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[01]

CHALLENGES FACING IASS/IFRS IMPLEMENTATION BY LIBYAN LISTED COMPANIES

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ABSTRACT

This study examines the factors that may be considered as challenges or difficulties facing the implementation of the International Accounting Standards (IASs), and International Financial Reporting Standards (IFRS), by Libyan companies listed on the Libyan Stock Market (LSM). A qualitative approach was employed using semi-structured interviews to collect data. The results reveal that most listed companies prepare their financial statements taking into account the existing laws and the financial regulations, such as the Tax Law, and Libyan Commercial Law, prior to the GAAP with which they comply. The study also finds that the challenges facing the IASs/IFRS implementation in the preparation of listed companies' financial reports include the following: 1) most listed companies do not offer training programs, and those that do have only weak provision in this respect, 2) accountants lack adequate skills, awareness and capabilities in implementing IASs/IFRS, 3) accounting education curricula do not include the IASs/IFRS on their syllabus, 4) the vast majority of participants are unable to use the English language in preparing accounts, 5) there is an absence of enforcement from the LSM and external auditors, and 6) the LSM governance mechanisms are weak.

Keywords: *accounting regulation, IASs/IFRS, developing countries, Libya, Listed Companies.*

INTRODUCTION

Over the years, corporations in developing countries have come to report their financial and accounting information according to the Generally Accepted Accounting Principles (GAAP) or their domestic accounting regulations. In this context, a key objective of accounting is to provide reliable information to stakeholders who may not have access to this information, to enable them to make rational decisions. However, (Gaffikin, 2005) argues that as most stakeholders are remote from management, they are at an information disadvantage, and hence, there is information asymmetry. This information asymmetry is often used as a justification for accounting regulation. Consequently, a wide range of

accounting regulations exist and influence the process of accounting and the work expected of accountants. As an example, there are accounting regulations and laws governing the operation of corporations, and many of these require the disclosure of reliable accounting information. Accounting regulation, therefore, exists to minimize the remoteness gap created by the separation of management and ownership (Jensen and Meckling, 1976). Therefore, the International Accounting Standards (IASs) or International Financial Reporting Standards (IFRS) are now used in almost every developed country as the reporting standards. For instance, the European Union adopted the IFRS as mandatory reporting standards for the

consolidated financial reports of corporations listed on the European stock market (Mulyadi, et al. 2012). Nowadays, the accounting profession and all interested parties, operate in an era of convergence from the GAAP to the IFRSs; although as found by Mulyadi et al.(2012, p: 159)“some countries still use national GAAP as the basis of tax calculation and some countries adjust/change tax regulation to support IFRS implementation”. Implementation of these standards has been successful in emerging economies such as China, Zimbabwe, and Mauritius, but has failed in other countries such as Pakistan and Kuwait, (Albu and Albu, 2012). This may be because the process of convergence is intensive, and presents a great challenge that may not be as simple as one may think (Nwachukwu, 2012).From a review of the IFRS literature, it can be noted that IFRSs implementation in developed countries has received considerable attention from researchers (e.g.Jeanjean and Stolowy, 2008; Defond et al., 2011; Landsman et al., 2012; Florou and Pope, 2012). However, this topic has been neglected in the developing country context. Hence, this paper aims to investigate the IFRSs implementation in developing countries, taking Libya as a typical developing North African country. More specifically, the study intends to investigate the factors that may be considered as challenges to IASs/IFRS implementation in Libya¹. The focus of the

¹Libya’s accounting profession is oriented towards the accounting systems of UK and USA. It has followed the General Accepted Accounting Principles (GAAP) (Bait-El-Mal et al, 1973; Mahmud and Russell, 2003). Recently, Libya is in a transitional phase to liberalise the economy though this attempt has faltered and discouraged investment due to high level of uncertainty, which can be attributed to many reasons some of which is lack of corporate governance practise,Dempsey (2013). Libyan government enacted the banking Law No. 1 of 2005 that governs the banking sector, and Libyan Stock Market initiative (LSM) No. 134 of (2006) which established the LSM, then amended by the initiative No. 436 of 2008.

study is on Libyan listed companies, the reason being that these companies are mandated to prepare their financial reports according to the IASs/IFRS.

