured interviews were used with each interview lasting between 35-40 minutes which helped the researchers to generate rich amounts of data that will help uncover the main patterns in their consumption behavior (Sekaran, 2003). Moreover, the interview manual included first a series of demographic question relating to the participants age, monthly income, monthly expenditure, family size, household status, educational level. The interview manual also included questions as (i.e. what are the main factors affecting your purchase decision, are you affected by the social culture in Jordan when you make a purchase?, can you describe how? And what are the main marketing factors that influence your decision when you make a purchase?). Additionally, as recommended, the authors provided the participants with a description of the purposes of the study in addition to guarantees that their answers will remain confidential (Saunders et al. 2007). Furthermore, the data collection process lasted for five months. A back translation was then performed as recommended by Saunders et al. (2007) to ensure the translated interview transcripts matched their original sources.

With regards to the data analysis, all the interviews were recorded manually. Moreover, while some initial thoughts were built before the data analysis began, the formal data analysis began after the data was collected. Thematic analysis was used to identify, analyze, and report the collected data (Creswell, 2009). This approach was used due to its flexible and simple structure, while having the ability to capture the evolving process under review (Braun & Clarke, 2006). Consequently, the interviews' transcripts were first subjected to this analysis to provide a broad thematic portrayal of the collected data.

As recommended by Braun and Clarke (2006), six main steps were taken to analyze the data. First, to familiarize oneself with the collected data, as a result, considering that the data was transcribed manually, knowledge of the content of the interviews was achieved. Nevertheless, the transcribed interviews were read at least twice by the researchers to get a picture of the overall themes to emerge (Creswell, 2009). Second, to generate initial codes, the interviews were read again to identify the short divisions of the data. Overall, it was found that all of the collected data fitted into one of the four main initial codes generated. Third, to search for themes, the relevant preliminary codes were organized into possible themes (Braun & Clarke, 2006). As recommended by Creswell, 2009, mind map software was employed to unify and combine the initial codes to form the general main themes. In the Fourth step, to ensure that the four main themes make sense to the complete data set, the researchers reread all of the interviews to identify any new themes that might have been overlooked in any of aforementioned steps. All of the themes were reviewed and refined to ensure internal consistency within each category (Braun & Clarke, 2006). In the final step, all of the emerging themes were given names and labels in order for them to be clarified and distinguished.

4. Results

4.1 Sample Description

Overall, 52.6% of the housewives shopped only once weekly, whereby, 23.2% went shopping 2-3 times a week, and 10.5% of the sample went shopping between (4-6) times per week. Only 14.7% of the sample went shopping only once every two weeks. With regards to participants' age, as seen in Table (1), the majority of participants were between 45-55% years old with 31.6% which indicates a good consumption experience. 23% were between 35-44 years old, and 13% were between 25-34 years old.

Table 1. Age of the participants

Age	Percentage
Less than 25	12.6%
25-34	13.7%
35-44	23.1%
45-54	31.6%
55-59	11.6%
60 and above	7.4%
Total	100%

With regards to the martial statues of the housewives, Table (2) shows that the majority of the housewives were married with 82%, 5.3% were divorced, 3.2% were widowed, and 7.4% were single. Consequently, considering that the majority of the sample were married housewives, this shows that the majority of the sample had a good influence on the buying process and purchases of the family.

Table 2. Martial Statues

Marital status	Percentage
Married	82.1%
Divorced	5.3%
Widow	3.2%
Single	7.4%
Other	2.1%
Total	100%

With regards to the income levels of the housewives, Table (3) shows that the majority of the housewives earned between 500-999 Jordanian dinars, followed by 250-499 JD's, with only 10.6% earning over 2000 JD's.

Table 3. Income levels:

Income levels	Percentage
Less than 250	4.2%%
250-499	23.2%%
500-999	36.8%
1000-1499	15.8%%
1500-2000	9.5%%
2000-2999	5.3%
3000 and above	5.3%
Total	100%

With regards to the participants employment status, Table (4) shows that the majorities of the housewives were either unemployed with 49 % or retired with 11.6%. which shows signs of difficulty in making purchase decisions.

Table 4. Employment status

Employment	Percentage
Full time in governmental sector	10.5%
Full time in private sector	10.5%%
Free lance	9.5%
Retired	11.6%%
Unemployed	49.5%
Other	8.4%
Total	100%

Moreover, with regards to the educational level of the participants, Table (5) shows that the majority of the sample had a bachelor degree with 35%, followed by a high school certificate with 25%, and a diploma with 23%.

Table 5. Educational level

Education	Percentage
Middle school	5.3%
High school	25.3%%
Diploma	23.2%
Bachelor	35.8%%
Masters	9.5%
PHD	1.1%
Total	100%

Overall, the findings first indicated that the majority of housewives had a reasonable proportion of purchasing and consumption experiences. However, the majority of the housewives had monthly incomes of less than 1,000 dinars. This is a significant financial burden for these families. Furthermore, 49.5% were retired or currently do not work which puts an additional financial burden on families, especially that the rise in prices for goods and services continues without any regard to the purchasing capacity of the majority of families in the middle and lower classes, which may reach up to (80%) of the total families. Additionally, the results indicate that 35.8% of housewives have a bachelor's degree, which indicates a reasonable degree of awareness and knowledge of purchasing and consumption indicators. The percentage of housewives who were willing to purchase was always (87.4%), while the percentage of female housewives who did not have a desire to purchase all the time was only (12.6%).

4.2 Purchase Motivations and Restrictions

With regards to the purchase motivations, data analysis first showed as seen in Table (6) that 66% of respondents identified actually needing the product as their main reason for any purchase they make. This issue was heavily linked to the food and beverages category of products with 78% of the sample. Generally, these increases don't come as a surprise considering that with the continuous price increases in Jordan, consumers often resort to buying their basic necessities. As one of the participants explains:

"With the continuous inflation of prices, which is not accompanied by any increases in our Monthly income, we have to make do with what we have, which only covers our basic needs for food, gas, and electricity"

Additionally, 15% of the sample identified that their reason for purchase was not necessitated by an actual need but out of a sudden urge to buy. This motivation often accompanies acts of impulsive and compulsive buying (Pride and Ferrell, 2016). This finding is consistent with previous findings in the literature that associate females with higher degree with impulse buying (Schiffman and Wisenblit, 2014). This motivation was found to be associated with mostly shopping and luxury products such as clothing as seen by the comment below:

"Honestly, I don't know why I buy sometimes, often I see a pair of shoes or dresses that I don't actually need but I just have to have them, shopping always changes my mood"

The third and fourth motivations were related to promotional factors with 18% of the sample. In this situation respondents were either wanted to try a new product or they were influenced by situational factors such as price discounts. Evidence from the literature supports these findings as many studies have established the influence of promotional factors on consumption behavior (Pride and Ferrell, 2016), as one participant explains:

"very often I don't want to buy, but with economic situation a lot of firms are doing heavy promotions to sell their stock, so I can get product that I won't normally buy at cheaper prices, so that what motivates me to buy"

Table 6. Factors encouraging Consumption

Purchase motivation	Percentage
Home Supplies	66.3%
Impulse	15.8%
To try a new product	11.6%
Promotional influences	6.3%%
Total	100%

With regards for the factors the discourage housewives from purchasing, Table (7) shows that the main factor restraining purchase for the housewives was the inflation of prices of product with 39% of the sample. In Jordan, the inflation of prices was seen as one of the main issues troubling the Jordanian consumer (Obeidat et al. 2016). The increases were seen in almost every sector in Jordanian market from the food and beverages sector, to gas, solar, and electricity and housing. This factor was heavily linked to the younger segment of our sample. The second factor was related to the low income levels of participants which can't let them afford to buy products outside of necessities. This factor was reported by 4.4% of respondents and is related to the first inflation category. This issue also appeared to be related to the youth segment of our sample. These two factors are explained by one participant below:

"one of the main problems we are facing in Jordan is the continuous inflation of prices, which is not accompanied by any increase in our incomes, and to make matters worse, we can barely afford to buy our weekly needs as it is"

Additionally, 16% of the sample also identified that sometimes the crowding in the store is what cause them to withhold the purchase. Generally, this finding is supported by previous findings in the literature as the store crowding has been found to cause consumers to turn away from purchases and even leads them to acts of misbehavior (Harries and Reynolds, 2009). Moreover, respondents also cited the method of product display as also one of the main reasons that often leads them to withhold purchases with 10% of the sample. Another 19% of the sample identified the low quality of products as the reason they don't purchase often. This finding does not come as a surprise especially with continuous reports of official governmental departments finding large shipments of expired products such as white and dark meat, medicines, and convenience products (Ammonnews, 2016). Finally, 12.6% of the sample identified the bad customer service provided to them in store as the reasons they refrain from purchase and consumption. This factor was found to largely influence purchase, purchase intentions, and acts of complaining and revenge (Obeidat et al. 2017).

Table 7. Factors restricting consumption

Purchase restrictions	Percentage
Inflation	38.6%
Low income levels	4.4%
Crowding	16%
Method of display	10.5%
Low quality of products	19%
Customer service	12.6%
Total	100%

4.3 Social Factors

With regards to the social factors that influence the housewives purchase decision, Table (8) shows that family was viewed as the main factor influencing the housewives purchase decision with 52% of the sample. This is consistent with previous findings that the family plays a large role in what the person purchases (Schiffman and Wisenblit, 2014). In addition, it also supports the previous finding earlier that the reason most housewives purchases is to buy product that are supplies for the house as one participant explains:

"like I mentioned before, my family takes most of my time, I rarely buy anything for myself, neither does my husband, so most of our purchases are centered to what kids want"

Moreover, Table (8) also shows that the housewife social class also dictated what she buys with 32.6% of the sample. This finding is also consistent with previous studies which show that the consumer social class influence what he/she buys (Solomon et al. 2016). As seen buy one of the participants comments below, the social class the housewives belonged to, dictated what they had to buy even that in some circumstances she could not afford it:

"you have to keep up with appearances, we can hardly afford anything right now and in this economy , but we have to keep our lifestyle consistent with our social circle because this society its all about appearances and I don't want my kids to feel they are less than anyone else "

The third social factor related to the housewives cultural values with 9.5%. As seen by the comments of one of the participants below, the cultural values seemed to highly influence what the housewife bought for her family. This finding is also supported by findings in the literature (Pride, 2008) that demonstrate the influence of the values and culture on consumer behavior.

"When we have a gathering for my husband family or mine for example, we are forced to buy products that are out of our price range; nevertheless, we have to buy something that honors them so we won't feel ashamed"

Finally, the fourth and final social factor related to the reference group of the housewives with 6.3% of the sample. As explained by the one housewife below, the influence of the reference groups such as friends and co-workers influenced what the housewife bought or didn't buy. This finding is also hugely supported in the literature (Schiffman and Wisenblit, 2014).

"am mostly influenced by what my friends say or recommend, in some cases they have more experience than me so I always rely on their judgment "

Table 8. Social influences on consumption

Social influences	Percentage
Family	52.6%
Social class	32.6%
Cultural Values	9.5%
Reference group	6.3%
Total	100%

4.4 Psychological Factors

With regards to the psychological influences on the housewives purchase decision, Table (9) highlights that the main factor the made housewives shop was to avoid thinking about problems and reduce stress with almost 50% of the sample. Generally, links between shopping and stress reduction were found in the literature (Pride, and Ferrell, 2016). In this case, the housewives went shopping in order to avoid thinking about the problems she is facing, clear her head, and reduce the stress she is feeling as explained by one housewife below:

"I don't know, most of the time I go shopping to clear my head and think of other matters that don't disturb me, shopping always changes my mood"

Furthermore, the second factor related to the housewives getting rid of boredom with 27.4%. As seen by the comments of one of the participants below, this factor also relates to the first where in both shopping is used to change the mood. This finding is also reinforced by findings in the literature (Murray, 1991) that demonstrate the influence of the shopping as mood changer in consumer behavior.

"I like to keep myself occupied because I get bored very easily, so whenever I have nothing to do I go to shop something and sometimes I spend hours looking around before I buy something"

Moreover, Table (9) also shows that the housewives sometimes shop because they like to acquire things and like the feeling of having possessions. This notion is highly related to the materialistic personality in consumer behavior (Schiffman and Wisenblit, 2014). This factor was reported by 23.2% of the sample and as seen by one of the participants comments below, this personality trait highly influenced their purchase behavior:

"Honestly, I shop because I like to possess things, whether it jewelry, clothes, or cars, I really like the feelings of having things and I really like the feeling of having things that are mine"

Table 9. psychological influences on consumption behavior

Psychological influences	Percentage
To clear my head	49.2%
Out of boredom	27.4%
Materialism	23.2%
Total	100%

5. Discussion

Based on a qualitative sample of (N=129) Jordanian housewives, this study examined the motivation and factors affecting purchase and consumption behavior. Moreover, this study identified three main set of factors that influence the purchase decision of the Jordanian housewives. In terms of psychological factors, the majority of purchase decisions were performed as a distraction and as a way for the housewives to clear their heads. In terms of social factors, family appeared to be the main influencer on the purchase decision. With regards to the factors prohibiting consumption, inflation appeared to be the main factor discouraging housewives from making purchases.

Overall, the findings of this study show that the reasons behind the purchase of housewives were mainly to meet the needs of their homes and followed by purchasing just for the sake of doing so. Only a small proportion of the sample bought just to try a new product or because of marketing influences. Moreover, the reasons that discouraged housewives of buying were the high prices, lack of income, and overcrowding in shopping places, in addition to the poor quality of goods. Generally, these findings are supported by previous findings in the literature that shows the difficult economic conditions in Jordan such as the high inflation and unemployment rates and low income levels (Obeidat et al. 2016). However, it is the first time in the Jordanian context that factors such as crowding of shopping stores and the low quality of products has been mentioned. Consequently, providing better store designs and queue systems should minimize the appearance of crowding if firms wish to encourage consumers to buy. More importantly, the governmental observation of the prices can help reduce the issue of inflation and therefore should be increased. While the mainstreams of suppliers in Jordan are influenced by the economic conditions, some still increase their prices without any consideration to the diminishing buying power of the consumer. Therefore, increasing the governmental oversight could help in decreasing the negative consequences of these issues to a degree.

With regards to the social factors influencing the purchasing decision of housewives, the family was found to mainly influence the purchases of the housewives followed by the social class the consumer supposedly belongs to. As a result, for firms wishing to increasing traffic at their stores, placing family appeals in their promotions and targeting kids with their offers could help do that. Additionally, consumer agencies and governmental bodies that are supposed to handle consumer issues should design and implement awareness campaigns that educate consumers about the correct purchase patterns and about spending within their means. Consequently, consumption rationalization campaigns should also be implemented to decrease unnecessary shopping acts that eventually harm the buying power of the consumer.

With regards to the Psychological factors affecting Jordanian housewives consumption, three main factors appeared to highly influence the purchase decisions. The first two related to using shopping as a way to reduce boredom and a distraction. While the third related to a personality trait. Consequently, considering the negative consequences unneeded shopping could have on the Jordanian family financial statues, awareness campaigns regulated by the responsible bodies could also showcase the negative consequences of these actions in this regard. While the current society and philosophy of most firms tend to promote an ideology of consumption, specific measures has to be taken in some cases to intervene and to restrain some promotional campaigns to ensure that the consumers expenditure won't cause negative effects on his/her wellbeing especially in the cases where the firms promotions encourage materialism.

Based on the results of this qualitative study, it is necessary for the factors identified here to be tested using a quantitative design in order to obtain results that can be disseminated to larger sections of Jordanian housewives. Second, it is also necessary to deal with a large random or a non-random sample that reflects the different demographics associated with the psychological, social and cultural components of the Jordanian society. Therefore, the coverage of the sample items for all twelve governorates of Jordan may be essential to obtain results that can be circulated to the Jordanian society.

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Analysis of the Current Situation of Mongolian Railway and Its Future Development

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Abstract

The purpose of this article is to contribute the conceptual knowledge of the railway policy issue in Mongolia. The paper presented an overview of the current transport situation of Mongolian Railway. It analyzes the statistical indicators of freight and passenger traffic as well as capability analysis of the railway transport. Moreover, it highlights its further development prospects and its importance for country's economic. In last but not least, it formulates the future prospects of sustainable development of railway sector.

Findings of this research are: a) by analyzing statistic data the high correlation (R=0.87) between GDP and freight transportation of Mongolia has been confirmed. The type of cargo analyzed and the economically efficient type of cargo within Mongolia has been highlighted. b) The GDP and passenger turnover has a very weak relationship. c) In the regional context, Mongolia's transport statistics main indexes performance somewhat in the middle and there has room to increase the freight operation in the future.

The research method is based on the analysis of strategic documents, secondary data, including statistical data obtained from the Central Statistical Office in Mongolia, Statistical Office in UBTZ (Ulaanbaatar Railway Mongolian-Russian Joint-stock Company), OECD (Organization for Economic Co-operation and Development) official site, International Union of Railway (UIC) official site and World Bank official site.

Keywords: freight operation analysis, railway freight and passenger operation, railway of Mongolia, UBTZ (Ulaanbaatar Railway Mongolian-Russian Joint-stock Company)

1. Introduction

Since its establishment in 1938, the Mongolian Railway has been the most important transport sector within Mongolia. Every year, more than 23 million tons of cargo and 2.5 million passengers are transported through the railway in Mongolia. However, today's rapidly developing socio-economic condition and population demand more transport. The current capacity of railway does not meet to the growing demand of transportation and customers' needs. Therefore, this study intended to analyze the current condition of Mongolian railway, rail traffic trend and future prospects for development through the comparison and historical analysis methods.

The paper consists of following parts. First part reflects the overview of Mongolian railway's and its current capacity as well as existing railway operating parts. The second part discusses the Mongolian railway freight and passenger operation analysis. It also includes the freight operation's statistics and capacity analysis in the regional context within the Central Asian Regional Economic Cooperation organization (CAREC) country. Finally, it discusses the future development possible direction and investment plan of the railway of Mongolia.

2. Overview of the Railway Operation in Mongolia

2.1 Railway's Brief Information

The Mongolian Railway organization is one of the largest and most important transport organization in Mongolia. At present, the total length of the railway is 1815 km, of which 1110 km runs from north to south, connecting European and Asian continent.

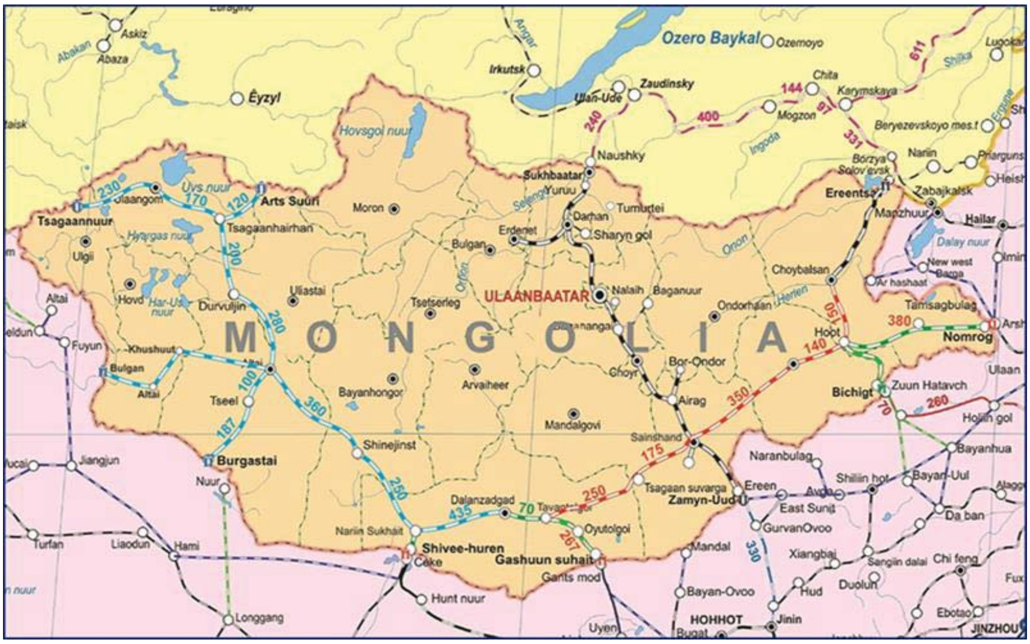

Figure 1. Map of the Mongolian railway system (the black one is an existing railroad system the blue, red, and green are the future plan)

Source: (MTZ, 2015)

Due to the geographical conditions, lack of direct access to the sea and vastness of the territory, the rail transport plays an extremely important role in Mongolia. The railway transport of Mongolia dates back to the first half of the 20th century. The first railway of Mongolia was built in 1938 and was operated for 43 km length, from the "Nalaikh" coal mines to the capital. Construction of the Trans-Mongolian line began in 1947, reaching Ulan-Bator (the capital of Mongolia) from the north in 1950 and to the Chinese border in 1955. The Trans-Mongolian Railway follows an ancient tea-caravan route from China to Russia and connects to Ulan-Ude, on the Trans-Baikal (Trans-Siberian) railway in Russia, with the Chinese city of Jining, through Ulan-Bator in Mongolia (Trans Mongolian Railway, 2017). The operation was carried out in 1956. Thus one of the main transport corridors linking the European and Asian continents came into being. In 1949, it was organized by the Mongolian-Russian joint venture Ulan Bator Railway (UBTZ) based on an agreement between the government of the Mongolian People's Republic and the Soviet Union with an equal distribution of shares in the authorized capital (50% to 50%). The UBTZ is part of the Trans-Siberian rail network and part of the 4th corridor of the Central Asian Economic Cooperation.

2.2 The Main Operation Parties of Railway in Mongolia

To date, the main governing body of Railway sector in Mongolia is the Ministry of Road and Transport Development. Under the Ministry of Road and Transport Development, there is an organization named "Railway Traffic Control Center" which was established in 2013. The purpose of this organization is to coordinate the rail traffic within the public and private rail operators as well as regulating and managing the relations between them(Center, 2016). The most dominating and main railway carrier within Mongolia is UBTZ which is both infrastructure manager and the only transporter (carrier) operating on this infrastructure.

The Mongolian Railway State-Owned Shareholding Company (MTZ) is the 100% state-owned company that was established in 2008 which owns locomotive and freight rolling stock fleets as well as logistic terminals, without rail tracks. In the future, the Government of Mongolia intends for MTZ to become a transporter and eventually an infrastructure owner taking the government shares in new railways (Drew, Enkhtaiva, Delgersaikhan, Enkhbayar, & Bolatbeck, 2014).

The Bold Tumur Eruu Gol (BTEG) is a private company which was founded in 2001 and has an exploitation license for iron ore deposits. BTEG has built 85 km of railway line and owns locomotive and freight car fleets (Drew et al., 2014). At present, the rail sector of Mongolia has only government structure, but in the future, the private sector participation will be an increase since the extraction of mineral deposits and their exports going to be future prospects of a country. In section 3, the new railway projects are discussed in detail. Table 1 shows the technical capacity of UBTZ. Today UBTZ is carrying out 78.5% of freight turnover and 27% of the passenger turnover in Mongolia (UBTZ, 2017a).

Table 1. The technical capacity of the UBTZ (in 2016)

Indicators	Units
The total railway network	1815 km
The length of the Trans-Mongolia railway	1110 km
Rail Track Gauge	1520 mm
Number of Stations	75
The train traffic system	Semi-automat
Total employee	15800
Annual transport capacity	23-25 million ton
Axle load	23 ton
The train maximum speed:	
Freight train	80 km/h
Passenger train	90 km/h
Rolling Stocks Fleet:	
Number of locomotives	138
Number of freight cars	3071
Number of passenger cars	292

Source: (UBTZ, 2017a)

The total length of railway track is 1815 km, of which Trans-Mongolian rail track is 1110 km. Through this single railway track, overall railway traffic of Mongolia as well as international transit goods flow. In 2016, the UBTZ's annual cargo operation capacity was 23-25 million ton and the train maximum speed was 90 km/h, while the rail rolling stocks fleets are not enough to the increasing demands of cargo operation. As said in a study (UBTZ, 2017a) the most of the UBTZ's technology was developed in the early 1990s. This indicates the need of further development and investment projects to improve the railway sector. All these issues will be discussed in section 3.

3. The Railway Operation Analysis of Mongolia

3.1 Railway Sector of Mongolia in the Regional Context

Since Mongolia is located at the Central Asia region and a member of the Central Asian Regional Economic Cooperation organization, it is worth to investigate the railway of Mongolia in the regional context. Below is the railway statistics among the CAREC countries.

Table 2. Railway statistics of the CAREC country /data in 2015/

№	Country	Surface area km2	Population	Population density	Railway company	length			Stock		Average staff /thousand/	Freight		Passenger	
		thousands	millions	inhab/km2		Total /km/	Double track /km/	Electrified track /km/	Locomotive	Railway's own wagons		Tonnes carried /mln/	Tonne.km /mln tonn-km/	Passenger carried /mln/	Passenger kilometres /mln/
1	Russia	17098	143.81	8	RZhD	85262	37869	43424	17511	63375	777.38	1329.01	2304759	1020.42	120413
2	Mongolia	1564	2.96	2	UBRW	1822	0	0	138	3071	13.36	22.295	11462	3.31	1194
3	China	9563	1370.84	143	CR	67212	33760	38521	19846	711968	2002.3	2294.1	1980061	1544.36	723006
4	Kazahkstan	2725	17.51	6	KZH	14319	4911	4170	1816	55659	79	280	223583	21	16595
5	Afghanistan				0	0	0	0			0		0	0	
6	Azerbaijan	87	9.65	111	AZ	2067	803	1232	326	18240	0	17.09	6210	1.89	494
7	Kyrgyzstan	200	5.93	30	KZD	417	0					6.91	922	0.55	75
8	Pakistan	796	188.93	237	PR	9255	2866	0	452	15452		3.6	3301	52.95	20888
9	Tajikistan	143	8.48	60	TDZ	620	na	0				8.41	554	0.55	24
10	Turkmenistan	488	5.37	11	TRK	3115	na	0				26.84	11992	6.47	1811
11	Uzbekistan	447	31.19	70	UTI	4191	na	702				82.39	22686	17.12	3437

Source: (International Union of Railways, 2015)

As shown in Table 2, Mongolia's population density [inhab/km^2] is (2) the lowest within CAREC country, compared to other countries such as Pakistan (237), China (143) and Azerbaijan (111). However, the Kazakhstan, Russia, Turkmenistan, and Kyrgyzstan are also low population density countries.

Using above data, it is possible to calculate the railway operation capacity index for each country. The transport statistics main indexes (M. N. S. Office, 2008) are the total amount of transported cargo, freight turnover, a total amount of transported passenger, passenger turnover, wagon turnover, transferred ton per km, transportation income respectively. Among them the railway capacity indexes are worth to calculate and to compare country to country.

The freight turnover for one km railroad, passenger turnover for one km railroad, wagon turnover per km of railroad, average daily run of the locomotive per km of railroad are the capacity indexes which have been calculated in this part. The freight turnover for 1 km railroad is calculated as the freight turnover divided into the total length of the rail truck. Similarly, the passenger turnover for one km railroad is calculated. According to this methodology, the railway capacity indexes in 2015 has been calculated, among the CAREC countries, as shown in Figure 2.

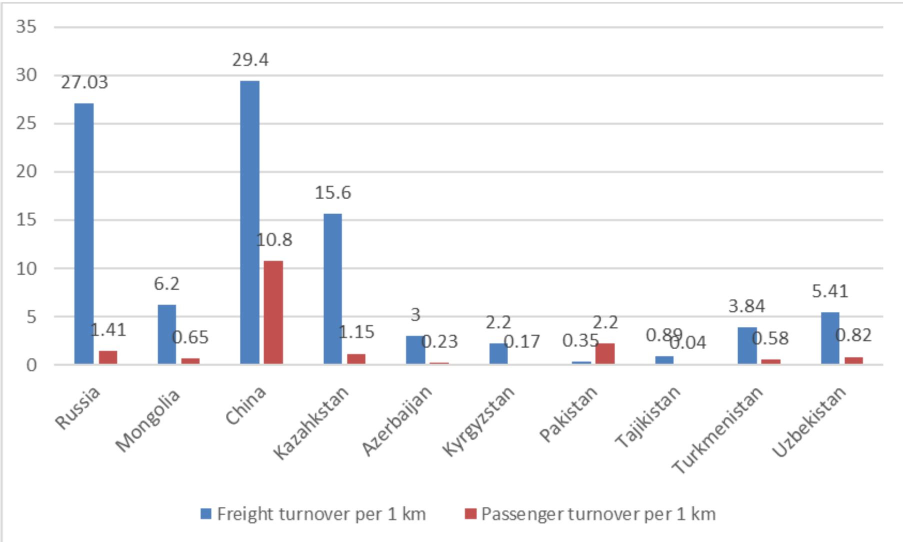

Figure 2. The railway capacity indexes within the CAREC countries

Source: (International Union of Railways, 2015)

From figure.2 it can be seen that the freight turnover per km is highest in China, Russia, and Kazakhstan, while its low in Pakistan, Tajikistan, and Kyrgyzstan. The Mongolia and Uzbekistan are somewhat in the middle.

The passenger turnover per km is highest in the China, Pakistan, and Russia, on contrary Azerbaijan, Kyrgyzstan, and Tajikistan have lowest, but Uzbekistan, Mongolia, and Kazakhstan are comparatively in the middle position.

Additionally, the number of staffs per km of a railroad and the number of rolling stocks (total amount of locomotive and rail wagons) for per person have been analyzed. But due to the unavailability of whole data from some countries, the study used only for four countries. The number of staffs per km of railroad in Mongolia is 7, in China 29, in Russia 9, and in Kazakhstan 6. The number of rolling stocks per persons, in Mongolia is 0.2; in China 0.3; in Russia 0.1; and in Kazakhstan 0.7. The number of stuff for per km railroad depends on the innovative technology level of railway and some other specific conditions.

From above calculation, the China and Pakistan railway passenger operations are more effective than other countries, while the carried freight is more in Russia and Kazakhstan than that in other countries. For Mongolia, the freight turnover and passenger turnover per km of railroad indexes have a different result. If compare to the CAREC country, Mongolia is in the somewhat middle position, after China, Russia, and Kazakhstan's indexes.

3.2 The Rail Freight Operation Analysis of Mongolia

The freight demand of rail transport may affect from economic conditions, expansion of the trade, regional market development, interdependence of the mining and industrial sectors, etc. Besides of demand, the supply also may affect to the transport market. The factors which affect to the supply can be railroad capacity, the amount of the rolling stocks (number of locomotives and wagons), loading and unloading terminal services etc. Although there has been a sufficient demand for cargo operation, it is limited by railroad real capacity. The throughput capacity of the railway, depends on the number of freight cars, the number of locomotives, the working condition of the terminal for loading and unloading cargo procedure, the number of stations, the rail truck length of the rail station etc.

In this part was analyzed the freight structure and future trends of a railway in Mongolia. From the Figure 5, it is clear that the in Mongolia's railway, the most effective and dominant operation is the freight transportation.

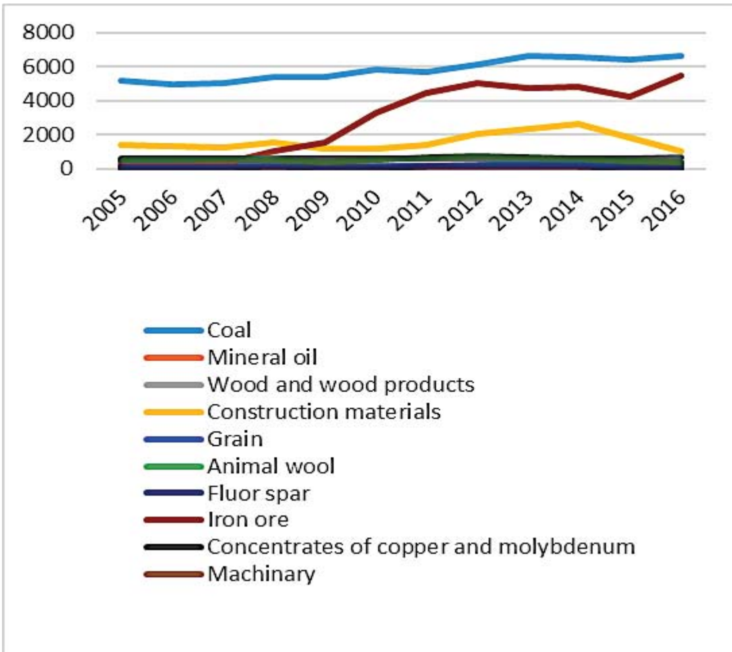

Figure 3. The type of the freights and its dynamic through the UBTZ from 2005 to 2016. Source: (U. Statistical Office, 2017)

From Figure 3, it can be realized that the countries most transported freights are iron ore, coal, copper, and construction materials. But due to the economic crisis of country, demands of the construction material have sharply decreased since 2014 and demands for the property have fallen. This crisis is still going on, and the real estate market is weak. However, due to the higher prices for coal and iron ore, the transportation is expected to increase. During the past decade, export volume of iron ore and copper concentrate to China have increased by more than 400%.

Figure.4 shows the freight transport structure of the UBTZ. The average annual growth rates between 2000 and 2016 indicate the following results: the total volume of freight traffic's growth rate is 4.96%, in which import's growth rate is 4.7%, export's growth rate is 13.9%, domestic freight's growth rate is 2.25%, and the transit freight's growth rate is 2.8%.

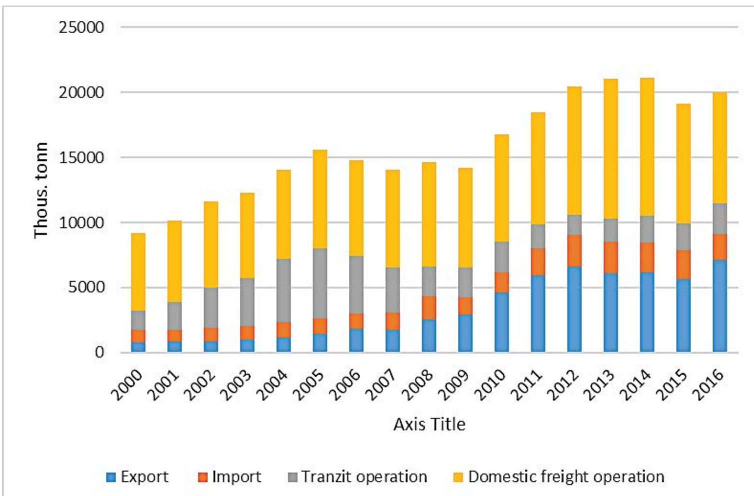

Figure 4. The freight transport structure operating through the UBTZ. Source: (U. Statistical Office, 2017)

The data from (figure.4) shows the export traffic rate is much higher than others. As in 2016, all Mongolia exports of 97.4% was exported to China (south) and only 2.58% was exported to Russia (north). From 2010, export sharply increased due to the export of mining products to China (south). As mentioned in the study (Otgonsuren, 2015) on March 21, in 2014, the Mongolian government made a decision to increase coal exports, within the framework of improving foreign trade, to build a standard gauge railroad which would connect Gashuunsukhait and the Ganqmod border port of entry in China. However, the data obtained from Ulan-Bator Railway Statistic office showed that the 70% of imported goods are from Russia and 30% from China. For the railway sector of Mongolia, transit traffic between China and the EU is strategically important(UBTZ, 2017a). So, collaboration with Russia's Railway as well as China's Railway can provide an opportunity to catch up freight flow.

Figure 4 shows that the traffic volume has been decreased since 2006. Before 2006 freight's annual growth was 21.2%, after 2006 it has been decreased, and from 2006 to 2016 it was down (-5.79%). For example, in 2015, transit transports from China to Europe, only 9% was transported via Mongolia. So, one of the main priority of UBTZ is to increase transit traffic volume.

The most of transit cargoes are directed from Russia to China. As in 2016, the 84% of transit cargo was transported from Russia to China and 15.9% of transit cargo directed from China to Russia. Therefore, not only railway authorities of Mongolia but also OSJD (Organization for Cooperation of Railways) should pay more attention to activate the container transportation from China via Mongolia to Russia and Europe and vise verse (OSJD, 2017).

3.3 The Rail Passenger Operation Analysis of Mongolia

As in many other countries, passenger operation of Mongolia's railway in a critical condition. Figure 5 shows that there is hardly any change in the rail passenger traffic within 16 years. Statistic show that (U. statistical Office, 2017), during the last few years, the passenger traffic trend has decreased. The highest period of passenger traffic was in 2007 when 4.5 million passengers have transported but as in 2016, it decreased to half, transported only 2.6 million passengers. There are many reasons for such decrease. For instance, the train's speed is slow as 80 km/h, the train timetable is unsuitable for passengers, and last few years was constructed a new motorways connecting between big cities and capital city as well as neighbor country's borders. In the future, the Government of Mongolia will pay more attention high-speed motorway constructing. Due to the new high-speed motorway citizens purchase of private vehicles increasing year by year.

From an economic point of view (Center, 2016), demands for passenger transportation depends on population growth, age structure, income growth, the development of other modes of transport, railway tariffs, and the throughput of the railways capacity, so on. In 2017, the Passenger Department of the UBTZ (UBTZ, 2017b) have conducted a survey from domestic rail passengers for all direction of UBTZ. The reason for the survey was to explore the passenger's satisfaction with current service quality level and highlight passenger's suggestion and opinion for further improvement of passenger service. Totally 1043 passengers have participated. However, valid answers got from 932 respondents.

The 65% of respondents were female, 35% were male and almost 50% of them aged between of 26 and 50. The question "Why did you choose railway?" 44% of respondents chose reliable, 20% affordable, 23% convenient, and 10% good service, respectively. The respondent's complaints were: bad behavior of staff, lack of booking tickets, complicacy of buying tickets and somewhat necessity of more trains during the holiday time.

According to this survey and transport market demands as well as for improvement of passenger turnover, the UBTZ's Passenger Departments has a plan for series of work. For example, the new route of passenger trains has been opened recently. This is the Irkutsk-Ulaanbaatar tourist train new route. JSC Russian Railways and JSC UBTZ agreed on a new order of trains running in the Russia-Mongolia (OSJD, 2017). The traffic started its route in December 2017 from Ulaanbaatar. The train allows periodicity once a week from Ulaanbaatar to Irkutsk. This is expected to improve passenger traffic volume and efficiency of passenger service.

3.4 The Rail Sector and the Macroeconomic Relationship Performance

Mongolia has experienced a major mining boom. So, till 2012 because of the mining boom, in Mongolia a large number of mining products as a coal and iron ore are exported abroad through the railroad. The study said (Otgonsuren, 2015) GDP growth accelerated from 6.4 % in 2010 to 17.5 % in 2011 before slowing down somewhat to 12.3 % in 2012. High prices of copper and other commodities and expansionary fiscal policy have also contributed to the strong growth performance.

However, last five years GDP of Mongolia constantly slows down. The reasons may relate with an unstable policy condition and economic crisis of the country. The data (The World Bank, 2017) show, generally, GDP growth rate in Mongolia averaged 5.65 %t from 1991 until 2016, reaching all-time high of 17.50 % in the fourth quarter of 2011, and a record low of -9.30 % was in the fourth quarter of 1992. Although Mongolia was in an economic crisis between 2015 and 2016, it is expected to grow from 2020 (Center, 2016).

For clarifying the relationship between GDP and a rail freight operation, the GDP per capita and railway main indexes were analyzed such as freight turnover and passenger turnover. Thus, some indication of how the Mongolian economy index and the demand for the passenger and freight transport have changed over time.

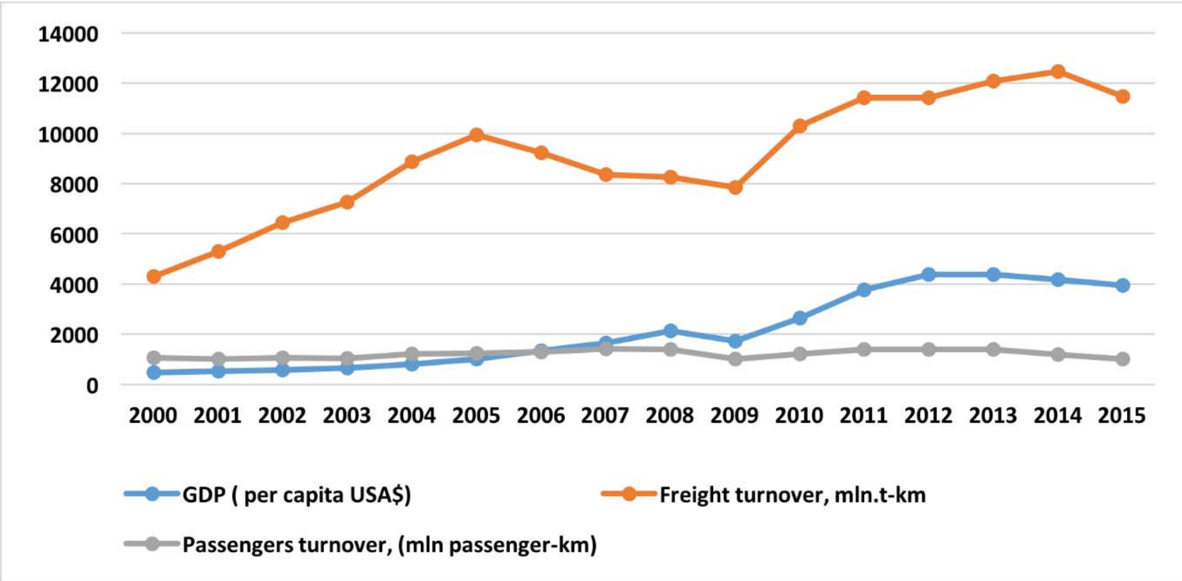

Figure 5. Trends of freight and passenger rail traffic and the GDP per capita of Mongolia period of 2000-2015.
Source: Data extracted from (U. Statistical Office, 2017), (The World Bank, 2017)

Figure. 5 shows that the passenger traffic does not present any significant changes during the period from 2000 to 2015. It is evident that the passenger transport is in a constant position, regardless of changes in the level of GDP. At the same time increasing trends of freight comparatively higher but does not always correspond to the line changes of GDP. It means that the role of freight transport as a contribution to GDP has varied over the analyzed period.