LITERATURE REVIEW

The preference for either the IFRS or the US GAAP to operate as the internationally accepted uniform set of applications, is now less clear cut than previously, because while public opinion used to acknowledge the GAAP as the gold star, nowadays, as noted by Bozkurt et al. (2013), the world takes the IFRS as its reference point. In addition, from the perspective of professional accountants, compliance with the IFRS improves the comprehensibility and reliability of financial statements, and makes for a decrease in accounting frauds. Furthermore, Perera (1989), and Hove (1989), argue that there is a convincing indication of the ability of these standards to enhance economic growth as their use attracts increased foreign investments. Foreign investment within competitive and dynamic international capital markets, is driven in part by the presence of mandatory accounting standards for private companies in some developing Asian countries (Bhatia, 2012).Moreover, Rezaee et al.(2010) argue that the competitiveness and efficiency of the international capital market depend on the ability of financial statements preparers to communicate effectively with investors through the channel of financial reports. Therefore, it can be noted that preparing financial reports according to IFRSs may play

Moreover, the Libyan government enacted Law No. 11 of (2010) that governs the activity of LSM and the listed companies. These laws require all banks and listed companies to pursue IASs. However, (Elfirjani 2010) reports that listed Libyan companies still comply with the GAAP. Moreover, the corporate accounting regulation in Libya has been influenced by many laws such as the Libyan Tax Law No. 7 of 2010, the Libyan Commercial Law No. 23 of 2010, and the General Financial Regulation (GFR) of 1980.

a vital role in attracting foreign investment in developing countries. The implementation of the IFRSs in developing countries, does however, encounter certain challenges that may be considered to slow down the process of transition to IASs/IFRSs. For instance, effectiveness in the application of the IFRSs in developing countries requires human resources to be properly trained in order that the standards can be understood and applied. Currently, the absence of qualified personnel in this respect is a big challenge facing the process of transition to IFRS (Timoshenko, 2007; Akdogan, 2007; Gonen and Ugurluel, 2007; Kapoor and Ruhela, 2013). In Nigeria, for example, it is found by Ailemenand Akande (2012) that two impediments to full implementation of the IFRS are the absence of training facilities, and the outmoded academic curriculum. Specifically, accounting education deficiencies and outdated accounting curricula serve to make the adoption of the IFRSs more difficult in that country (Schachler et al., 2012; Albu and Albu, 2012; Kapoor and Ruhela, 2013). In this context, the lack of executive capacity, shortage of accounting personnel, and absence of suitable accounting infrastructure, can be attributed to accounting education shortcomings, all of which consequently obstruct companies in emerging economies in their efforts to make the transition to the IFRS (Okaro, 2011; Nwachukwu 2012). Another instance is that of Algeria, which like other developing countries suffers from a general lack of professional qualifications and practical experience amongst accounting educators. This problem represents a substantial challenge in the process of convergence to the IFRSs (Saidi, 2013). Another example is that of Libya, where accounting education and other educational programs were established in the late 1950s according to models and advice from professional bodies and universities in the UK and the USA (Mahmud and Russell, 2003). Whilst this foundation was good at the time, since then the country's accounting profession has been struggling to move