Using Excel Data Analysis Program, the correlation between GDP and freight transport have been calculated. The result shows that there is a strong correlation between GDP growth and domestic freight transport by rail. The correlation between 2000 and 2016, the railway freight and GDP correlation was R=0.87. The strong correlation between this allows the forecast for rail freight rates to be forecasted by GDP growth.

From another source (Center, 2016) it is also clear the GDP from 1990 to 2011 grew by about 70%, while the domestic freight by rail was up by about 50%.

4. Further Development Pathway of Rail Sector (Sectors' Improvement Policies)

4.1 Some Issues Facing by Railway of Mongolia Today

Although after the transition to the market economy of the country, the railway organization independently introduced some technological innovations. However, due to the insufficient funding, it was not fully reformed. As said in the recently formulated railway development strategy plan (Railway, 2016) in the future, double track along the Trans-Mongolian railway will be constructed, as well as the renovation and funding of all entities of the UBTZ is expected. After all, the train speed will be increased to at least 150 km/h, and the rail transportation capacity increment will reach up to 53.6-73.7 million ton per year (maximum performance will reach up to 100 million tons per year). The study (UBTZ, 2017a) mentioned that totally 1,5-4,4 billion US dollars are needed for the investment of UBTZ's new development project.

Table 3 shows the direction and the percentage of the investments. The foremost important direction is the infrastructure construction, after that rolling stock fleets renovation. Today, the total amount of freight car fleet within Mongolian rail sector is 6,501 units, of which 50% belongs to the UBTZ, 46% to the BTEG and 3.76% to the MTZ respectively(Center, 2016).

Table 3. The direction and percentage of the planned investments

Investment direction	Percentage of the investment
Infrastructure construction	80.3%
Rolling stock fleet renovation	5.4%
Cargo operation and logistics	1.8%
Passenger operation and service	1.4%
Others	11.1%

Source:(UBTZ, 2017a)

Although the rail car fleets depreciation is the main problem, the depreciations degree of car deferent road to road. Study conducted from the Rail Traffic Control Center (Center, 2016) mentioned that, for UBTZ car fleets are comparatively poor condition, 75% of them have been worked more than 25 years, for MTZ, car fleets consists of rail cars that have run 6 to 10 years, for BTEG 50% of total car fleets have worked more than 25 years.

4.2 New Railway Projects

Due to the rapid development of the mining sector of our country, the demand for rail transportation and freight traffic is growing year by year. According to the government resolution No.32 approved in 2010, the government of Mongolia affirmed the "State Railway Policy”. According to this document, it will be a gradual construction of 5,683.5 km of rail in Mongolia (MTZ, 2015) and it is expected that with the exploitation of new railways, exports commodities will reach up to 50 million tons per year. Due to such projects, it will extract 20-40 million tons of coal and coking coal from the Tavantolgoi deposits each year; 1.8 million tons of copper concentrate from Oyu Tolgoi deposit; 6 million tons of iron deposit, and 240 thousand tons of iron products from the Darkhan metallurgical plant each year.

The demand for shipping will be 2.5-5.5 times more. When starting to exploit large mines, there will be a flow of traffic, directed to the central location of deposits, as well as traffic from these centers to other regions of the country. The mining industry of Mongolia is actively participating in the Chinese market, and in the coming years, there is a growing demand for freight transport. At present, our country is able to export 100 million tons of coal per year, but in 2016, it exported only 19.5 million. This is an obvious example of lack of logistics and transport capacity that influence the country's economy(Center, 2016).

According to the demands of development of the mining industry Southern Mongolian, the Umnogovi aimak has become a special place (the place where a large mining deposit was discovered). The study (Zorigt.M, 2016) mentioned about the new railway projects, as it will construct the double tracks as well as other new branch railroads connecting to the mining deposits and neighboring countries border. These will be the starting point to the railway’s further developments. Also, the study (UBTZ, 2017a) indicated, Government of Mongolia (GOM) is planning to build and finance 1,800 km of a railroad in two stages which will link the mineral deposit sites in the Mongolian desert steppe with Russia via Choibalsan and Sainshand.

The study (Otgonsuren, 2015) indicates that in October 2014, the Mongolian government announced its intention to build large-scale transport infrastructure projects to boost mineral shipments from Russia to China via the Trans Mongolian Railway. A 542 km long line will be constructed from Erdenet to Ovoot. Approximately 1.3 billion US dollars will be directed to the construction of the 542-kilometer Erdenet-Ovoot railway. This new railway will bring major economic and social benefits to Northern Mongolian provinces as economic development and regional integration is fast-tracked.

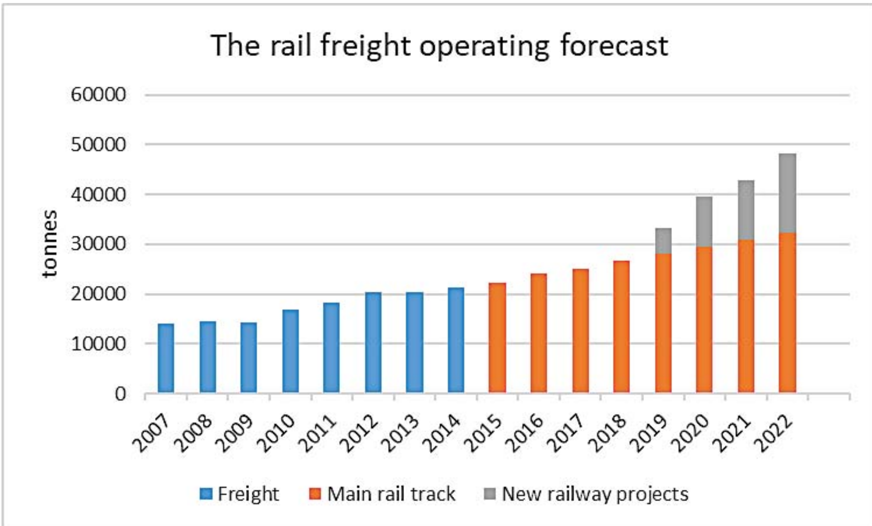

Figure 6. The rail freight forecast up to 2022

Source:(Center, 2016)

Figure 6. indicates the rail freight forecast analysis. As it is expected that in 2022, freight operation within Mongolia will be totally 32.2 million tons of cargo without new projects. However, with new projects the 48,2 million tons of cargo per year as well as with 22-28 pairs of trains per day will be transported, which is twice as much as of now (the average railway network is 11-14 pairs of train per day).

4.3 The Economic Corridor Building Process

The goal of the creating the Economic Corridor is to provide the conditions for the development and expansion of trilateral cooperation between the People's Republic of China, Mongolia and the Russian Federation. The joint projects aimed at increasing the trade turnover, ensuring product competitiveness, facilitating cross-border transportation, and developing an infrastructure. The economic corridor program includes railway and road, air transport spaces, gas and oil pipelines, power lines and high-speed motorway networks. As said (Zorigt.M, 2016) the 70-80% of the economic corridor programs related to the transport industry. Altogether 32 projects will be implemented, 8 of which directly related to the railway development issue. The purpose of the policy for developing the rail transportation system pursued by the Mongolian Government is intended to become independent of a single market for exporting mining products.

In the research article (Otgonsuren, 2015) mentioned that the project named “The Silk Road Economic Belt and 21st Century Maritime Silk Road”, which was developed in March 2015 by the National Development and Reform Commission of China, the Ministry of Foreign Affairs and the Ministry of Commerce of China, stated following; from the Chinese side there are roads and railroads to the north of Beijing, Tianjin, Hebei Province, the Inner Mongolia Autonomous Region, and the three Northeast provinces, and the border crossing-points with Mongolia and Russia are included in the economic corridor of the three countries.

5. Conclusion

On the basis of above research the conclusions are as in following:

Firstly, the analysis based on the statistical data shows that the current capacity of Mongolia’s railway cannot meet the growing demands of transport market. For Mongolia, most effective type of railway transportation is the freight operation. However, due to the deprecating condition of the rail rolling stock fleets and insufficient development of railway infrastructure which is related with less investment and few high tech used for many years, current railway system in Mongolia is greatly lacked to transportation which needs to economic development in Mongolia.

Secondly, the analysis of the railway capacity indexes within CAREC country shows that Mongolia’s railway capacity indexes such as freight and passenger turnover per km of railway are not very high but in the middle position among CAREC country. However, in the future, if it would be realized some sounding projects as economic corridor initiatives between Mongolia China and Russia, new railway constructing projects etc, then Mongolia has room to increase cargo operation in the international level thereby to strengthen the position in the regional context.

Thirdly, according to the passenger operation analysis, Mongolia's railway facing the problems with ineffective passenger transportation. However, OSJD (Organization for Cooperation of Railways), as well as Mongolia's main rail operator UBTZ, pay special attention to passenger transport improvement issue, as a currently opened new route (OSJD, 2017) for tourist train between the capital of Mongolia and Russian city Irkutsk that expected to be increase transported passengers. Although the passenger transportation is an ineffective type of rail transportation in Mongolia, in the future, through the developing some effective management systems and maintaining new technology it would give the possibility to upgrade passenger service thereby to attract more customers.

Fourthly, as a key to improving the economy of Mongolia, the development of the mining sector is a priority for Mongolian Government. The transportation and exporting of mining products highly depend on country's railway development level. Today Mongolia's mining sector is able to transport and export only 20% of all extracted mining products (Center, 2016). Therefore, the construction and operation of new railways are the main tasks to the Government. Based on this situation the Government of Mongolia, as well as Railway Authorities, have made series of initiatives.

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Constructing a Composite Leading Indicator for the Global Crude Oil Price

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Abstract

Crude oil, as the most traded commodity in the world, exhibits prices with a clear influence on other commodities in the worldwide market. It also poses implications regarding the economic growth of oil-exporting and oil-importing nations. This study provides an unprecedented method of employing the indicator approach as proposed by the Conference Board, National Bureau of Economic Research, to construct a leading indicator for the global crude oil price. The results reveal that the constructed oil price indicator can predict the cyclical movement of the oil price by moving in advance of 3.5 months on average. This finding could provide better signaling to oil-related nations as well as other commodities that consider crude oil to be a leader in the market.

Keywords: crude oil price, forecasting, indicator approach

1. Introduction

Six years after the previous slump of crude oil prices (COPs) in 2008, the mid-2014 crude oil glut has written another page in the oil price shocks history. Unlike the depressive 2008 global financial crisis that caused many stocks to take a nosedive, oil market players claim the ongoing-markdown since mid-2014 is caused by the lead players in the field who are actually pulling the strings. After the COPs per barrel peaked in June 2014, where West Texas Intermediate (WTI) recorded at US $105.79 and Europe Brent (Brent) tracked at US $111.80, the overall COPs outlook will apparently remain bearish or less sanguine to bounce back in the short term. The November 2014 report by the International Energy Agency (IEA) offers no hope for an oil price recovery any time soon, suggesting that the bearish market might extend throughout the year 2016. Wall Street oil experts even believe that the already tense COPs will be exacerbated before rebalancing occurs in late 2016. Translating belief into fact, in January 2016, the WTI and Brent per barrel then dropped to US $31.68 and US $30.70, respectively. Many oil industry players worry that the oil price is dropping into a bottomless pit, and the worst is yet to come.

In the face of the sudden oil price collapse along with the volatility of the global crude oil market and country's dependency on oil exportations and energy-related industries, many have voiced their infinite concerns regarding the sustainability of the falling oil prices as well as how their government can tackle the underpinning forces of oil market fluctuations. Likewise, renewed interest in the oil market forecasting is resurging, as many are eagerly seeking insight into the future direction of the COPs. Almost all forecasting analyses on COPs and the oil futures market rely on complex computational modelling that requires heavy assumptions, modelling bias, and high cost of computational analysis. Complex computational modelling is not as cost-efficient and policy effective as the modelling bias, and a great deal of assumptions undermine the forecast accuracy. Therefore, it casts doubt on the ability of the globe to provide a timely response to any impending shocks in the absence of a well-defined and responsive forecasting mechanism.

During this century, when industrialized and developing nations lead world commerce, crude oil plays a vital role in the world economy as the backbone of all energy-related industries and downstream activities that make abundant use of the energy supply. In fact, crude oil is one of the exceedingly traded commodities in the worldwide marketplace and the most actively traded commodity in the future markets, consequently enabling it to be a focal source of income for major oil-exporting nations. Thus, market evolution and future scenarios of the crude oil market in the globe remain an indispensable learning to the policymakers and oil market players.

2. Literature Review

Much of the previous studies have focused on characterizing the oil market through a demand and supply framework, estimating the correlation of oil price with others as well as its impacts, such as provided by Cong et al. (2008), Park and Ratti (2008), Aloui and Jammazi (2009), Soytas et al. (2009), and Wong and Shamsudin (2017). Furthermore, Haas et al. (2004), Agnolucci (2009), Cheong (2009) and Jo (2012) devoted effort to analyzing the volatility of the oil prices. Several studies forecasted the oil prices from standard econometric techniques and intelligent computing models such as artificial neural networks and fuzzy expert systems (see for example, Abramson and Finizza, 1991; Pan et al., 2009; and Azadeh et al., 2012).

Nevertheless, none of the previous studies devoted in the international crude oil market ever discussed the application of the indicator as a tool of short-term prediction for the COPs fluctuations. Almost all of the forecasting analyses on COPs and the oil futures market rely on complex computational modelling that requires heavy assumptions and modelling bias in addition to the cost of computational analysis. An indicator approach has been widely used in cyclical study. For example, Abu Mansor et al. (2015) and Wong et al. (2016) explored the indicator-based forecasting tool for business cycle analysis and economic risk monitoring, Puah et al. (2016a) tackled the macroeconomic precariousness by establishing a composite leading indicator for the Cambodian economy, and Puah et al. (2016b) applied these data within the property cycle study for Malaysia. Conversely, the indicator study, which is evidently cost-efficient and effective for cyclical analysis as well as future prediction, especially for the oil price market movement, has been neglected as a topic of study.

The present study seeks to fill the gap by constructing and cultivating an indicator-based forecasting tool which has been tested to foresee most of the cyclical processes of economic activities. In particular, the key goal of this study is to construct a composite leading oil price indicator (OPI) that offers a remarkable ability to predict the oil price dynamics in a forward-looking manner. The newly constructed OPI is projected to postulate well the cyclical movement of the international and domestic oil market, leading to the computation of oil market turning points and the strength of early signals. The application of such an indicator has been particularly successful in business cycle analysis, property market study, and credit cycle analysis. In short, the ideology of indicator construction is a theoretically and empirically appealing method to analyze and forecast the movement of the oil market. Thus, the application of indicator construction into the oil market will be an important endeavor to provide an understanding of the cyclical processes of the oil market from a global perspective. The resulting indicator is likely to contribute a better realization of the underlying information content behind the fluctuating oil market in the global market.

The OPI is expected to be a well-defined oil market signaling mechanism that assists the policymakers, oil market players, and the general public to cultivate timely precautionary measures so as to counteract the erratic oil market. Therefore, the application of OPI into future decision-making and policy establishment would lead to better policy actions, market stabilization, and oil-related development in the oil-exporting nations. Lastly, the OPI will be of great interest to the oil-producing companies in the design of business planning and contracts for oil- and gas-related exploration, and it will help all interested parties deal confidently in future crude oil markets. Despite all uncertainties, this study reckons that well-informed policymakers and business players will no doubt benefit in terms of effectiveness and efficiency in the face of any impending danger from the internal and external environments.

3. Econometric Techniques

Many believe that the evolution of the COPs follows a cyclical pattern. The drifting COP is a latent variable that postulates a broad sense of the market evolvement. However, the contemporary oil market does not merely rest with the conventional supply and demand, but also the external shocks (geopolitical risk and market expectations). Thus, the ideology of indicator construction first proposed by U.S. National Bureau of Economic Research (NBER) provides a profound framework to summarize the cyclical information from various perspectives of the oil market. To trace and predict the movement of the oil market, this study applies the well-known indicator construction method outlined by Moore and Zarnowitz (1986) to create a composite leading indicator of oil price dynamic-OPI, to gauge the cyclical development of the oil market from a global perspective, covering the period from January 2000 to June 2016.

As most of the indicator-based study, the first stage of OPI construction necessitates the selection of an oil market benchmark that reveals the development of the oil market in its current state. This benchmark will serve as a reference series to characterize the existing oil market. Thus, it will be responsible for the establishment of reference chronology for the oil market throughout the investigated period. In this case, it will be investigated for its validity and adequacy to serve as a well-defined oil market reference series. Consequently, turning point detection to recognize the peaks and troughs of the reference cycle will be performed. In order to identify the cyclical turning points of the oil market from a growth perspective, the reference series will be subjected to a set of transformation procedures that translate the reference series in its level form into a seasonally adjusted, detrended, and smoothed cyclical component before it is applied to the Bry-Boschan (1971) technique to establish the reference chronology for the global oil market.

Specifically, the transformation and cycle extraction procedures suggested by Moore and Zarnowitz (1986) will serve as an important reference manual at this stage. For seasonal adjustment, the Census X-12 method will be jointly tested for its suitability in this context before the most desirable one is chosen. On the other hand, the Christiano-Fitzgerald (CF) filter developed by Christiano and Fitzgerald (2003) will be applied to produce an alternative reference cycle based on the band-pass filtering approach. Accordingly, the best alternative will then be chosen as the ultimate reference cycle for reference chronology establishment.

It is widely known that there are several benchmarks of COPs being used worldwide, i.e. Brent, West Texas Intermediate (WTI) Cushing, and Dubai/Oman. The U.S. Energy Information Administration (EIA, 2014) states that Brent and WTI are the two chief crude oil benchmarks in the world, followed by the Dubai/Oman. Thus, this study will perform the process of both Brent and WTI as described previously to find out their cyclical development. In the subsequent stage, the OPI will be constructed by cautiously adopting the composite indicator construction and index compilation procedures documented in the Conference Board (2000). The OPI construction involves the selection of a set of component series, followed by the aggregation of the component series in its composite form and rebasing the composite index in a selected base year. The index aggregation procedure can be detailed as follows:

(i) Compute the month-to-month changes ($m_{p,t}$), where p = 1, … , n for each component series ($x_{p,t}$) based on the symmetric percentage change formula below:

$$m_{p,t} = \frac{X_{p,t} - X_{p,t-1}}{X_{p,t} + X_{p,t-1}} * 200 \tag{1}$$

Variable(s) in percentage form within the component series will be differenced on simple arithmetic (i.e. OPEC and non-OPEC crude oil production change, world crude oil consumption change and world crude oil stock change).

(ii) Measure the monthly input for each component series ($c_{p,t}$) by multiplying the month-to-month changes ($m_{p,t}$) with a standardization factor (f_p). The standardization factor can be derived by inversing the standard deviation of the month-to-month changes for each component series ($m_{p,t}$).

(iii) Total up the adjusted symmetric changes across the component series to obtain the total contribution across all component series for a particular month,

$$S_t = \sum_{p=1}^{n} c_{p,t} \tag{2}$$

(iv) Set the first value of the index to 100 and derive the preliminary index of OPI recursively with the formula, as follows:

$$I_2 = \frac{200 + S_2}{200 - S_2} * I_1 \tag{3}$$

(v) Rebase the preliminary index of OPI into the base year of 2010.

After the construction of the OPI, the raw index then transforms into a growth cycle using the similar approach that applied to extract the cyclical component of the reference cycle. Graphical analysis will be performed to evaluate the movement of the cyclical component of OPI relative to the cyclical component of the reference cycle. To determine the turning points of OPI, the Bry-Boschan (1971) dating algorithm will be applied for the local minimum and local maximum values of the OPI in its cyclical form. Subsequently, comparative analysis of the dated turning points between OPI and the oil market reference cycle will be conducted to determine the effectiveness of the constructed OPI in predicting the movements of the oil market.

There are many potential factors affecting the COPs, and yet it is practically impossible to include all of them in the construction of OPI. Strict criteria have been imposed in the selection of component series, among others, economic significance, cyclical behavior, similar time frame and frequency, and data availability. After all, the OPI in this study in particular, is constructed through seven component series, namely world crude oil production, world crude oil consumption, world crude oil inventory changes, WTI futures price, business confidence index of U.S., the central bank policy rate, and open interest. All of the variables are sourced from the U.S. EIA, except for business confidence index from the Organization for Economic Co-operation and Development (OECD) and the central bank policy rate from International Monetary Fund.

4. Findings and Discussions

Figure 1 shows the cyclical process of both OPI and WTI. This graphical comparative analysis depicts the predictive power of OPI in tracing the progression of WTI, as the former moves in advance of the cyclical movement of the latter. It then reveals that the constructed OPI is a desirable and visionary attribute in tracing the progress of WTI. Meanwhile, the OPI also divulges the correct signaling of the ups and downs of the WTI cycle by moving in advance of 3.5 months on average. It is wise to visualize that the OPI actually moves ahead of the WTI most of the time, as indicated by the shaded areas in Figure 1. Each shaded area represents different important events that affected oil prices over different time span and it is shaded from a peak to a trough in a cycle. Observing the examined time frame, OPI has dated 10 engrossing turning points including five peaks and five troughs, as tabulated in Table 1.

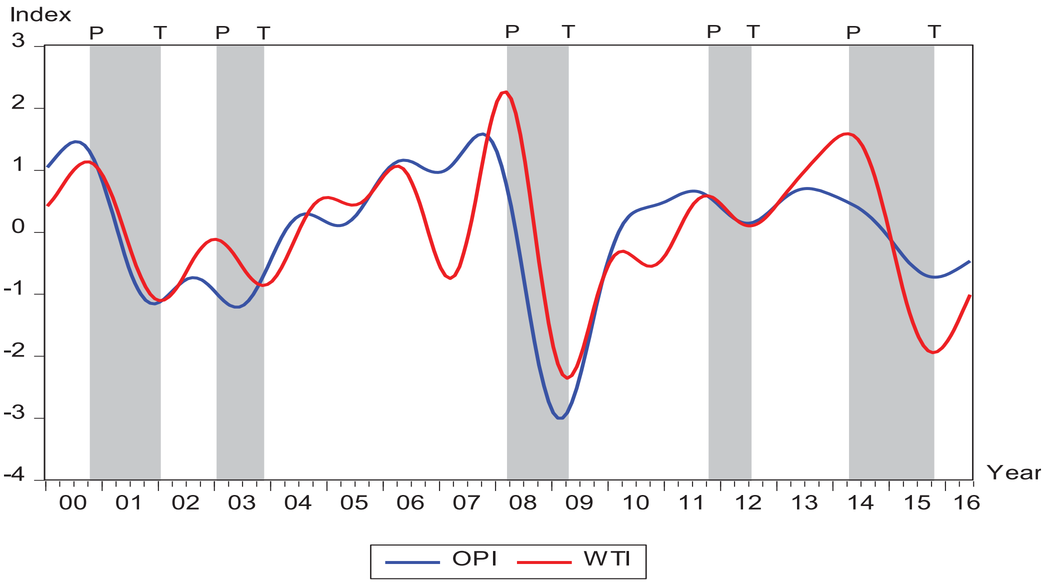

Figure 1. Cyclical Movements of OPI versus WTI, 2000M01-2016M06

Table 1. Turning Points Analysis Results of OPI and WTI

Cycle Condition	WTI	OPI	Amount of Early Signals	Significant Events
Peak	2000M10	2000M07	3	2000s Commodities Boom; September 11
Trough	2002M01	2001M12	1	Attack
Peak	2003M01	2002M08	5	Iraq War
Trough	2003M11	2003M05	6	
Peak	2008M03	2007M10	5	Subprime Mortgage Crisis
Trough	2009M04	2009M02	2	
Peak	2011M10	2011M07	3	Libyan Civil War
Trough	2012M07	2012M06	1	
Peak	2014M04	2013M07	9	Concurrence of Production Oversupply
Trough	2015M10	2015M10	-	and Stagnant Demand
Average			**3.5 months**	

Between late 2000 to early 2002, the occurrence of two focal events actually caused the global COPs to plummet, namely the dot-com bubble (also known as technology-stock bubble) as well as the Sept. 11, 2001 attack. In the case of the former event, the COPs started gaining momentum due to the increase of the U.S. and world economies, and the latter refers to the unprecedented terrorist attack on the U.S., which brought up many uncertainties, and the negative prospects for the U.S. economy were vast. The subsequent turning points included the Iraq war in 2003 that raised concerns about the stability of the Middle East's crude oil production. Next, important events in oil price history affected the subprime-mortgage crisis that happened from 2008 to 2009, whereby this global financial crisis led a bubble-bursting sell-off as well as a collapse in crude oil demand. Furthermore, during the period of 2011 to 2012, another conflict between countries took place, i.e. the Libyan civil war. Riots and protests from the Arab Spring washed over the Middle East, and the war disrupted the region's crude oil output. The fifth event worth mentioning is the ongoing oil price shocks after the production oversupply and weak demand for crude oil. Strong production in the U.S. and Russia caused the COPs to crash from July to December 2014. OPEC made a firm decision in November 2014 to maintain its productions, and this further damaged the market heading into 2015.

5. Conclusion

In an effort to better predict the cycle of the global COPs, this study utilized the indicator approach by NBER to construct a leading oil price indicator. This is a novel endeavor as a forecasting tool, despite the enormous forecasting efforts by other researchers in using other econometric techniques other than the indicator method. An average lead of 3.5 months by the constructed OPI in forecasting the cycle of global COPs is believed to help oil-exporting nations control their production as well as signal to other commodities in the market that are led and guided by the global crude oil performance.

This study has yet to overcome certain limitations. The geopolitical event is one of the factors that should be considered in analyzing the COPs. However, it is difficult to predict and capture data regarding this aspect, because no one can provide an accurate proxy for it simply through values or numbers with appropriate rationale. To a certain extent, the weather in oil-producing nations has always been a concern that could influence the crude oil production, just as the events in Oklahoma City surrounding Hurricane Katrina in 2005, which hugely decreased production, and consequently, oil price spiked. Future study may seek to widen the scope of selecting the causes of global crude oil in an attempt to improve the current constructed OPI.

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Technical Notes

1. The symmetric percentage change calculation as shown in Equation 1 needs to be done at foremost because the component series must firstly be ensured its smoothness, or in other words it shall not be too erratic in its month-to-month movement. Thereby standard deviation is calculated for component series.

2. Next, the inverse of standard deviation of the symmetric changes in each component series is calculated and the values are all summed up together. Each of the inverse value is then divided by the sum value in order to get the standardization factor (f_p) of each component series and it is then normalized to sum to one.

3. Standardization factors determine how monthly changes in each component contribute to the monthly change in the index of OPI. These factors are designed to give each component a similar opportunity to contribute to the change in the index in any given month. Adjustments equalize the volatility of each component in the index.

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Amplifying Citizens' Voices in the Face of Media Globalization

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Abstract

Economic crises have mainly affected the more vulnerable social sectors and created losses of freedom and inequality. Currently, most media are controlled by a relatively small group of companies around the world. In the face of this situation, networked society has accelerated the development of alternative communication models, which act as loudspeakers for citizens' voices. The aim of this study is to describe the main features of the new forms of citizen expression, communication and cooperation, such as social networks, review sites, citizen journalism and the collaborative economy. It is concluded that in the face of these new challenges it is essential to continue to develop ethical principles of self-regulation to ensure the accuracy and thoroughness of new forms of communication on the Net.

Keywords: communication, social networks, review sites, citizen journalism and ethical principles for self-regulation

1. Introduction

In the current environment, the economic crisis has fundamentally affected the most vulnerable social sectors, generating unemployment and job insecurity. In addition, there have been losses of freedom, inequality and exclusion at all levels.

With regard to the media, although historically they had represented a resource for citizens against the abuse of powers, most media are now controlled by a relatively small group of global companies with a significant weight in the world's economy. These companies control media groups and often act as the ideological arm of globalization, diminishing popular demands, preventing changes to the social hierarchy and maintaining inequality in the distribution of wealth (Ramonet, 2016).

According to Herman and Chomsky (2010), one of the indicators for evaluating democracy in a State is the freedom of its media. In respect of this, the United Nations states: "Freedom of information is a fundamental right and [...] the cornerstone of all freedoms".

Therefore, in the current era of vulnerability, in which part of society is at the risk of exclusion, the media should make an effort to reconcile social profitability with economic efficiency and: a) Promote values such as freedom, equality, justice and ideological pluralism; b) Foster full respect for minorities through democratic debate, free, pluralistic, and objective information and freedom of expression; c) Implement actions to promote the rights of minors, equality between the sexes and non-discrimination; d) Offer content which is of high quality, innovative, diverse and ethically rigorous; and e) Ensure consumer rights are protected (Manfredi, 2004).

The globalization of the economy has undermined the power exercised by the media to defend people's fundamental right to be informed and the need for pluralistic and rigorous journalism. In this setting, organizations such as the IMF and the World Bank influence large economic events, protect governments and dictate the trends of the economy. In contrast to this, and acting as a vehicle that amplifies the voices of citizens, this article analyzes social networks, review websites, citizen journalism, the collaborative economy and ethical principles of self-regulation, opportunities which have been generated to guarantee individuals' right to inform and be informed.

2. Method

2.1 Social Networks. Citizens' Voices Go Viral

The exponential growth in social networks has set alarm bells ringing in the traditional media and they have come to be considered the main sources of entertainment and information, able to incorporate elements, resources and characteristics of the traditional media alongside new elements such as interactivity, videogames, audiovisual content and virtual reality, as well as offering an economically more austere cost model. According to Campos (2008), although the traditional media have the advantage of being more information- than entertainment-oriented, it requires an effort for them to regenerate themselves in the current media landscape.

In April 2016, Facebook had 1,650 million active users worldwide, of whom 934 million entered Facebook on a daily basis; 22 million were based in Spain. In July of the same year, Twitter had 310 million active monthly users, of whom 1.5 million were Spanish. According to García-Galera, Del Hoyo-Hurtado, and Fernández-Muñoz (2014) social networks are increasingly used to actively claim a space for citizens' voices.

In Spain, a profound transformation is taking place whereby journalism and the traditional media are moving progressively towards some Spanish cybermedia on social networks such as Facebook to locate and develop new journalistic products. However, results show that the majority do not take advantage of the Net to encourage participation, leading to the conclusion that spaces and resources are not optimized (Vivo, 2010).

Recent studies suggest that more than 95% of British university students think Facebook is more useful for socializing and talking with friends about work than actually doing work. They also believe that it is not a network used for purposes related to formal education, although it is sometimes used informally for the purpose of learning (Madge, Meek, Wellens, & Hooley, 2009).

Given their enormous influence, companies are now being forced to integrate social networks into their communication and marketing strategies. We analyzed Facebook and Twitter use by the three main commercial brands in 15 different sectors in Spain in order to offer an overview of and analyze the activity of those accounts most sensitive to criticism and identify and assess the communication strategy implemented by their respective managers. After analyzing 5,433 tweets and 3,000 posts, we were able to verify the companies' massive presence on social networks as well as companies' increasingly widespread use of them to communicate with their customers (Dasilva, 2013).

The results of an investigation by Aced Toledano and Lalueza Bosch (2016) showed that, general speaking, there is no significant difference between the use of social media by American and Spanish companies. A statistically significant difference is observed in customer service via Twitter, which is more widespread among IBEX 35 than Fortune 500 companies. A further significant difference is that IBEX 35 companies publish more audiovisual content in blogs and receive twice as many likes on Facebook as Fortune 500 companies. In both cases, there is a strategic use of social media by professionals from both countries. In fact, according to the results of the investigations by Islas, Arribas, Piscitelli, Adaime, and Binder (2010), companies must make an effort to "Understand social networks as media environments" as it is observed that citizens make an exponential use of social networks to report business malpractice.

A recent study on Starbucks by Chua and Banerjee (2013a) exhaustively analyzed the chain's communication in newspapers, magazines, articles, books and social networks, emphasizing the extent to which the latter means of on-line communication can help obtain more knowledge about customers so as to better manage their needs. The study concludes that, due to their interactivity characteristics, social networks are the best means of finding out more about consumers and managing the organization's online reputation. Starbucks is redefining customer relations, going from being passive recipients to key active collaborators in the company's innovation. Finally, the company also uses social networks to build customer loyalty.

2.2 Review Websites. Users who Share Their Experience on the Net

A study conducted by the ITB-Berlin (2014), which analyzed data from a survey of around a thousand Internet users who had reviewed 17 pages of comments, revealed that 96% of travelers consult review websites and 82% trust published opinions. Furthermore, 30% think that a high percentage of criticisms are false, while website managers stated that fake reviews make up between 1% and 5% of the total. To evaluate the authenticity of comments, users rated the content that seemed genuine, and statistically 70% stated that the establishment was as good as the comments indicated, while 20% described it as even better. In the same study, 1,500 questionnaires were administered to hotel managers. The results indicated that 94% thought review websites have a great influence on consumers when choosing accommodation, while 81% believed comments had a direct impact on the image of the hotel.

With 350 million unique visitors per month and over 320 million reviews and comments, Tripadvisor was considered the largest travel website in the world in 2016. According to Horner and Swarbrooke (2016), the site has introduced a series of interesting developments that have made a significant contribution to the Net: An accreditation program for hotels and their environmental policies, called Green Leaders; A travel forum where travelers can pose questions and other travelers can post responses; Apps for smartphones and tablets that make it easier to consult information during a trip; A link to Facebook that makes it easy for our friends to see what content we have been reviewing on Tripadvisor; and its own awards for, among others, hotels, destinations, and tourist attractions.

In light of the growth in content generated on the Internet, research carried out by Chua and Banerjee (2013b) focused on analyzing the reliability of reviews appearing on TripAdvisor. The results suggested that such reviews could largely be considered reliable.

In contrast, according to Cánovas, García, and María-Dolores (2015), the reliability of the more than 170 million reviews published on the site is continuously questioned. Although TripAdvisor or Booking.com advise establishments to encourage customers to participate by giving their opinion, they explicitly prohibit anything being offered in return. The study detects a significant number of cases where draws are held, observing that these condition participants by biasing their responses towards positive scores.

Furthermore, a study carried out by Tuominen (2011) on 1,752 opinions of 77 hotels in 6 different cities concluded that there is a correlation between the average ratings awarded to hotels and the number of ratings obtained. It is suggested that previous opinions of other users influence subsequent ones. Although many consumers consult online reviews before booking trips, research on the impact of user ratings and comments on tourist accommodation is insufficient. The results showed a positive correlation between the performance of the hotels and the scores and reviews obtained. The research suggests the need to take into account and correctly manage reviews as well as the quality described and perceived through the scores awarded in them.

Among the many review websites in existence, Booking.com stands out. In July 2016, it operated in 224 countries and had 990,369 accommodation establishments worldwide and 98,780,000 verified reviews. A study by Sparks and Browning (2011) explored four factors considered to be key when influencing consumers' perception of truthfulness when assessing reviews of establishments on Booking.com, as well as the subsequent choices they make. An experimental design was used to investigate four independent variables: the aim of the comment or review (personal or professional); the overall balance of opinions (positive or negative); the formulation of opinions (whether negative or positive comments come first); and numerical score accompanying the text.

The results of the study indicated that consumers are more influenced by early negative information, especially when the overall set of comments is negative. However, positively framed information accompanied by numerical scores generates confidence in the consumer and influences intention to book. The results suggest that consumers tend to trust comments that are clearly worded and easy to process. Comments that focus on interpersonal customer service also generate high attributions of truthfulness.

After analyzing the results of the aforementioned studies, the authors concluded that more and more users trust opinions generated on the Net compared with other sources of information when deciding on their travel option (Sparks & Browning, 2011).

2.3 Citizen Journalism. A Social Loudspeaker for Complaints Managed by Users

Processes such as digitization and the appearance of the Internet are the main factors that have revolutionized communication. The new formats present special and particular characteristics at narrative of discourse level. (Seisdedos et al., 2015).

Citizens have the fundamental right to receive information and express themselves. In the current media landscape, there is a certain information overload due to the sheer number of media outlets, and although it should be guaranteed that their content is of public interest and the information they disseminate is true, this is not always the case. The rights of citizens must be guaranteed as, despite the volume of messages they receive, they may be uninformed or receive contaminated information. It is necessary to guarantee the right ethical attitudes of communication professionals so that they work with the right goals in mind (Alonso González, 2015).

According to Bowman and Willis (2003), citizen journalism is considered to be that which takes an active role in the process of collecting, analyzing and disseminating information in the community, making contact with its needs.

The mass media should be the real power behind the voice of the people. In some authoritarian and dictatorial countries, however, the State uses the mass media to its own ends. In other countries, despite being democratic, there are also abuses and errors in the handling of information to ensure power is exercised through control.

In this context, public opinion, an indispensable element of political and social pluralism, has found a new means of expression in citizen journalism (Pavlik, 2005).

The birth of social networks and citizen journalism represents the emergence of a fifth power that allows citizens to denounce media control by the financial giants and ensure that the information that reaches us is at least contrasted and refuted. Receivers have become specialized and demanding issuers with a voice, who have the ability to choose and participate in a different way to that traditionally allowed them (Carballido, 2008).

Furthermore, faced with this new media landscape, the genres representative of quality journalism, such as reports, chronicles or analyses, are threatened due to their making production routines more expensive and slower, while readers increasingly want the greater speed, interactivity, emotionality, and hypertextual superficiality of online journalism (Parratt, 2012).

One of the ways to develop new journalistic products for the Internet is using different social networks as a platform for publishing the contents of citizen journalism. Furthermore, in this environment, formats such as blogs or video blogs have become widespread with content generated exclusively by users, including the magazine “Qué!”, the first Spanish medium to be produced by its own readers (Ayerdi, 2005).

Sometimes it is also referred to as social journalism, when it assumes responsibility, reflection and a search for solutions in the social sphere. According to Merritt (1998), who coined the term, “the contemporary press needs to be able to transcend the limited mission of telling the news, to achieve a broader mission, to help public life function correctly and to act based on this imperative”.

According to Meso (2005): “Citizen journalism is that which allows the active participation of social actors in all the processing of information of public interest. Therefore, its essential characteristics are forming public opinion through the creation of deliberative audiences and promoting citizen participation.”

2.4 Collaborative Economy. Disruptive Economic Models Based on Sharing over the Internet

According to Hadad Hadad and Valdés Llanes (2010), economic and financial crises are increasingly more frequent, profound and global. At the same time, economic slowdowns have an acute impact on the disadvantaged classes. This situation accelerates the appearance of alternative economic models for the production and commercialization of goods. In this environment, the collaborative economy represents a significant change from the capitalist model, since it is founded on a market based around collaboration and the exchange of goods and services between individuals.

According to Rosa (2014), disruptive models, and especially technological ones, are generating significant changes in markets and interpersonal relationships. In addition, this author emphasizes that civic technologies generated via the collaborative model allow for a more in-depth understanding of citizen participation mechanisms that contribute solutions to common problems characteristic of governance. They provide a basis for the opportunities generated by movements such as free software, open source, common creative licenses or open data, and are characterized by their enormous potential growth, which has a significant economic, environmental and social impact. Platforms are created for: the rental of products between private individuals - cars, caravans, vans, boats and homes; booking office and warehouse space for work purposes; sharing taxis between individuals; formalizing loans between individuals; putting teachers and students in contact for online courses, etc.

Contrasting with the advantages of the collaborative model, Pascual (2015) analyzes “some of the innumerable and important legal problems posed by these systems, taking as an illustrative example one of the sectors that has generated the most controversy in this regard: that of the taxi”. This means of transport has been shown to suffer from disproportionately limiting regulations compared to others, a variable that has probably accelerated the rise of the collaborative economy in this sector in a way that raises relevant legal dilemmas. Furthermore, there has been an emergence of social and business movements contrary to the development of collaborative economies, including taxi drivers against Uber, professional drivers against Blablacar and the hotel industry against Airbnb or HomeAway. The author points out the need to establish a specific legal system that contemplates optimal limitations for guaranteeing the security and quality of services rendered while at the same time protecting the legitimate development of other economic activities.