towards the application of the IFRS due to the constraints of domestic laws and the overall regulatory framework. In fact, a number of developing countries in Africa, which are affiliated to the British Commonwealth, have developed their accounting systems on the basis of the British Companies Acts (Alexander and Nobes, 2010), and clearly many of the socio-political, economic, cultural, and environmental considerations upon which these Acts were founded, are quite different from the particular economic circumstances prevailing in African countries. Therefore, one could argue that this legacy presents a big challenge to such countries as they plan to convert to the IFRSs. This point is articulated by Ailemen and Akande (2012, p: 305), who state that: *“The IFRSs will lead to inconsistencies with existing laws such as the Companies and Allied Matters Act 1990, Securities and Exchange Commission laws, Banking laws and regulations and Insurance laws. Presently, the reporting requirements are governed by various regulators in Nigeria and their provisions override other laws. Whereas IFRS does not recognize such overriding laws, steps to amend these laws must be taken to ensure that the laws are amended well in time”*. The adoption of the IASs/IFRSs can be observed as resulting from pressure brought to bear by external auditors. In Bahrain, for instance, external auditors are considered as a source of pressure on their clients as they strongly attempt to influence their decisions in favor of adopting the IASs (Al-Basteki, 1995; Joshi and Ramadhan, 2002). Similarly, in Thailand local external auditors and Big 4 audit firms are perceived to exert pressure to persuade enterprises and corporations to adopt the IASs (Srijunpetch, 2004). Moreover, in the Middle East countries, a number of national auditors have become partners with Big 4 audit firms and this has forced corporations to improve the level of reporting disclosure (Nasser and Nuseibeh, 2003). Clearly, local external auditors, as partners with the Big 4 audit firms, facilitate the path towards adoption of the

IFRS, although there does remain the need for local auditors to acquire proper communication skills, such as the English language. The need to prepare financial reports in English is an important determinant of whether companies in countries where English language is not the native one adopt the IASs, as noted by Aljifri and Khasharmeh (2006), researching in the United Arab Emirates (UAE). For instance, countries with Anglo-Saxon ties are more likely than those without such ties, to adopt the IFRS as part of their corporate governance responsibility (Zeghal and Mhedhbi, 2006; Boolaky, 2012). This is emphasized by Senaratne and Gunaratne (2008, p: 87), who state that *“the Anglo-Saxon model [of governance] has been implanted on many developing countries due to colonial influence or pressure from international funding agencies”*. However, Masca (2012) argues that in the precise context of SMEs, it is the accounting culture of a certain geographical area that influences the application of the IFRS. In this context, Retchie and Khorwatt (2007) argue that the auditing profession in Libya² is influenced by the cultural values of family, tribe, and community. And Tsakumis (2007) provides support for this overall idea, pointing out that national cultures play a role in accountants’ disclosure judgments and that uniform accounting standards may not result in similar disclosure decisions being made across countries. The review of the literature prompted the question of whether the above factors represent challenges to listed companies in Libya, and in order to shed light on this issue, data were collected using a qualitative approach. The following section

² Libya’s audit market consists of large local auditors, small audit offices and Big 4 audit firms, for instance Ernst and Young, PWC, KPMG and Deloitte all have their offices in Tripoli (Faraj and Akbar, 2010).

describes and justifies the usage of this research method.

RESEARCH METHODOLOGY AND DATA

The research method adopted in this study is the semi-structured interview. The purpose of the interview is to provide valid and reliable data which are relevant to the objectives of the research study concerned (Marchall and Rossman, 1989). It is accepted that the interview is the most widely employed method for data collection in qualitative research (Bryman, 2004), and one reason is that interviews allow for more in-depth and insightful information about the topics under investigation to be obtained. Whilst the use of interviews can be time-consuming, when the population involved is relatively small, as is the case in this study, interviews can be very effective. This study’s population comprises all financial managers and internal auditors in charge of all ten Libyan companies listed on the LSM. This produces a total of 20 subjects, three of whom were unwilling to participate, and six of whom were not available. The eventual interviewee group therefore comprised eleven subjects.

FINDINGS AND DISCUSSION

The results of the semi-structured interviewees are presented in Table 1. When interviewees were asked on what basis they prepared financial statements, they all indicated that their companies were following the GAAP. For instance, one of the internal auditors said *“our company’s financial statements are prepared according to the GAAP which I have had studied during my graduate school, despite the company is registered in the Libyan stock market”*. Similarly, one financial manager added *“the financial statements of the company are prepared in accordance with the GAAP, and I think these financial statements are produced according to the IASs because the IASs do not differ from the GAAP”*. As for the existing laws and

regulations relating to the preparation of companies' financial statements, all interviewees stated that they took certain laws and financial regulations into account when preparing these accounts. For example, one internal auditor said that *"the laws and financial regulations which are followed when companies prepare their accounts such as Tax Law (TL), Commercial Law (CL), General Financial regulation (GFR), and Company's Internal Regulations (CIR)"*. Another financial manager stated that *"there some laws and financial regulations are imposed on companies and must be followed when preparing the financial statements which are namely TL, CL, GFR and CIR"*. With regard to the source of influence of both existing laws and the GAAP, all interviewees stated that the laws and financial regulations are applied prior to the GAAP. For example, one manager said that *"in fact, we consider the laws and regulations which are compulsory to implement by the company, especially those articles that are relevant to the accounting treatments, and then we follow the GAAP for accounting treatments that are not included in these laws"*. Almost 60% of respondents expressed the opinion that the existing laws and financial regulations limited the application of the GAAP and/or IASs. For instance, one financial manager said *"there is a flexibility in the application of any accounting standards such as IASs or the GAAP. But the company must apply the laws and financial regulation before these accounting standards"*. As for using the English language in preparing financial statements, all respondents confirmed that English was not used in their companies at all. Furthermore, there is no law in Libya that requires companies to use English language in preparing accounts. These results revealed that the Libyan listed companies prepare their accounts according to the GAAP, and that the financial statements are strongly influenced by the laws and financial regulations of the country, which are adhered to prior to the GAAP. Moreover, the results are consistent

with those of previous studies (e.g. Alexander and Nobes, 2010; Ikpefan and Akande, 2012) which revealed that the existing laws are not in line with the IFRS, and that IFRS implementation requires amendments to these statutes. In the context of Libya, it can be concluded that Libyan authorities adopted IASs in 2006 without any alteration to the prevailing legislation, and the lack of change in this respect, is considered a big challenge facing IASs implementation. When interviewees were asked about the difficulties encountered in attempting to implement the IASs/IFRS when preparing listed companies' financial statements, they all confirmed that the companies concerned did not actually apply the IASs/IFRS because of the problems they faced in trying to do that. Essentially, the problems refer to the fact that accountants are unaware of IASs/IFRS applications and incapable of compliance as there are no relevant training programmes to educate them in this matter. Consequently, accountants remain ignorant. One internal auditor said *"I think that all accountants and internal auditors in our company have neither efficiency nor the ability to follow IASs/IFRS when they prepare company's accounts. Moreover, they have no idea about these standards at all, and there is not any source of IASs/IFRS reference available so that they can get more information about these standards. I also believe that if accountants in financial departments and internal auditors are provided with suitable and adequate training programs about IASs/IFRS applications, they would have the efficiency and skills so that they would be able to apply IASs/IFRS"*. The shortcoming in accounting education curricula, already mentioned, and evident in the fact that there is no coverage of the IASs/IFRS, is the reason why accountants are deficient in this respect. Without the fundamental knowledge of the IASs/IFRS in the first place, accountants cannot be expected to prepare financial statements in accordance with these standards. On this issue, one financial manager said *"I believe that inadequate accounting*

education in Libya is considered as one of the reasons behind companies not able to apply IASs/IFRS. This is because the accounting education curriculums do not include IASs/IFRS programs, except the postgraduate programs which include a limited introduction of IAS. In addition, the senior management of the company does not pay attention about these standards". That said, however, the fact that the English language is not used as an official language in Libya means that even with an improved accounting curriculum, accountants would be unable to produce financial statements in English. Indeed, the lack of ability in English language has made it difficult for accountants to understand even the translated version of the IASs/IFRS. Clearly, these factors represent large obstacles to the application of these standards in Libya. They are not, however, the only problems since another barrier is seen in the lack of enforcement by external auditors, the Libyan Accounting Bureau (LAB), and the Libyan Stock Market (LSM). This was confirmed by one internal auditor who said *"there is no any enforcement imposed from the external auditors or the LSM to implement IASs/IFRS. Although, the LSM requires all listed companies to follow IASs in preparing the financial statements, LSM lacks the pressure to impose its authority upon listed companies to apply IASs. Furthermore, even other related governing parties do not have any enforcement on the implementation of IASs"*. When interviewees were asked about the role of external auditors in exercising pressure or providing advice to facilitate the implementation of the IASs in preparing financial statements, all respondents emphasized that audit reports include the financial statements representing their companies' financial positions, and that these are prepared according to the GAAP without reference to the IASs, despite the fact that the LSM law requires companies to follow the IASs. Obviously, the application of the IASs/IFRS faces several difficulties, which can be listed as: the lack of training