3. Results

3.1 Ethical Principles. Self-regulation for New Formats and New Products

The Internet poses a new scenario for communication, in which companies can choose from a wide range of digital devices to provide content to reach the user anywhere and at any time. The use, consumption and production of information have been transformed. In transmedia production, new guidelines for multi-platform regulation and multimedia recommendations are also required as consumers go to playing an active and key role in the design and architecture of new platforms. In these new communicative narratives, the public must act with ethical principles as they participate actively in the production and consumption of audiovisual content over the Net. It is important to educate new generations with the skills to differentiate reality from fiction (Jenkins, 2009).

In order to assess what society thinks about certain content broadcast in the media, a series of concepts such as audiences, critics, opinion polls, television viewers' associations and information and communication councils are used. Legal regulations are required that guarantee certain fundamental principles in any media and transmedia content broadcast (Van Dijk, 2016).

According to Kolbitsch and Maurer (2006), the information that is emitted or published on a medium must be truthful, rigorous, impartial, and respect human rights. It is necessary to act with responsibility and rigor when obtaining information in the case of information or opinions with content that may lead to discrimination, avoiding expressions or witnesses that may be offensive or harmful. A necessary but not sufficient condition for information to be more objective and fair is that it be complete, in the sense that it include all relevant points of view and also maintain a reasonable balance between all parties in the conflict, a fact that guarantees greater objectivity.

According to Kramers, Höjer, Lövehagen, and Wangel (2013), the principles of the deontological code of journalism are applicable to the new realities of communication. Therefore, information should be presented in accordance with regulatory mechanisms, respecting the principle of impartiality and neutrality. It must be narrated with precision and accuracy, in context and in depth. If there are contradictory sources on the issue, the different versions should be presented. Information needs to be contrasted in order to ensure it is not false or misleading. At the same time, it must be taken into account that certain aspects are emphasized depending on the chosen frame, shot, and camera movement in the recording, etc. Another aspect to take into account is the position of the camera with respect to the object. Equally, special care must be taken in selecting and arranging the image and sound, since editing and staging are a key phase in the development of the audiovisual product for it to be faithful, as a whole, to the truth.

In light of the deontological problems constantly posed in social media, self-regulation is necessary to guarantee that the principles of truth, freedom, justice and responsibility are observed. In line with this, a systematic study of cases published on social networks has revealed best practices and negative aspects to be improved. The data observed allow us to list a guide of 15 ethical principles to be used in the sphere of digital media (Bowen, 2013).

Furthermore, the use of audiovisual elements on social networks should give greater consistency to information, and in no case contribute to sensationalization per se. Obviously, the use of fictitious or archive images to exemplify or reconstruct facts must be made explicit.

The digital revolution has crossed the frontiers of traditional forms and genres of communication. In this environment, another important aspect when correctly presenting information is choosing the appropriate journalistic genre. According to Parratt (2012), in current times the traditionally used classificatory theory of journalistic genres "is insufficient to accommodate the enormous number of variants that continually appear as a result of the evolution of the journalistic profession, heading towards the proliferation of mixed genres and influenced by audiovisual media." While it is true that this classification must evolve and be completed in accordance with the times, it is no less true that classifying a publication as news, report, chronicle, commentary, criticism, etc. greatly facilitates its reception by the reader. It is important to continue developing ethical principles of self-regulation to be able to find one's way on the Net.

Table 1. 15 Ethical guidelines for social media use

Adapted from Bowen (2013)

Guideline	Justification and application
#Analysis Analyze the situation	*Examine messages rationally from all points of view. How could it be misinterpreted?*
#Good Encourage the good	*Does your message help build connectivity, commitment, and community?*
#Clarity Emphasize clarity	*Special attention must be paid to stating the source of the information and sponsorship, if it exists.*
#Consistency Consistency generates trust	*Consistency allows audiences to better know and understand you, and you can identify their expectations.*
#Dignity Maintain dignity and respect	*Ensure that the publication maintains dignity and respect towards the publics involved.*
#Deceit Avoid deceit	*If the news item may be misleading, even if only possibly, simply do not publish it.*
#Identification Identify clearly	*Information and personal opinion should be clearly differentiated for publications representing an organization.*
#Intention Examine intention	*Did you take your decision only out of goodwill?*
#Prudence Be fair and prudent	*Consider fairness, justice and citizens' right to be informed.*
#Responsibility Establish your responsibility	*Is your publication fulfilling its responsibility to do what is right?*
#Revelation Reveal	*Be transparent with the date the message was created and the date of the events.*
#Reversibility Is it reversible?	*How would you feel if you were at the receiving end of the message? Is it still ethical then?*
#Secret Avoid publishing secrets	*These could be trade secrets or other secrets protected by law.*
#Transparency Be transparent	*Clearly identify who finances the publication.*
#Verification Verify sources and data	*Always remain credible, do not use rumors or speculation.*

4. Discussion

Our analysis of recent research in the current media landscape has shown that large financial groups exert an enormous influence on the media. Economic globalization has generated large media groups that subordinate the political power of states to the interests of the financial market.

To ensure that the media are plural, can freely emit content and are representative of modern democracy, the interventionism of the big financial giants must be prevented by introducing regulation and self-regulation mechanisms, which are the only guarantee to preserve transparency and defend open societies characterized by communication professionals that display ethical attitudes.

Information professionals are required to ensure the correct management of user generated content; professionals who act with professional rigor and are not swayed by economic criteria and interests related only to audiences.

Given this situation, in first place social networks have become a tool at the service of citizens in the face of media globalization; a counter-power to the large communication groups, and an opportunity for societies to express themselves and make themselves freely heard.

Secondly, in an environment dominated by global economic groups, review websites force companies to optimize their services and improve their relationship with the customer, placing customers' comments at the epicenter of this dynamic.

In third place, citizen journalism represents a fifth power for citizens that guarantees them the right to expression and to receive correct and truthful information, uncontaminated by economic interests.

Fourthly, the collaborative economy is a radical change with respect to the current economic model, since it places collaboration and exchange before possession thanks to the Net.

Therefore, faced with these new challenges, it is essential to continue developing ethical self-regulation principles to guarantee the veracity and rigor of new forms of communication.

At the same time, it is essential to create impartial, credible and independent bodies that help amplify the voice of citizens in the face of corporate and media globalization.

Vusiness [from business, but with "V" for values] was born with this objective in mind. It is an observatory that promotes open, democratic, sustainable and inclusive companies that are to inspire the future. The observatory was created out of the Arpa research group (Audiovisual Screen Reception Analysis Group), which belongs to the University of Girona's Philology and Communication Department. Vusiness represents a proposal for companies to move towards a new business ethics and policy.

This study is considered preliminary and has the aim of describing an approach to the revolution and opportunity the Internet represents for society in the face of economic globalization.

The results of this bibliographical review highlight the enormous challenge involved in continuing to move towards new integrative models capable of amplifying the voice of citizens in an ethically regulated way, particularly in an environment changing so rapidly due to the Internet.

The literature in the field of media globalization and new forms of communication in society via the Internet is undergoing significant growth due to it being an emerging field. Even so, descriptive and experimental studies capable of defining new forms of balanced and positive communication are required, to guarantee both the rights of societies to express their opinions and criticisms and of companies to fulfill their legitimate objectives.

In addition, it is important to generate informative and formative material to educate citizens on the principles of ethical self-regulation.

Last but not least, in line with the WAI (Web Accessibility Initiative), the media must make an effort to guarantee universal access to all websites for people with disabilities, to encourage their participation and guarantee a fully inclusive society.

The results and conclusions described in this preliminary review require thorough and interdisciplinary research.

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The Impact of the Use of Accounting Information Systems on the Quality of Financial Data

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Abstract

This study aimed at identifying the effect of the use of accounting information systems on the quality of financial data, applied over service companies of Amman Stock Market. The study sample consisted of (70) individuals who work in different service sectors, where a questionnaire was designed and distributed. (56)Valid questionnaires were retrieved for statistical analysis purposes (80%).

The study results indicated that there is a statistically significant positive effect of the nature and security of accounting information systems on the quality of financial data. However, the inputs of the accounting information systems did not affect the quality of the financial data. The level of quality of the financial data that the Jordanian service companies depend on has been found to be high.

The results of this study showed significant differences at ($\alpha \leq 0.05$) among the Jordanian service companies in terms of the nature, inputs and security of accounting information systems and the quality of financial data attributed to the sector to which the company belongs.

Based on these results, the study came out with several recommendations, the most important of which is that Jordanian service companies should be keen to update the accounting information systems used in accordance with the technological developments, and the necessity of Jordanian service companies to continue to pay attention to the quality of financial data provided to their beneficiaries, which are used to evaluate the company's performance.

Keywords: accounting information system, financial data quality, Jordanian service companies

1. Introduction

The accounting information systems represent a range of sources, namely persons and equipment, which are designed to collect financial data to reach the information needed for different decision-makers (Bodnar and Hopwood, 2010).

The use of accounting information is indispensable in the management activities of a company, given its quantitative information on various activities. Accounting information is primarily intended to be useful in economic decision-making. Accounting information is needed not only by management in the direction of cooperation but also by shareholders, who need periodic financial data in order to assess the performance of the company's management (Nnenna, 2012).

Accounting information systems rely on the quality of input data, as the poor quality of data used in the input process leads to poor results (XU, 2003).

From the point of view of Wilkin &Tayan (2003), the relationship between quality and information systems is determined by three basic components: system quality (technical components), information quality in terms of the accuracy and correctness of data entering the system, and service quality, meaning the assessment of the level of excellence in providing information to users.

In this study, the effect of the use of accounting information systems on the quality of financial data in Jordanian service companies will be examined.

The study problem:

The quality of financial data is the basis to rely on in reaching good information that is useful in making various decisions regarding the operations of the company efficiently and effectively. Therefore, the absence of this quality leads to financial outputs that weaken the used decisions and lead to wrong decisions, which causes loss to decision-makers. In regards of the Jordanian service companies, there is a lack of clarity about the nature of the used accounting information systems, and a lack of clarity concerning the quality of financial data in them; this is due to the absence of studies on the service sector up to the researcher's knowledge. We can formulate the problem of the study through the following questions:

1. What is the effect of the use of accounting information systems on the quality of financial data in Jordanian service companies?
2. What is the quality level of the financial data that is relied on in Jordanian service companies?
3. Are there significant differences in the use of accounting information systems and the quality of financial data in Jordanian service companies due to the sector to which the company belongs?

Importance of the Study:

The importance of this study emerges from the importance of accounting information systems, which their level of quality and accuracy is determined by the nature of the used financial data that represent the main inputs in various analysis operations to identify the performance level of the company. The accounting information systems are the basis for the production of accounting and financial information used by different users. The quality of the financial data is the basis for producing accounting outputs and correct and credible financial information. The higher the quality of the financial data is, the more accurate financial results will be produced, which will make reliance on financial and management decisions very reliable and secure.

This study is beneficial for investors in the Jordanian service sector, additionally; beneficialfor the service companies themselves by providing a clear picture of the accounting system of the service company compared to similar companies in the same sector

The study objectives:

This study aims at achieving the following objectives:

1. Identifying the impact of the use of accounting information systems on the quality of financial data in Jordanian service companies.
2. Identifying the quality level of the financial data that is relied upon by the Jordanian service companies.
3. Identifying the existence of differences of statistical significance with regard to the use of accounting information systems and the quality of financial data in Jordanian service companies attributed to the sector to which the company belongs.

2. Literature Review

The study of Esmeray (2016) aimed at identifying the impact of the use of accounting information systems on the financial performance of small and medium-sized companies in Turkey. To achieve the study’s objective, the analytical descriptive approach was applied by designing a questionnaire and distributing it over the study sample which consisted of 60 companies in the city of Qaisariya. The results of the study showed a statistically significant positive relationship between the use of accounting information systems and the growth rate in sales, returns and customer’s number.

The study of Nwinee, et- al (2016) aimed at identifying the impact of the use of accounting information systems on the organizational effectiveness of small and medium-sized companies in Nigeria. To achieve the study’s objective, the analytical descriptive approach was followed by designing a questionnaire and distributing it over the study sample which consisted of 156 employees of small and medium-sized companies in Port Harcourt city. The results of the study showed that the use of accounting information systems supports the effectiveness of organizations and increases the ability to control costs.

The study of Patel (2015) examined the impact of accounting information systems on companies’ profitability. The study was based on the theoretical analytical approach to reach the results by reviewing the previous studies and the concept of accounting information systems, the quality of the accounting information systems, and the nature of the relationship between accounting information systems and the profitability of companies and decision making. The results showed that the there is an impact of accounting information systems on the profitability of companies and decision-making, also it was found that the accounting information systems contribute to provide the necessary information to take financial and economic decisions.

Hezabr & Qatanani (2015) studied the impact of accounting information systems on improving the value chain in companies in the Kingdom of Bahrain. To achieve the study's objective, the analytical descriptive approach was applied by designing a questionnaire and distributing it over the study sample which consisted of 60 employees in 23 industrial companies. The results of the study indicate that there is a lack in the availability of the accounting information systems' basic components. In addition, there is a lack in the accounting information quality needed to improve the value chain for the business organizations in the public industrial shareholding companies in the Kingdom of Bahrain. As for the contribution of accounting information systems in value improving was found to be weak.

The objective of Rapina's study (2014) was to identify the factors affecting the quality of accounting information systems in Indonesia. The study sample consisted of a group of accountants working in 33 cooperative institutions in Bandung City, where a questionnaire was distributed to measure the information needed to serve the purposes of the study. The results showed that the commitment of management, organizational culture and organizational structure has a great impact on the quality of accounting information systems moreover, the quality of the accounting information system has effectson the quality of accounting information.

The study of Moqbel (2014) sought to demonstrate the impact of accounting information systems on e-commerce in Jordan. To achieve the objective of the study, the analytical descriptive approach was applied by designing a questionnaire and distributing it over the study sample which consisted of 75 financial managers working in 25 service companies. The results of the study showed that there is a statistical significant positive effect of accounting information systems on e-commerce in service companies in Jordan.

The study of Harash et al (2014) examined the impact of accounting information systems on small and medium-sized companies' performance in Iraq. This study was based on the theoretical analytical method in reaching the results by reviewing the previous studies, the concept of accounting information systems and the nature of the performance of small and medium-sized companies. The results showed that there is an impact for the accounting information systems, represented by their characteristics(reliability, importance, and timing), on the performance of small and medium-sized companies in Iraq.

Rachmawati and Lasniroha (2014) examined the impact of administrative accounting information systems, the quality of accounting information management and the quality of services provided over the users' satisfaction and their effect on Indonesia's decision-making process. The study sample was composed of the staff of the State Bank in Bandung City, where a questionnaire was distributed to measure the information needed to serve the purposes of the study. The results of the study indicated that there is an impact for the quality of the administrative accounting information systems and the quality of the services provided on the decision-making process with a percentage of 62%.

Abdullah's (2013) study was conducted to identify the impact of the use of accounting information systems on the quality of the financial statements in the Income and Sales Tax Department in Jordan. In order to achieve the objective of the study, the analytical descriptive approach was applied by designing a questionnaire and distributing it over the study sample which consisted of 50 accountants from the Income and Sales Tax Department in Amman Governorate. The results of the study indicate that there is an effect for the use of accounting information systems on the quality of the financial statements in the Income and Sales Tax Department in Jordan.

Finally, the study of Jakovic and Spremic (2012) examined the impact of the use of accounting information systems on the company's e-business effectiveness in Croatia. The study sample consisted of 252 companies on which a questionnaire was distributed in order to collect the information required to achieve the objectives of the study. The results showed that there is an impact for the use of accounting information systems on the effectiveness of the company's e-business in Croatia.

A summary of previous studies:

From the above mentioned we noticed that most of the studies focused on the effect of accounting information systems over performance and efficiency without taking into account their impact over the quality of financial data. Some studies focused on the relationship between accounting information systems and the quality of financial statements in practice after applying it over income and tax department without including any of the economic sectors like the study of Abdallah (2014). On the other hand, the study of Rachmawati & Lasniroha (2013) was concerned with identifying the impact of accounting information management quality over the satisfaction of users and decision-makers but it didn't clarify the nature of the relationship between accounting information systems and financial data quality. The study of Rapina (2014) focused on the factors that affect the quality of accounting information systems without identifying the impact of accounting information systems over the quality of financial data.

Based on this, the following study came to fill the gap existing in the previous studies through studying the impact of accounting information systems over financial data quality which was not addressed in studies specialized in accounting information systems.

3. Hypotheses of the Study

This study has the following main hypotheses:

Ha1: There is an impact for the accounting information systems over the financial data quality.

From this main hypothesis comes the following sub-hypotheses:

$Ha_{1.1}$: There is an impact for the nature of accounting information systems over the quality of financial data.

$Ha_{1.2}$: There is an impact for the accounting information systems' inputs over the quality of financial data.

$Ha_{1.3}$: There is an impact for the accounting information systems' security over the quality of financial data.

Ha2: The level of financial data quality that is relied on in the Jordanian service companies is of high level.

Ha3: There are variations of statistical significance for the use of accounting information systems and the quality of financial data in the Jordanian service companies attributed to the sector to which they belong.

The concept of accounting information system:

The accounting information system is one of the most important systems in any company. Its objective is to provide the needed information to managers at various levels. This information helps them to effectively and efficiently carry out their responsibilities in planning, resource monitoring, performance assessment and decision-making (Saeidi, 2014).

The nature of accounting information is determined as a reliable tool in the use of modern information technology means, which aims at establishing modern accounting information systems; their main role is to improve the usefulness of accounting information (Fuhong, 2012).

From the point of view of Akgün and Kilic (2013, p.26), information systems are a system in which data is collected, evaluated and distributed over users when needed, and that is designed to assist the process of decision-making.

Romney and Steinbart (2012, p.686) believes that accounting information systems are a system for gathering, recording, storing and processing data to obtain the needed information for decision-making.

Knežević and Tepevac (2012) show that an accounting information systemis concerned with each of the various business inputs that forms the data that is relied upon in analysis and processing data included in accounting reports, as well as its concern towards the system outputs represented in the financial statements published and used in the decision-making process by users.

Accounting information systems components:

Accounting information system is composed f several units, each unit has a specific function. They can be presented as follows (Al-Dahrawi, 2001, p. 49 – 51):

1. **Collecting data unit**: this unit collects data from the institution's surrounding environment. This data is represented in the events and facts that the accountant cares about and considers them important and should be acquired and recorded. The nature of the project's objectives and the outputs has a great impact over the type of the data collected and recorded in the system, as well as the nature of outputs affects the type of the collected data.

2. **Data operating unit**: the collected data by the accounting information system might be used immediately if they were useful for the decision-maker the moment they are collected. But, in most cases, these primary data needs to be operated and prepared to be useful information in the decision-making process, thus it is sent to the storage unit in the accounting information system.

3. **Data storage and retrieval unit**: this unit is responsible for storing data in case they were not used immediately and keeping it for future use or to be processed before being sent to decision-makers.

4. **Information delivery unit (information channels)**: this unit is the mean to transfer and deliver data and information from one unit to another within the accounting information system, until it reaches the makers of administrative decisions. Communication channels might be automatic or manual (monitors or papers) according to the institution's available means.

When choosing the hardware and software components for the accounting systems, the costs and expenses of such components should be less than the benefit of using the system. Moreover, audit and control members should be knowledgeable of accounting information systems, supporting software, and the used tools because the auditing process will be done through the computer. The auditing team should be familiar with automation and automatic control. It also has an impact over the accountants work in the future summarized in methods of accountants work, data recording, new systems and networks, and auditing methods used in the future (Shaher, 2002).

Accounting information systems' objectives:

Accounting information system aims at achieving a general objective represented by providing the accounting information that benefits its users. Achieving this general objective leads to achieving several sub-objectives at the same time, the most important among which are (Ali, 2011):

1. Measuring all economic events that take place within the institution through the processes of data collecting and storage, recording, labeling and summarizing in the accounting registers.

2. Delivering the accounting information through a set of documents and reports to all those who can benefit from it, among which is the institution administration which uses these information in performance evaluation and making appropriate decisions.

3. Achieving internal control over all material elements that exist in the institution.

The quality of financial data:

Quality is defined as the standard measure of something or a certain level of excellence (Ramdany, 2015).

Quality is good if the information used is relevant and reliable, and the relevant information is that which can be used for decision-making (Porter and Norton, 2011, pp. 29).

Keiso et-al (2010) shows that the quality of accounting information indicates the good performance of the accounting information system and the appropriateness of the accounting system applied, in order to reach efficiency and effectiveness in the processes and restrictions, continuously, within the company to reach its objectives, protect its assets, serve senior management and help it achieve the maximum productivity, and work to measure the validity of the accounting system. The dimensions of the accounting information quality are determined by:

- **Appropriateness**: means the efficiency of financial statements and reports, and their success in serving their users through their ability to provide adequate and appropriate information to make appropriate decisions, so that this information is recognized for being suitable for decision-making and is presented properly besides its timely availability.
- **Reliability**: it is associated with the information integrity and the ability to rely on it. Accounting information is characterized as being reliable or can be relied on if it has the ability to express the veracity of the information, to be free from error and bias, and to represent it fairly and honestly.
- **Consistency or symmetry**: This characteristic is realized when the project uses the same accounting treatment for the same event from one period to another without any change.
- **Understandability**: it is a qualitative accounting information characteristic that helps a prudent wise user to identify the meaning and importance of financial reporting.
- **Comparability**: This characteristic enables users of financial reports to identify similarities and differences between economic phenomena and events. As for the use of an incomparable accounting standard results in increased differences in the expression of economic phenomena and events.

The reality of services sector in Jordan: http://www.alghad.com

Several facts distinguish services sector in Jordan; first, it is the sector that brings the highest income for the country with an over 60% of the Gross Domestic Product and in several years it reaches two thirds.

The second fact is that it is the sector that depends on the country's main competitive element; the human resource. This by itself leads to the fact that its sectors are the first in relation to the value added accounts, in other words, it basically depends on Jordanian production elements, namely the human being. In addition, it is the sector supporting the infrastructure of roads, electricity, water, communications and others.

The third fact is that services sector has forward and backward relations with all other economic sectors, in fact it is not unfair to say that the continuation and growth of other sectors depend on the services of this sector in education, health, finance, transportation, tourism, governmental services and others.

However, this sector still didn't receive its share of attention and development despite the fact that its development means the development of the Jordanian economy as a whole. This can be attributed to the fact that investment in this sector has been so far quantitative rather than qualitative. This means that vertical investment is needed to enhance the quality of the offered services in this sector, and not horizontally to increase their number only.

Investing in creating services of high quality and ensuring international quality standards means developing all sectors of national economy, as for what this sector produce in the fields of education, health, transportation, tourism and governmental services directly leads to improving the quality of industrial, commercial and all other sectors.

The improvement and incensement in the services sector's quality in Jordan would have meant that Jordan would become the first exporter in the region in regards to the services of education, health, tourism, finance, moreover; engineering, financial and administrative consulting services and others, all of high exportation value and low cost.

4. The Field Study

The study population and sample:

The study population consists of all Jordanian service companies listed in Amman stock market; (58) companies, distributed over (7) sectors (commercial services, educational services, health services, power services, technological and communication services, tourism and hotels services, transportation services and media services) according to companies' manual for 2017. For the study sample, a random sample has been chosen, made of (10) members from each sector over which a questioner was distributed. Thus the final study sample was made of (70) members, (56) questionnaires were retrieved, valid for the statistical analysis purposes with a percentage of (80%) of the total distributed questionnaires.

Limitations of the study:

This study was limited to the companies listed in Amman stock market within the Jordanian services sector without including the rest of the economic sectors.

Statistical analysis results:

The study tool reliability:

The study tool reliability has been verified using Cronbach Alpha test. Table (1) shows the results of Cronbach Alpha coefficient for the internal consistency of the study's axes over the study sample:

Table 1. Cronbach Alpha test over the study sample's responses

The questions	Cronbach Alpha value (%)
Questions related to the nature of accounting information systems	75.31
Questions related to accounting information systems inputs	82.06
Questions related to accounting information systems' security	76.4
Questions related to financial data quality	84.3
All questions total	**94.75**

From table (1) we see that the value of Cronbach Alpha coefficient was (75.31%) for the questions related to accounting information systems, (82.06%) for questions related to accounting information systems' inputs, (76.4%) for questions related to accounting information systems' security and (84.3%) for questions related to financial data quality. All are high values that indicate a high consistency among the study's questions; they also indicate the high reliability of the study's results. Cronbach Alpha value for all questions together was (94.75%), which is a high value where the value of (60%) is considered the minimum reliability of the study results (Sekaran & Bougie, 2010).

The personal and functional characteristics of the study sample:

Table (2) shows the distribution of the sample's members according to personal and functional variables.

Table 2. Sample members' distribution according to personal and functional variables

Variable	Field	Repetition	Percentage (%)
Sector	Commerce	20	35.7
	Education	3	5.4
	Power	8	14.3
	Communication and technology	8	14.3
	Hotels and tourism	7	12.5
	Transportation	7	12.5
	Media	3	5.4
Total		**56**	**100.0**
Academic qualification	Diploma of Community Colleges	2	3.6
	Bachelor	44	78.6
	Master	10	17.9
	PhD	0	0
Total		**56**	**100.0**
Job title	General Director	1	1.8
	Deputy Director	3	5.4
	Accountant	22	39.3
	Internal Auditor	3	5.4
	Head of the Department	13	23.2
	Other	14	25.0
Total		**56**	**100.0**
Years of service	5 years or less	15	26.8
	6 to 10 years	13	23.2
	11 to 15 years	18	32.1
	16 years or more	10	17.9
Total		**56**	**100.0**
Vocational Certifications	JCPA	4	7.1
	CPA	1	1.8
	ACPA	1	1.8
	None	35	62.5
	Other	15	26.8
Total		**56**	**100.0**

From table (2) we found the following:

- **The sector**: most of the study sample members were employed in the commercial sector; (20) members with a percentage of (35.7%) followed by the respondents employed in the energy sector and communication and technology sector; (8) members with a percentage of (14.3%). Followed by the members who work in the hotels and tourism sector and the transportation sector; (7) members with a percentage of (12.5%). Finally, the sample members working in the educational sector and the media sector;(3) members with a percentage of (5.4%).
- **The academic qualification**: The results show that most of the sample members are of the academic qualification (Bachelor); (44) members with a percentage of (78.6%). Followed by individuals who had a (Master) academic qualification, (10) members with a percentage of (17.9%). then individuals with an academic qualification of (Community Diploma); (2) individuals with a percentage of (3.6%), and finally, we find that the members of the study sample does not include those who hold a doctorate.
- **Job title**: The results show that most of the respondents were employed in the position of accountant; (22) members with a percentage of(39.3%). Followed by individuals under the title of (other) those were not included in the questionnaire; (14) members with a percentage of (25%). Followed by individuals with the position of (Head of Department), (13) members with a percentage of (23.2%). Then comes the individuals who hold the position of (Deputy Director) and (Internal Auditor); (3) members with a percentage of (5.4%), and finally individuals who hold the position of (General Director), (1) member with a percentage of (1.8%).
- **Years of service**: Most of the sample members' years of service are in the category of (11 to 15 years); (18) members with a percentage of (32.1%). Followed by individuals with a service of (5 years or less);

(15) members with a percentage of (26.8%). Followed by individuals with a service of (6 to 10 years); (13) members with a percentage of (23.2%). Finally, the individuals with a service of (16 years or more); (10) members with the percentage of(17.9%).

- **Vocational certificates**: Most of the sample members are those who (do not have a vocational certificate); (35) members with a percentage of (62.5%). Followed by individuals who have professional certificates that were not mentioned in the questionnaire under the title of (other); (15) members with a percentage of (26.8%). Followed by individuals who hold(JCPA)certificate; (4) individuals with a percentage of (7.1%), and finally individuals who hold (CPA) and (ACPA) certificates; (1) member with a percentage of (1.8%).

Results for Testing the Study Questions

To test the study questions, the arithmetic averages and the standard deviations of the sample members' responses were calculated to measure their tendency in general towards the items of the study tool. In addition, some statistical tests were used, which will be explained according to each of the study questions. The five-level questionnaire (Likert quintet scale) was used as follows:

1= strongly don't agree, 2= don't agree, 3= average level of approval, 4= agree,

5= strongly agree.

As for the relative importance, it was determined according to the following formula and according to the alternatives' quintet scale for each item:

$$\text{The relative importance} = \frac{\text{the alternative maximum limit} - \text{the alternative minimum limit}}{\text{The number of levels}} = \frac{5-1}{3} = 1.33$$

There are three levels: low, medium and high as follows:

- Low level: if the arithmetic average value was between 1 to 2.33
- Medium level: if the arithmetic average value was more than 2.33 till 3.66
- High level: if the arithmetic average value was more than 3.66 till 5.

First: Accounting information systems:

Table (3) shows the arithmetical averages and standard deviations of the accounting information systems as a whole:

Table 3. The arithmetical averages of the sample members' responses related to the first dimension of the questions

No.	Item	Arithmetic average	Standard deviation
1.	Accounting information systems are flexible in data processing	4.250	0.580
2.	Accounting information systems help to achieve goals accurately and quickly	4.304	0.502
3.	Data are processed through an accounting system consistent with accounting policies	4.321	0.576
4.	The cost of accounting information systems in the company is consistent with the nature and size of the financial data provided by the system	4.107	0.802
5.	Accounting information systems in the company are easily updated data	4.071	0.735
6.	The system provides data that is comparable	4.321	0.690
7.	The system provides integrated data that will affect the effectiveness of the company	4.250	0.640
8.	Accounting information systems are characterized by the ease and speed of data entry	4.268	0.674
9.	The inputs of accounting information systems are presented in an easy and clear manner	4.214	0.653
10.	Inputs of accounting information systems are maintained in a secured manner	4.125	0.764
11.	The company is keen to have a particular computer password for each employee and change it from time to time	4.518	0.603
12.	The company provides adequate protection against the risks of computer viruses	4.429	0.657
13.	The Company has clear and written policies regarding the security of accounting information systems	4.250	0.745
14.	The company's management implements information security protection objectives such as privacy, avoiding unauthorized data change	4.321	0.855
15.	The company's management updates the methods of protecting the accounting information systems according to the changes taking place in the technology environment	4.286	0.847
Arithmetic averages rate		**4.269**	

From table (3) we found the following:

- The respondents' answers to the questions related to the first dimension of the accounting information systems were more tending toward agreement, where the lowest arithmetic average value was (4.071) indicating approval in relation to the fifth question (the accounting information systems in the company are easily updated data). This indicates that services companies continuously update their data according to the accounting systems developments, which in return place them in a better competitive position. The highest arithmetic average was (4.518) indicating the approval in relation to the eleventh question (The company is keen to have a particular computer password for each employee and change it from time to time). This shows the keenness of Jordanian services companies in preserving the confidentiality of their information and data related to the company's accounting systems, and not to be exposed to viruses and cybercrimes, which increase the reliability of its data for investors and beneficiaries.
- The arithmetic average rate for the questions of this dimension was (4.269) which refer to the agreement regarding the accounting information systems in the Jordanian service companies. This indicates the high application of accounting information systems in Jordanian services companies, in other words the high awareness of these companies toward applying and using technology in accounting matters

The arithmetic averages and standard deviations of the study sample individuals' evaluations were calculated separately for each of the accounting information systems' dimensions. The results were as follows:

1- The nature of accounting information systems:

Table 4. The arithmetic averages and the standard deviations of the responses of the study sample members on all the items related to the "nature of accounting information systems"

No.	**Item**	**Arithmetic average**	**Standard deviation**
1.	Accounting information systems are flexible in data processing	4.250	0.580
2.	Accounting information systems help to achieve goals accurately and quickly	4.304	0.502
3.	Data are processed through an accounting system consistent with accounting policies	4.320	0.576
4.	The cost of accounting information systems in the company is consistent with the nature and size of the financial data provided by the system	4.107	0.802
5.	Accounting information systems in the company are easily updated data	4.071	0.735
The arithmetic average of the dimension as a whole		**4.211**	

Table (4) shows that the highest arithmetic average of respondents' responses to the items of "the nature of accounting information systems" is (4.320) for item (3): "data are processed through an accounting system consistent with accounting policies" which shows a high level of agreement. In other words, Jordanian services companies comply with the common accounting policies which increase their reliability and efficiency in their accounting operations. The lowest arithmetic average was (4.071) for item (5): "Accounting information systems in the company are easily updated data" which indicates a high degree of approval. In other words, the Jordanian services companies keep up with the updates needed in the accounting environment. The arithmetic average for the whole dimension is (4.211), which indicates a high degree of approval. Based on this we conclude that the nature of accounting information systems in Jordanian services companies is smooth and flexible, it also responses to various changes related to accounting matters

2. Inputs of accounting information systems:

Table 5. The arithmetic averages and the standard deviations of the responses of the study sample members on all the items related to the "input of accounting information systems"

No.	**Item**	**Arithmetic average**	**Standard deviation**
6.	The system provides data that is comparable	4.321	0.690
7.	The system provides integrated data that will affect the effectiveness of the company	4.250	0.640
8.	Accounting information systems are characterized by the ease and speed of data entry	4.268	0.674
9.	The inputs of accounting information systems are presented in an easy and clear manner	4.214	0.653
10.	Inputs of accounting information systems are maintained in a secured manner	4.125	0.764
The arithmetic average of the dimension as a whole		**4.236**	

Table (5) shows that the highest arithmeticaverage of the respondents' answers to the items of "Accounting Information Systems Inputs" was (4.321) for item (6): "The system provides data that is comparable ", indicating a high degree of agreement. This shows the efficiency of the accounting system used in Jordanian services companies. The lowest arithmetic average was (4.125) for item (10): "Inputs of accounting information systems are maintained in a secured manner ", indicating a high degree of agreement, which means that Jordanian services companies are keen on protecting the confidentiality of accounting information and preserving it from loss or theft. The arithmetic average of the dimension as a whole was (4.236), indicating a high degree of agreement. Thus, we conclude that accounting information systems' inputs are flexible in use and data retrieving and processing, which reduces the time and labor needed for retrieving and benefiting from data.

3. The accounting information systems security:

Table 6. The arithmetic averages and the standard deviations of the responses of the study sample members on all the items related to the "Accounting Information Systems Security"

No.	Item	Arithmetic average	Standard deviation
11.	The company is keen to have a particular computer password for each employee and change it from time to time	4.518	0.603
12.	The company provides adequate protection against the risks of computer viruses	4.429	0.657
13.	The Company has clear and written policies regarding the security of accounting information systems	4.250	0.745
14.	The company's management implements information security protection objectives such as privacy, avoiding unauthorized data change	4.321	0.855
15.	The company's management updates the methods of protecting the accounting information systems according to the changes taking place in the technology environment	4.286	0.847
The arithmetic average of the dimension as a whole		**4.361**	

Table (6) shows that the highest arithmetic average of the respondents' responses to the items of the "Accounting Information Systems Security" was (4.518) for item (11): "The company is keen to have a particular computer password for each employee and change it from time to time ", which indicates a high degree of agreement. This shows that Jordanian services companies are highly concerned with maintaining the confidentiality of accounting information. The lowest arithmetic average was (4.250) for item (13): "The Company has clear and written policies regarding the security of accounting information systems ", which indicates a high degree of agreement. This is a clear statement to the employees working in accounting information department about the importance of complying with accounting information systems' security rules and how to maintain them. The arithmetic average of the dimension as a whole was (4.361), which indicates a high degree of agreement. Thus, we conclude that accounting information systems' inputs for Jordanian services companies are characterized with reliability, information confidentiality and electronic security.

Second: The quality of the financial data:

Table (7) shows the statistical averages and standard deviations related to the quality of the financial statements:

Table 7. The arithmetical averages of the responses of the sample members related to the second dimension of the questions

No.	Item	Arithmetic average	Standard deviation
1.	The company is distinguished by its accuracy in presenting users' needs of financial data	4.304	0.685
2.	Accurate financial data help the company make financial decisions	4.268	0.646
3.	Financial data are judiciously prepared to ensure its accuracy and correctness	4.304	0.658
4.	The provided financial data are consistent with the users' needs in different financial periods per year	4.143	0.645
5.	The company's financial data are flexible in its use in various aspects and objectives	4.232	0.713
6.	The company's financial data are clear and uncomplicated	4.196	0.672
7.	The company's financial data are easily understood among its various users	4.125	0.810
8.	The company's financial data are inclusive for all the financial aspects that users need in the decision-making process	4.196	0.644
9.	The financial data are provided in an appropriate time so they reach the decision maker before losing their ability to influence the taken decision	4.286	0.803
10.	The company's financial data are adopted in the comparison with other companies within the same sector	4.161	0.869
11.	The financial data are registered and examined by registering, analyzing, tabulating and classifying them	4.321	0.543
12.	Financial data that are easily saved, are easily retrieved at any time	4.339	0.695
The arithmetic average rate		**4.240**	

Table (7) shows the following:

- The respondents' responses to the questions related to the second dimension, represented in the quality of the financial statements were more tending toward agreement. The lowest arithmetic average value was (4.125) indicating approval in relation to the seventh question (The company's financial data are easily understood among its various users). This indicates the ease of using the financial data within the services companies and the existence of clarifications about accounting numbers' indications. The value of the highest arithmetic average was (4.339) indicating agreement in relation to the twelfth item (Financial data that are easily saved, are easily retrieved at any time). This shows the availability of flexibility and smoothness in data storage and usage

- The arithmetic average rate for the questions of this dimension was (4.240), which indicates the agreement regarding the quality of the financial data in the Jordanian service companies. Based on this we conclude that financial data related to Jordanian services companies is characterized with high quality, which confirms the high reliability of its financial data analysis.

Testing the hypotheses of the study

Ha1: There is an impact for the use of accounting information systems on the quality of financial data.

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

$Ha_{1.1}$: There is an impact for the nature of accounting information systems on the quality of financial data.

$Ha_{1.2}$: There is an impact for the accounting information systems inputs on the quality of financial data.

$Ha_{1.3}$: There is an impact for accounting information systems security on the quality of financial data.

To test this hypothesis, the multiple regression analysis has been used and the correlation coefficients have been found among the study's variables.

The results were as follows:

Table 8. Pearson correlation coefficient's values among the study's variables

	The nature of accounting information systems	**Accounting information systems' inputs**	**Accounting information systems' security**	**Financial data quality**
The nature of accounting information systems	1			
Accounting information systems' inputs	0.739**	1		
Accounting information systems' security	0.751**	0.609**	1	
Financial data quality	0.665**	0.575**	0.680**	1

** Of a statistical significance at sig (($\alpha \leq 0.05$)

From the table we see that the value of Pearson correlation coefficient among the study's variables was of a statistical significance at sig. (($\alpha \leq 0.05$), this proves the reliability of the study tool.

Table 9. Results of multiple regression analysis using the Ordinary Least Squares Model (OLS)

variable	**Sig.**	**β**
The nature of accounting information systems	0.004	0.411
Accounting information systems inputs	0.999	0.000
Accounting information systems security	0.000	0.445
The value of (Sig.) for the model	0.000	
R-Squared	0.576	
*****statistical Significance at (1%)**	****statistical Significance at (5%)**	***statistical Significance at (10%)**

Source: by the researcher depending on the statistical analysis results.

The nature of the accounting information systems: There is a statistically significant positive effect at the level of Sig. ($\alpha \leq 5\%$) for the nature of the accounting information systems on the quality of the financial data, where the Sig. value was (0.004). Therefore, the first alternative hypothesis is accepted and the null hypothesis is rejected.

Inputs of accounting information systems: There was no statistically significant effect at the level of sig. (α ≤ 5%) for the inputs of the accounting information systems on the quality of the financial data, where the Sig. value was (0.999), which is a none statistically significant value. Based on this, the second alternative hypothesis of the study is rejected and the null hypothesis is accepted.

Accounting Information Systems Security: There is a statistically significant positive effect at the level of Sig. (α ≤ 5%) for the security of accounting information systems on the quality of financial data, where the value of Sig. is (0.000).Based on this, the third alternative hypothesis of the study is accepted and the null hypothesis is rejected.

A**ll the dimensions of the accounting information systems**: There is a statistically significant effect at the level of sig. (α ≤ 5%) for the use of accounting information systems on the quality of the financial data, where the value of sig. was (0.000), and thus the third alternative hypothesis of the study is accepted and the null hypothesis is rejected. This result was in accordance with Patel's study (2015), which explained that accounting information systems contribute in the provision of the needed information for financial and economic decision-making. This finding was also in accordance with the study of Rapina (2014) which concluded that the quality of the accounting information system has effects over the quality of accounting information.

Ha2: The level of quality of the financial data that is relied on in Jordanian service companies is high.

To test this hypothesis, a (One Sample T-test) was performed at the statistical significance level of (α ≤ 0.05), i.e. at a level of reliability that is not less than 95% and an error rate of not more than 5% at the value of 3 out of 5, the results were as follows:

Table 10. T-test results for the questions related to the second hypothesis

Item	T value	Arithmetic average	Sig.
The quality level of financial data	17.929	4.240	0.000

Table (10) shows the following:

- The arithmetic average of the questions related to the quality level of the financial data was (4.240), which indicates a high level.

- The value of (α) was (0.000), which is less than (0.05) and has a statistical significance, indicating that the quality of the financial data that are relied on in Jordanian service companies is high.

Ha3: There are significant statistical differences regarding the use of accounting information systems and the quality of financial data in Jordanian service companies attributed to the sector to which the company belongs**.**

This question was tested by using the (One Way ANOVA) test, and the results were as follows:

Table 11. Results of the (ANOVA) test for the third hypothesis

Variables	Sector	Arithmetic average	(F) value	Sig. level
The nature of accounting information systems	Commerce	3.990	0.000	5.108
	Education	4.267		
	Power	4.300		
	Communication and technology	4.150		
	Hotels and tourism	4.886		
	Transportation	4.057		
	Media	4.333		
Accounting information systems input	Commerce	3.970	3.414	0.007
	Education	4.400		
	Power	4.450		
	Communication and technology	4.175		
	Hotels and tourism	4.800		
	Transportation	4.086		
	Media	4.467		
Accounting information systems security	Commerce	4.020	2.519	0.033
	Education	4.467		
	Power	4.500		
	Communication and technology	4.525		
	Hotels and tourism	4.914		
	Transportation	4.429		
	Media	4.267		
Accounting information quality	Commerce	3.900	6.015	0.000
	Education	4.250		
	Power	4.344		
	Communication and technology	4.135		
	Hotels and tourism	4.893		
	Transportation	4.571		
	Media	4.194		

Table (11) shows the following:

- There are statistical significant differences at the level of sig. ($\alpha \leq 0.05$) between the Jordanian service companies in terms of the nature of accounting information systems attributed to the sector to which the company belongs, where the value of the level of significance (α) was (0.000), which is a value of a statistical significance. These differences tended to favor the sector of (hotels and tourism) with the highest arithmetic average.
- There are statistical significant differences at the level of ($\alpha \leq 0.05$) among the various Jordanian service companies in terms of the inputs of the accounting information systems attributed to the sector to which the company belongs, where the value of the level of significance (α) was (0.007), which is value of a statistical significance. These differences tended to favor the sector of (hotels and tourism) with the highest arithmetic average.
- There are statistical significant differences at the level of ($\alpha \leq 0.05$) among the Jordanian service companies in relation to the security of the accounting information systems attributed to the sector to which the company belongs, where the value of the level of significance (α) was (0.033), which is a value of a statistical significance. These differences tended to favor the sector of (hotels and tourism) with the highest arithmetic average.
- There are statistical significant differences at the level of ($\alpha \leq 0.05$) among the Jordanian service companies in terms of the quality of the financial data attributed to the sector to which the company belongs, where the value of the level of significance (α) was (0.000), which is a value of statistical significance. These differences tended to favor the sector of (hotels and tourism) with the highest arithmetic average.

5. Results and Recommendations

Results:

Through data analysis and hypothesis testing, the following results were reached:

1. There is a statistically significant positive effect at the level of ($\alpha \leq 5\%$) of the nature of accounting information systems on the quality of financial data. This means that accounting information systems used in Jordanian services companies are suitable to achieve financial data quality and confirm its accuracy and correctness, indicating that services sector in Jordan is developing.

2. There is no statistically significant effect at the level of significance ($\alpha \leq 5\%$) of the inputs of the accounting information systems on the quality of the financial data. This can be attributed to the fact that accounting information systems' inputs depend on the nature of financial data inserted into the system, and the higher the quality of the inserted financial data is, the more it helps the system to maintain it in the same form it was inserted.

3. There is a statistically significant positive effect at the level of ($\alpha \leq 5\%$) for the security of accounting information systems on the quality of financial data. This is a logical result that indicates the quality of financial data, achieved through maintaining the security of accounting information systems used to store data, as for the more information systems' environment is secured, the higher the level of financial data quality was, due to protecting and preserving it from loss or change.

4. The level of quality of the financial data that is relied upon by Jordanian service companies is high. This confirms the accuracy and correctness of financial data presented by financial companies, which results in increasing the reliability of the parties using these data and increasing the accuracy of achieved results in different credit and profitable fields and others.

5. There are statistical significant differences at the level of ($\alpha \leq 0.05$) among the Jordanian service companies in terms of the nature of the accounting information systems, the inputs of the accounting information systems and the security of the accounting information systems attributed to the sector to which the company belongs. These differences were tended to favor the sector of (hotels and tourism). This might indicate the difference in accounting information systems applied in each sector of services sectors. And that the sector of hotels and tourism is the most service sector that applies and cares about accounting information systems.

Recommendations:

Based on the findings, the study recommends the following recommendations:

1. Jordanian service companies represented by the sectors of commerce, education, energy, communication and technology, transportation, and media should focus on the nature, input and security of accounting information systems, as well as focus on the quality of financial data.

2 - The necessity of Jordanian service companies to ensure the continuity of paying attention to the quality of financial data provided to their beneficiaries, which are used to assess the performance of the company.

3 - The need for Jordanian service companies to update the used accounting information systems in accordance with the evolving technological developments.

4. Conduct such a study, but applied to the industrial sector and the financial sector so that comparisons are made within a single sector.

5. Conducting such a study but applying it to various service, industrial and financial sectors so that comparisons are made between these sectors.

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Laboratory Environmental Conditions Influence Patent Inventors' Creative Self-efficacy

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Abstract

A comfortable experimental environment usually enables stress relief among inventors, allowing them to focus on inventing. However, to facilitate smooth and continuous experimental procedures, the public spaces and computing environments of conventional laboratories are usually replete with heavy instruments and interconnected wires; consequently, inventors have limited space to conduct complex experiments. These public spaces and computing environments negatively affect the creative self-efficacy (CSE) of inventors. Based on CSE theory and modified information layout complexity theory, in this study, 100 inventors who had obtained patents were recruited. The results indicated that a wireless cloud public space and computing environment positively moderated and enhanced the relationship between low layout complexity and inventor CSE; conventional public spaces and computing environments featuring cables negatively moderated and weakened the relationship between high layout complexity and inventor CSE. More than 40% of participants highly supported using one electronic tablet to manipulate multiple instruments. The results also revealed that approximately 64% of participants did not think they were essential in promoting critical mass in the laboratory. This finding was significantly different from the degree centrality of creativity perspective. Critical indicators of inventor CSE were found to be inventors' decision-making capabilities regarding innovative research directions and their communication skills with supervisors.

Keywords: public spaces and computing, creative self-efficacy (CSE), patent inventor

1. Introduction

Creative self-efficacy (CSE) is an individual's evaluation of their innovation ability. It regulates the individual's choice of behaviour and their efforts and ultimately determines their performance in specific tasks (Tierney & Farmer, 2011). Particularly, for a laboratory researcher, CSE can be considered as the belief in their ability to develop creative ideas and patents (Song, Kim, & Lee, 2017). Recent developments in wireless communication technology have reduced interference from conventional communication lines in the researchers' R&D environment. Therefore, this study attempted to determine whether the wireless communication layout or environment can exert more positive influences on patent inventors' CSE than the environment with conventional heavy instruments and wired devices in regular science and engineering laboratories.

2. Environmental Conditions in Regular Scientific Laboratories

Connections through wires are required for computers in research organisations and excessive numbers of instruments in almost all regular laboratories. Many instruments for experimentation must be connected to physical computers through conventional cables; however, most light and simple mobile devices do not contain ports that support these connections. In addition to insufficient space, the layout of laboratories (Barros, 2015) poses significant risks regarding instrument or computer damage resulting from researchers accidentally falling over instruments and pulling wires while conducting experiments related to patented inventions. Moreover, public spaces and computing arrangements can interrupt researchers' creative thought processes (Thundiyil, Chiaburu, Li, & Wagner, 2016). Regarding software, instruments, and computers, regular laboratories are equipped with certain professional (e.g., LabVIEW, Linux, Sun Solaris, and Windows 10) and self-developed operating systems. These systems require educational researchers to possess professional IT skills (Yang &

Cheng, 2009) and spend considerable processing time on nonexperimental data and file conversions. Therefore, because of the popularity of smart mobile devices, this study explored the feasibility of replacing conventional experimentation instruments with light and portable smart devices to alleviate space restrictions in laboratories. Based on wireless mobile devices, this study also aimed to use connectionless devices to increase researchers' CSE.

3. Literature Review and Hypotheses

Tullis (1983) defined 'layout complexity' as the on-screen layout of informational items that are visually recognised. Layout complexity is best reduced by arranging information into columns containing information units. After analysing 600 information screens, Tullis (1983) revealed that the average information density of such screens was approximately 25%. On-screen information involving densities more than 40%–50% was rare. Helander et al. (1998) contended that when information density is increased, the time spent searching for data and the error rate also increase, thereby leading to considerable reductions in reading efficiency.

Bandura (1997) defined self-efficacy as 'people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives'. Schwarzer (2001) and Wilski and Tasiemski (2017) have emphasised that a low sense of self-efficacy may induce depression, helplessness, and anxiety. Chen et al. (2001) stated that self-efficacy denotes people's beliefs in their abilities within an organisation. Chong and Ma (2010) asserted that confidence in staff self-efficacy is a vital cognitive and social trait that determines and maintains positive work performance. Subsequently, Tierney and Farmer (2011) developed a specific concept of self-efficacy to judge following capacities within the context of CSE. They indicated that CSE differs from creativity; creativity is the generation of technologically innovative and entity results in a certain field. By contrast, CSE is the belief that staff members have the ability to achieve creative outcomes in jobs. Regarding CSE, Leonard-Barton (1995) stated that when businesses operate in dynamic and changeable environments, employees must have the self-efficacy to learn from these environments and be able to create and distribute this learning throughout the organisation. Furthermore, Karwowski (2012) emphasised that CSE is significantly predicted by creative abilities. Yang and Cheng (2009) and Rohatgi et al. (2016) have posited that CSE may provide efficacy that enhances creative behaviours, and they further described that individual IT skills and the degree centrality of creativity are critical factors that influence CSE. Thundiyil et al. (2016) revealed that CSE has a positive influence on creative performance during situations of low positive affect. In our study, it was hypothesised that decision-making capabilities (Kim, Hong, Kwon, & Lee, 2017; Leng & Jiang, 2016) regarding the direction of prospective studies and adequate communication capabilities (Franchino & Buttazzo, 2017; Jawhar, Mohamed, Al-Jaroodi, Agrawal, & Zhang, 2017) between researchers and team leaders in the laboratory influence the CSE of laboratory staff.

By combining the modified information layout complexity theory (Tullis, 1983), which states that arranging information according to fields reduces layout complexity (Barros, 2015), and CSE theory (Yang & Cheng, 2009), it can be inferred that laboratories, a public space, are similar to large computer screens that contain boundaries. When instruments are arranged in columns and the data are properly formatted on screens, the following hypotheses can be made:

- *H1*: High instrument layout complexity (HILC) and CSE are positively correlated.
- *H2:* Low instrument layout complexity (LILC) and CSE are positively correlated.
- *H3*: The traditional cable experimentation environment (TCEE) negatively moderates and weakens the relationship between LILC and CSE.
- *H4:* The TCEE negatively moderates and weakens the relationship between HILC and CSE.
- *H5*: The wireless cloud experimentation environment (WCEE) positively moderates and enhances the relationship between LILC and CSE;
- H6: This environment also positively moderates and enhances the relationship between HILC and CSE.

4. Methods of Statistical Analysis

This study employed a cross-sectional, descriptive, and inferential design. To assess content validity, five experts specialising in public spaces (Hohberger, Almeida, & Parada, 2015) and computing and the human–computer interface (Nandakumar & Funk, 2015) aided in the completion of the study and scored the initial questionnaire. Purposive sampling techniques were used to recruit inventors. When inventors who had obtained patents in the laboratories under study agreed to complete the questionnaire, it was emailed to them. Frequent follow-up calls were conducted when the questionnaire was not returned within 1 week after being emailed. The questionnaire contained items regarding the aforementioned variables. A 5-point Likert scale was used to evaluate inventors' responses to this survey (1 = *strongly disagree*, 2 = *disagree*, 3 = *acceptable*, 4 = *agree*, 5 = *strongly agree*). In total, 120 surveys were distributed, and 110 questionnaires were returned, achieving a response rate of 91.7%. After adjusting for nonvalid responses ($n = 10$), 100 questionnaires were analysed.

The analysis framework is provided in Figure 1. To test the specific hypotheses, reliability analysis, Pearson's correlation analysis (Ar & Bostanci, 2016), and moderated hierarchical regression analysis (MHRA; Ekrot, Rank, & Gemünden, 2016) were performed. Cronbach's α was used to measure reliability and inner consistency within each dimension. According to the suggestions of Eisinga (2013), a Cronbach's α value between 0.7 and 0.98 indicates high reliability; a Cronbach's α value above 0.6 indicates that reliability is acceptable in exploratory research.

Pearson's correlation analysis was used to explore the relationship between the two ILCs (high and low) and dependent variables (DVs; i.e., CSE). MHRA was conducted to predict the relationships between independent variables (IVs) and the relationship between each IV and a specific corresponding DV.

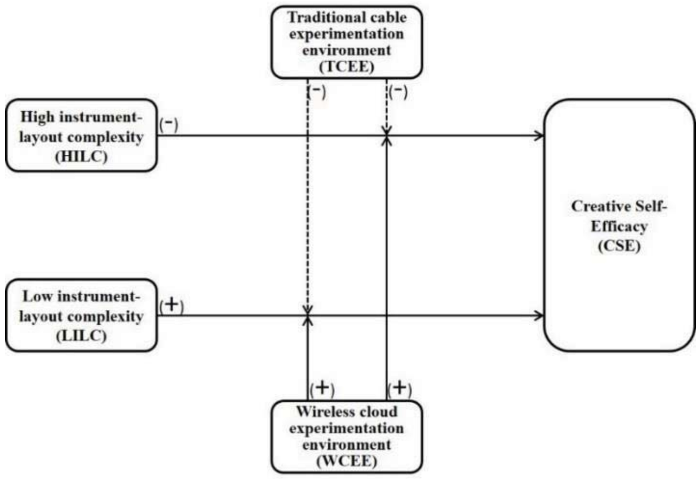

Figure 1. Study framework

In addition, MHRA was used to determine the main effects of the ILC on CSE and to independently assess how the conventional wired environment and cloud computing environment moderate the relationship between ILC and CSE. In Step 1, the two ILC variables (high and low) were added as a set in SPSS 16.0 software. In Step 2, the environments (wired and cloud) were entered SPSS to analyse any effects of the ILC on CSE or the relationship between the two variables. Finally, in Step 3, the cross-products of each of the environments and CSE were entered as a set in SPSS software. Evidence of moderation exists when a set of interacting variables account for significant residual variances in the DV (Youndt, Snell, Dean Jr., & Lepak, 1996). Significant effects indicate that the environment moderates the relationship between ILC and CSE, thereby supporting the proposed hypotheses. Individual interacting variables (e.g., TCEE by HILC) were used to test specific moderating hypotheses. Support for these hypotheses was confirmed if the individual IVs accounted for significant residual variances in the operational performance.

5. Discussion and Statistical Results

In reliability analysis, scores ranged from .62 to .78 (Table 1), thereby indicating the acceptable internal consistency of all dimensions, and that the items addressed the properties of the research variables. Pearson's correlation analysis was conducted to examine trends in the data. The following key variables were included in this analysis: HILC, LILC, and CSE. As shown in Table 2, the results revealed that the correlation was significant at the .01 level ($p < .01$); therefore, CSE was positively associated with HILC, and the correlation was significant at the 0.01 level ($p < 0.01$); CSE was also positively associated with LILC, thereby supporting H1 and H2.

Table 1. Items and reliability of each variable (N = 100)

Dimensions	Items	Average Cronbach α
HILC (4)	1. Do you like conducting experiments in laboratories where instruments are arranged randomly and not according to size? 2. Do you like conducting lectures in laboratories where instruments are arranged randomly and not according to type? 3. Do you like conducting lectures in laboratories where the space between instrument cabinets is unsuitable? 4. Do you like conducting experiments in laboratories filled with miscellaneous equipment?	0.74
LILC (4)	1. Do you like conducting experiments in laboratories where instruments are arranged according to size? 2. Do you like conducting lectures in laboratories where instruments are arranged according to type? 3. Do you like conducting lectures in laboratories where the space between instrument cabinets is suitable? 4. Do you like conducting experiments in laboratories not filled with miscellaneous equipment?	0.78
CSE (4)	1. You have gained experience from external environments and increased your innovativeness based on this experience. 2. You are proficient in manipulating multiple professional operating systems. 3. You are essential in the laboratory and prompt critical mass. 4. You have strong communication skills when discussing experiments with your laboratory supervisor. 5. You possess high decision-making abilities regarding the innovative research directions in your laboratory.	0.62
TCEE (4)	1. You like conducting experiments in laboratories that provide limited space. 2. You like conducting experiments in laboratories where the wires of instruments are intertwined. 3. You like conducting experiments in laboratories where all instruments have separate professional operating systems. 4. You believe that the traditional cable experimentation environment facilitates teamwork.	0.75
WCEE (4)	1. You like conducting experiments in laboratories where wires are not intertwined. 2. You like cloud computing, which integrates the experimental results obtained from all instruments. 3. You like conducting experiments in laboratories where one electronic tablet controls multiple instruments for teaching. 4. You believe that the wireless cloud experimentation environment facilitates teamwork.	0.67

Table 2. Pearson's Correlations

		HI_Ave	LI_Ave	CSE_Ave
HI_Ave	Pearson's correlation	1	.578**	.539**
	Sig. (two-tailed)		.000	.000
	Sum of squares and Cross-products	51.215	28.658	19.702
	Covariance	.517	.289	.199
	N	100	100	100
LI_Ave	Pearson's correlation	.578**	1	.638**
	Sig. (two-tailed)	.000		.000
	Sum of squares and Cross-products	28.658	47.932	22.554
	Covariance	.289	.484	.228
	N	100	100	100

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

*. Correlation is significant at the 0.05 level (two-tailed).

When the relationships between CSE and HILC and LILC were examined, significant differences were observed: $p < .001$, 45.1%, R2 = 0.451, △R2 = 0.451, F = 39.814, and the data fit appropriately well with Model 1 (Table 3). In addition, the coefficients for both IVs (i.e., HILC: $\beta = 0.256$, $t = 2.773$, $p = .007$; LILC: $\beta = 0.490$, $t = 5.315$, $p < .001$) fit appropriately with the model. The correlation between HILC and CSE and that between LILC and CSE in Model 1 were significant. Therefore, HILC and LILC were associated with CSE, thus supporting H1 and H2.

In the MHRA of Model 2, the IVs (i.e., HILC and LILC) and the moderating variables (i.e., TCEE and WCEE) were added sequentially as a set in the model to control for any environmental effects on ILC, CSE, or the relationship between these variables. Model 2 showed the following results: 46.5% (R2 = 0.465, △R2 = 0.014, F = 20.624, $p < .001$; Table 3), and the level of significance was reached. The coefficient of the IV of LILC ($\beta = 0.509$, $t = 5.430$, $p < .001$) was also significant. Therefore, the correlation between LILC and CSE in Model 2 was significant. Thus, LILC was positively associated with CSE.

Finally, in Model 3, each of the interactions between the variables related to the laboratory environment and ILC was explored. The variables (HILC, LILC, HILC × TCEE, HILC × WCEE, LILC × TCEE, and LILC × WCEE) were entered concurrently, and possible multicollinearity was controlled for. Model 3 significantly fit at 51.4% (R2 = 0.514, △R2 = 0.050, F = 12.045, $p < .001$; Table 3). The following results were obtained for the coefficients of IVs in Model 3: HILC: $\beta = 2.688$, $t = 2.783$, $p = .007$; HILC × WCEE: $\beta = -2.392$, $t = -3.015$, $p = .003$; HILC × TCEE: $\beta = -2.523$, $t = -1.944$, $p < .05$; LILC × WCEE: $\beta = 2.898$, $t = 2.837$, $p = .006$; and LILC × TCEE: $\beta = 1.804$, $t = 1.540$. According to the results of the MHRA of Model 3, the correlations between HILC, HILC × WCEE, HILC × TCEE, LILC × WCEE, and CSE all achieved statistical significance (Table 3). Therefore, H4 and H5 were supported. The TCEE negatively moderated and weakened the relationship between HILC and CSE (H4). The WCEE positively moderated and strengthened the relationship between LILC and CSE (H5). H3 was not supported. However, unlike H6, the WCEE did not enhance the relationship between HILC and CSE. The reasons for this should be explored in future studies.

Table 3. Results of Hierarchical Regression Analysis for CSE

Variable	Step 1	Step 2	Step 3
HILC	0.256**	0.141	2.688**
LILC	0.490***	0.509***	-1.847
TCEE		1.282	0.514
WCEE		0.304	-0.170
HILC×WCEE			-2.392**
HILC×TCEE			-2.523*
LILC×WCEE			2.898**
LILC×TCEE			1.804
R^2	0.451	0.465	0.514
ΔR^2	0.451	0.014	0.050
F	39.814***	20.624***	12.045***

***$p < .001$ **$p < .01$ *$p < .05$

According to the statistical results of satisfaction and the mean of question CSE-03 (Table 4), 64% of participants (given agree (4) + strongly agree (5) = 64%) believed that they were not important figures that contribute to critical mass in the laboratory. This phenomenon was significantly different from the degree centrality of creative perspective, which is a vital factor of CSE (Rohatgi et al., 2016; Yang & Cheng, 2009). One possible reason for this is that participants worked in laboratories where personal charisma or research achievements were less vital in attracting fellow inventors to conduct innovative research (Alstadsæter, Barrios, Nicodeme, Skonieczna, & Vezzani, 2018), because most research topics were assigned with patent-approval orientation by firms. This statement is justified by theoretical factors CSE-04 and CSE-05 proposed in this study. Most participants (agreement 4 + 5 > 68) believed they possessed high decision-making abilities regarding innovative research directions in their laboratories and exhibited strong communication skills in discussing experiments with their laboratory supervisors (Table 4).

According to the statistical results of satisfaction and the mean of question CSE-04 (Table 4), most participants (agreement 4 + 5 >75%) agreed that increased IT skills enabled the use of multiple operating systems, which strengthened CSE. Regarding question CSE-02, although most participants (>75%) agreed that using multiple operating systems increased inventors' CSE, approximately 50% of participants did not prefer or did not provide their opinions regarding conducting experiments in laboratories providing limited space and regarding every instrument being controlled by different operating systems (TCEE-01 and TCEE-03). Although participants stated that possessing professional IT skills is advantageous, not every participant preferred different operating systems at all times. Physiochemical or engineering experiments generally involve numerous steps, and inventors must manage many variables in experiments (Naqshbandi & Kaur, 2015); therefore, they seldom have the time and energy to manage various operating systems. This attitude was reflected in WCEE-03 (Table 5), which indicated that approximately 40% of participants highly supported the concept of using one electronic tablet to control multiple instruments while lecturing.

Analysis of laboratory environmental conditions (Table 5) revealed that 48% of participants believed that the TCEE (TCEE-04, agreement 4 + 5 = 48) facilitated teamwork, and only 19% believed that the WCEE (WCEE-04) enhanced teamwork (Table 5). One possible reason is that the cloud computing environment is not yet common in regular scientific laboratories; therefore, rather than personally experiencing the effectiveness of this environment, participants may be comfortable working in the conventional cable environment and may closely identify with it. This preliminary inference not only explains why participants thought that the TCEE facilitates teamwork but also why the study results (i.e., the WCEE did not enhance the relationship between HILC and CSE) differed from H6. These reasons for this result require verification.

Table 4. The Satisfactory and Mean of Each Question (n = 100)

No. of Questionnaire	Agreement(low→high)					Mean±SD
	1-n (%)	2-n (%)	3-n (%)	4-n (%)	5-n (%)	
HILC-01	(2.0%)	11(11.0%)	24(24.0%)	27(27.0%)	36(36.0%)	3.84±0.11
HILC-02	(2.0%)	8(8.0%)	0(0.0%)	36(36.0%)	54(54.0%)	4.32±0.10
HILC-03	(0.0%)	9(9.0%)	15(15.0%)	41(41.0%)	35(35.0%)	4.02±0.93
HILC-04	(0.0%)	0(0.0%)	33(33.0%)	36(36.0%)	31(31.0%)	3.98±0.08
LILC-01	(0.0%)	12(12.0%)	32(32.0%)	42(42.0%)	14(14.0%)	3.58±0.09
LILC-02	(0.0%)	6(6.0%)	30(30.0%)	24(24.0%)	40(40.0%)	3.98±0.10
LILC-03	(0.0%)	6(6.0%)	19(19.0%)	37(37.0%)	38(38.0%)	4.07±0.90
LILC-04	(0.0%)	6(6.0%)	21(21.0%)	50(50.0%)	23(23.0%)	3.90±0.08
CSE-01	(0.0%)	0(0.0%)	18(18.0%)	36(36.0%)	46(46.0%)	4.28±0.08
CSE-02	(0.0%)	0(0.0%)	25(25.0%)	49(49.0%)	26(26.0%)	4.01±0.07
CSE-03	(0.0%)	37(37.0%)	27(27.0%)	19(19.0%)	17(17.0%)	3.16±0.11
CSE-04	(0.0%)	0(0.0%)	9(9.0%)	38(38.0%)	53(53.0%)	4.44±0.07
CSE-05	(0.0%)	0(0.0%)	33(33.0%)	42(42.0%)	25(25.0%)	3.92±0.08
TCEE-01	(0.0%)	19(19.0%)	33(33.0%)	32(32.0%)	16(16.0%)	3.45±0.10
TCEE-02	(0.0%)	10(10.0%)	30(30.0%)	39(39.0%)	21(21.0%)	3.71±0.09
TCEE-03	(0.0%)	25(25.0%)	28(28.0%)	20(20.0%)	27(27.0%)	3.49±0.11
TCEE-04	(0.0%)	16(16.0%)	36(36.0%)	36(36.0%)	12(12.0%)	3.44±0.09
WCEE-01	(0.0%)	29(29.0%)	31(31.0%)	24(24.0%)	16(16.0%)	3.27±0.11
WCEE-02	(0.0%)	26(26.0%)	45(30.0%)	22(22.0%)	7(7.0%)	3.10±0.09
WCEE-03	(0.0%)	32(32.0%)	28(28.0%)	24(24.0%)	16(16.0%)	3.24±0.11
WCEE-04	15(0.0%)	32(16.0%)	34(36.0%)	9(9.0%)	10(10.0%)	2.67±0.11

Table 5. Comparing the Agreement (4 + 5) for Questions on TCEE and WCEE

Item No.	Items	%	%
TCEE-02	You like conducting experiments in laboratories where the wires of instruments are intertwined.	60	-
WCEE-01	You like conducting experiments in laboratories where the wires of are not intertwined.	-	40
TCEE-03	You like conducting experiments in laboratories where all instruments have separate professional operating systems.	47	-
WCEE-02	You like cloud computing, which integrates the experimental results obtained from all instruments.	-	29
TCEE-04	You believe that the traditional cable experimentation environment facilitates teamwork.	48	-
WCEE-04	You believe that the wireless cloud experimentation environment facilitates teamwork.	-	19

6. Conclusion

This study restricted analysis to inventors who are employed and have obtained patents from the Taiwan Intellectual Property Office; thus, the findings are not applicable to inventors of utility or design patents or those in other countries. Inventors in effective public spaces and computing environments tend to conduct high-quality experiments. This study used arranged information screen formatting to differentiate the complexities of laboratory instrument layouts and verified that experimentation environments containing LILC were significantly positively correlated to CSE. MHRA was conducted and revealed that the conventional experimentation environment containing intertwined instrument wires and various operating systems for equipment weakened the relationship between HILC and CSE. This study proposes that a public environment containing cloud computing and mobile devices enhances the relationship between LILC and CSE. Therefore, constructing an experimentation environment by integrating an instrument operating system and cloud computing mobile devices is a future research direction for patent inventions.

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The Role of Financial and Monetary Policy in the Economic Activity in Jordan During the Period (2000-2016)

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Abstract

This study investigated the impact of each of the financial policy and monetary policy on the economic activity on Jordan during the period (2000-2016). The researcher conducted the appropriate statistical analysis (step wise) with the aim of excluding the self- correlation between variables. It was revealed through the analysis that the financial policy in Jordan was more effective, in the influence on economic activity, than the monetary policy. The study concluded a group of results and recommendation, the most important of which was the necessity for, special concern about monetary policy to perform its role together with financial policy in order to raise Jordanian economy toward the best through the increase in co-ordination between both policies.

Keywords: financial policy, monetary policy, economic activity, Jordan

1. Introduction

1.1 Introduce the Problem

The financial and monetary policies are important instruments owned the state for managing economy and which take care of the financial efforts relating to the expenditure and revenue activity of the government. These policies aim at the increase of the growth rate of gross domestic product and limitation of economic fluctuations represented in inflation, unemployment and the achievement of economic equilibrium. The problem of the study lies in the efficiency extent of financial and monetary policies in the achievement of economic equilibrium and limitation of the difficulties which the Jordanian economy suffers from and the achievement of a sufficient level in regard to the allocation of resources between consumption and capital accumulation.

1.2 Study Questions

1) Does the financial policy, followed in Jordan through its different instruments, contribute to the treatment of the economic problems which face the Jordanian economy?

2) Does the monetary policy, followed in Jordan through its instruments, contribute to the treatment of the economic problems which face the Jordanian economy?

1.3 Objectives of the Study

This study aimed at achieving the various aims sought by each one of the tow policies(financial and monetary) in the national economy, relying, for that, on the instruments which affect all economic and social aspects of society such as economic growth, stability, employment and the increase in the development rates of gross domestic product.

1.4 Importance of the Problem

The importance of the study lies in the importance of the role played by the tow policies, the financial and the monetary, in the economic activity which attracted the interest of a big group of economists as they have their impact on the economic conditions of the financial and the monetary, in the economic activity which attracted the interest of a big group of economists as they have their impact on the economic conditions of the state, as well as being guide the track of economic entity in order to achieve the aims sought by the national economy.

1.5 Literature Review

The study of Miglawi, A. about the relative efficiency of the financial and monetary policies in the economic activity – a comparative study between Jordan and Algiers.

The model of (SVAR) was used. The study showed that the financial policy was more effective than the monetary policy in Jordan, while the monetary policy was more effective than the financial policy in the economic activity in Algiers. The effect of the financial policy in Jordan was for a longer period than the financial in Algiers. This study recommended the necessity for co-ordination between the monetary and financial policies to achieve a great level of harmony between them (Miglawi, Ameenah, 2011).

The study of Dirwassi M. was about the financial policy and its role in the achievement of economic equilibrium- Algerian case (1990-2004). The study reached the fact that the expenditure policies were characterized by the growth of public expense and increase of its rates from one year to another due to the expansion of the activity of the state and the decrease of public revenues as a results of the fluctuation of oil prices, which means that relativity between public revenues and expenditure, as the results of the growth of public expenditure was higher than the results of the growth of revenues (Dirwassi, Mas'ood, 2005).

The study of Al- Dureiri was about the role of the financial and monetary policies in the control of inflation in Sudan – an analytical study of the period 1970- 2006. This study showed the existence of a group of interrelated factors which had their impact on inflation in Sudan. They were monetary factors represented in money supply, financial ones represented in budget deficiency and structural ones represented in the increase of the growth rate of the gross domestic product. This study recommended that the state should depend on real resources in funding budget deficiency in order to decrease monetary issue, encourage investment through the system of necessary incentives and facilities and work for the exploitation of available natural resources in Sudan (Ibraheem Al-Dureiri et al, 2009).

The study of Ali ,et was about the impact of financial and monetary policies on economic growth – and applied study on the Egyptian economy. This study concluded a group of results, the most important of which is that monetary policy has its effect on economic growth, not only through the quantitative instruments, but through the qualitative instruments, and public expenditures affect economic activity through their effect on each of consumption, production and income re – distribution. This study recommended the necessity for directing money supply in the way that meets requirement needs for monetary issues or come near them (Sarah Ali et al, 2013).

The study of Al- heeti & Ayyoob. was about the role of financial and monetary policies in economic growth. The results of this study revealed that the monetary policy is more effective than the financial one. The study results also emphasized the existence of a one – way effect of the supply of money toward the gross domestic product, stressing the efficiency of the monetary policy over the financial one(Ahmad Al- heeti &Awss Ayyoob, 2012).

The study of Inraheem & khair was about the impact of monetary and financing policies on the indicators of the entire economy in Sudan. This study concluded the existence of a positive relationship between exchange and money supply as a variable for monetary policy because the increase of exchange leads to the increase in money supply. The study also concluded the existence of a positive relationship between inflation and money supply as a variable of monetary policy. The study recommended the necessity for a stable monetary policy to maintain the stability of exchange. The government should decrease inflation rate and co- ordinate between the ratios and amounts of monetary policy instruments and determine them in general and homogeneous frame (Hadiyyah Hassan Inraheem & Muhammad Khair 2013).

The study of Baqbaq was about the effect mechanism of monetary policy in Algeria and its internal components an econometric study. This study , through the econometric results, concluded the absence of the effect of monetary policy on prices which may be due to several reasons, the most important of which is that inflation in Algeria was not only monetary. The study also concluded the absence of the effect of monetary policy on exchange, the fact which made it incapable of playing its role in transferring the effect of monetary policy to the economic activity on Algeria's. According to the researcher, this is because of the low level of open economy, outside the country and the non- availability of the components and incentives of attracting foreign investment. This study recommended the activation of the effect channels of monetary policy, means of activating the breaking system and financial market in Algeria's, as well as the adjustment of the legislative frame of the banking system according to international developments and the encouragement of establishing private and national banks for contributing to the national economy(Baqbaq, Leila Assmahan,2015).

2. Theoretical Framework

The financial and monetary policy has an important position in the study of the financial aspects and questions relating to the governmental expenditure and revenue. These policies play an important role in the achievement of various aims through their impact on economic activity and equilibrium situation at the level of the national economy. Some scientists have linked the financial policy to the impact of the government on the general purchase power and its use for the public budget of the state to face the economic fluctuations represented in inflation and depression. The economist kinz used the financial policy during the second world war to mean the revenues, expenditures and public debt in the achievement of high levels of the entire production without casing economic inflation. He proved that strong economy could be stable at any level of operation, and not at complete operation as the classical economists believed. The recent aim of the economic policies, in general, has expressed the desire to decrease the equation at the level of complete labor not accompanied by the rise of prices. This aim can be achieved through the activating economic policies with the interference of the state through its financial policies or the monetary or both of them together. Each one of these policies has its special instruments through which it can affect the rates of entire demand and economic activity (AL- Wadi, 2007). Whatever the difference in the views of economists is, co-ordination between both policies is considered important as they have common effects on the economic activity as they seek to achieve equilibrium and stability in all aspects such as labor, prices, production and balance of payment (Mighlawi, 2001).

2.1 Definition of Economic Policies

What is meant by economic policies is all that is relating to the different decisions taking, represented by the government for achieving economic and social aims and searching for the best alternatives in order to achieve the desired aim to reach the greatest possible competence when using the available resources to achieve the biggest number of aims. Therefore, the economic policy should be characterized by competence and efficiency in order to achieve high growth rates. Through these policies and the achievement of economic aims, satisfying the society individuals needs for commodities. This can lead to economic growth and increase of job opportunities in society, in a way to solve the problem of unemployment.

The instruments which control the economic system of the state can be divided into:

1) Monetary policy instruments.

2) Financial policy instruments.

2.2 Definition of Financial and Monetary Policies

2.2.1 Monetary Policy

It is the group of procedures, means and instruments used by the Central Bank, as being a representative of the executive authority in order to affect money supply and credit size, namely, to affect the monetary flow in economy. Most governments in the world, through their monetary policies, seek to achieve the following aims (AL- Taher, 2004):

1) Stability of price.

2) Achievement of satisfactory rates.

3) Decreasing unemployment stability.

4) Maintaining exchange stability.

5) Stability of interest rates.

6) Achieving monetary stability.

The monetary policy affects money supply through its quantitative instruments represented in:

1) Interest rate.

2) Compulsory reserve.

3) Open market operations.

4) Operations of discount price and rediscount.

2.2.2 Financial Policy

Financial policy is defined as the group of aims and activities adopted by the state in order to affect the national economy and society, with the aim of maintaining the general stability, solving problems and facing all contingencies. The financial policy, followed by the government, achieves the following aims (AL- Wadi, 2007):

1) Achievement of productive competence.

2) Achievement of complete labor.

3) Achievement of economic progress.

4) Achievement of equation in income distribution.

5) Achievement of stabilization in the general level of prices.

The government can achieve that through the use of the following instruments of financial policy:

1) Direct and indirect taxes.

2) Support and subsidies.

The impact of these tow policies on the economic activity has been greatly controversial among many economists, at the top of which are the kinzeana (economists who belong to the school of kinz) and critics, as kinz considered the financial policy more effective than the monetary policy in its influence on production and labor, while the critics disagreed with them saying that the monetary policy is more effective. However, their dispute has been narrower when each side realized that each of the tow policies can affect production and prices (Shawaihani, 2005).

In Jordan, the state has had the leading role in guiding the Jordanian economy, through its different stages, by adopting several policies at the top of which are the financial and monetary policies.

Therefore, this study came to shed light on the role of each of the financial policy and monetary policy in the achievement of economic growth and stability in Jordan during the period (2000-2015). For achieving the aim of this study, the researcher designed a measurement model (scale) for this purpose as follows:

$$Y = \underset{0}{a} + \underset{1}{b}PE + \underset{2}{b}M2 + 4$$

Where:

- The gross domestic product – Y
- Public expenditure - PE
- Money Supply - M2
- Random variable - U

There data were analyzed through (SPSS) program and the result was as follows:

Y = 1415.842+0.299PE+0.848M

These results showed the existence of a self- correlation problem where the value of D.W is 0.774 which is less than the value of DL= 0.982. The self- correlation problem was processed through the use of LOG for money supply only because it was experimented on all variables and the problem was existing and when applying it on money supply alone, the problem did not appear and the formula was as follows:

$Y= \alpha+ \beta PE+ \beta Log\ m_2 + E$

Y= 16249.76+ 4.139PE - 3183.997

T 0.461 4.066

R square = 97.9

Adjusted R square = 97.5

D.W = 1.705

This signifies that the data were significant at the level (0.01). After that, the effect analysis of each of the financial policy and monetary policy in Jordan was analyzed through (step wise) and the results were as follows:

Y= 2738.617+ 3.593PE

T - 3.781 25.084

R square = 97.8

Adjusted R square = 97.7

D.W = 1.299

This means that the financial policy, represented by public expenditure, was more influential on the domestic product in the Jordanian economy, while there was no mentionable influence of the monetary policy. These results were consistent with a lot of the study which were conducted in Jordan about this topic, and as Jordan, after the financial crisis of 1989 has had a stable exchange of the dinar since then.

3. Results

3.1 Conclusions

This means the non- existence of efficiency of the monetary policy in economic activity. Based on that, this study concluded the following results:

1) The financial policy, represented by public expenditures had a positive impact on the economic activity in Jordan during the period of the study.

2) The monetary policy, represented by money supply, had no effect on the economic activity in Jordan during the period of the study.

These results were expected in the Jordanian economy as a result of some measures taken by the government before stabilizing the exchange of the dinar against the dollar in order to increase the citizen trust in the dinar

3.2 Recommendations

Based on that, the study recommended the following:

1)Giving the financial policy bigger importance in dealing with some difficulties in the Jordanian economy as being more effective than the monetary policy as shown in the analysis of the results.

2)Giving future importance to the monetary policy through the concentration on Amman Stock Market and the innovation of its instruments in order to contribute to the increase of the role of monetary policy in the economic activity.

3) Increasing the co-ordination between the financial policy and the monetary policy in Jordan and the achievement of a greater possible degree of compatibility between them for the interest of the national economy.

4) Conducting further studies about this topic as it is of great importance for the national economic activity.

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Appendix A

Study Variables to Appendix A

year	Money supply M2	Government expenditure	Nominal GDP
2000	7434.7	2187.1	5998.6
2001	7866.1	2316.3	6393.7
2002	8419.1	2396.2	6794.0
2003	9465.7	2809.8	7228.8
2004	10571.4	3180.5	8090.7
2005	13364.0	3238.9	8925.4
2006	14109.7	3912.2	10675.4
2007	15606.8	4586.5	12131.4
2008	18304.3	5431.9	15593.4
2009	30013.3	5976.0	16912.2
2010	22206.7	5708.2	18762.0
2011	24118.9	6801.8	20476.6
2012	24945.1	6878.2	21965.5
2013	27363.4	7076.9	23851.6
2014	29340.4	7851.1	24437.1
2015	31605.5	7722.9	26637.4
2016	32876.2	7948.5	27444.8

Source: central bank of Jordan –statistical report

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