programmes; the lack of inclusion in the accounting curriculum of the IASs; the consequent lack of awareness among preparers of the IASs/IFRS and how to implement them; the absence of enforcement; the weakness of the LSM governance system; and the inability of preparers and auditors to use the English Language. These findings are in line with those of Mahmud and Russell (2003), Aljifri and Khasharmeh (2006), Boolaky (2012), Ailemen and Akande (2012), Albu and Albu (2012), Schachler et al. (2012), and Kapoor and Ruhela (2013). However, these results are inconsistent with the results of Al-Basteki (1995), Joshi and Ramadhan (2002), Nasser and Nuseibeh (2003), and Srijunpetch (2004), since all these researchers found that external auditors do exercise pressure to try to achieve IASs implementation. From these findings, one can conclude that the difficulties preventing listed companies from applying the IASs/IFRS are due to the fact that the English Language is not used since this has led to the lack of awareness of the standards among preparers and auditors.

CONCLUSION

This study aimed to examine the challenges facing Libyan listed companies in their application of the IASs/IFRS. The interviewees revealed that although the LSM law requires compliance with the IFRS, listed companies prepare their financial statements considering the existing laws and the financial regulations (such as the TL and LCL), prior to the GAAP. Several challenges to the process of implementing the IASs/IFRS in preparing financial statements were highlighted, these being: the lack of training programmes; the lack of inclusion in the accounting curriculum of the IASs; the consequent lack of awareness among preparers of the IASs/IFRS and how to implement them; the absence of enforcement; the weakness of the LSM governance system; and the inability of preparers and auditors to use the English Language. Given these results, it is recommended that Libyan regulators

amend the existing laws to facilitate IASs/IFRS applications. Policy-makers also need to incorporate these standards into accounting curriculums and training programmes to ensure that there is synchronisation between the accounting profession, and accounting education at the

national level. It would also be appropriate to conduct more research to explore whether such challenges exist in the Libyan banking sector, and to assess the current state of corporate governance in Libyan companies generally.

Table 1

Challenges Facing IASs/IFRS Implementation By Libyan Listed Companies

Participants	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
FM	√		√	√				√	√	√	√	√	√		√
FM	√		√	√	√			√	√	√	√		√		√
FM	√		√	√	√			√	√	√	√		√		√
FM	√		√	√				√	√	√	√		√		√
FM	√		√	√				√	√	√	√		√		√
FM	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√	√	√		√
InA	√		√	√				√	√	√	√		√		√
InA	√		√	√	√			√	√	√	√	√	√		√
Total = 11 Interviewees															
FM = Financial Manager, InA = Internal Auditor, √ = Positive, Blank = Negative															

A= accounts prepared according to GAAP, B = accounts prepared according to IAS/IFRS, C = accounts preparation influenced by laws, D = existing laws considered prior to GAAP, E = existing laws limit the application of IAS/IFRS, F = accounts produced in English, G = laws require English use, H = accounting education deficiencies affect IAS/IFRS application, I = lack of training affects IAS/IFRS application, J = lack of expertise affects IAS/IFRS application, K = unawareness of IAS/IFRS limits its application, L = availability of IAS/IFRS text book, M = financial statements in English more beneficial than those in Arabic, N = external auditor requires compliance to IAS/IFRS, O = financial statements prepared according to IAS/IFRS would provide more reliable information than those prepared according to GAAP.

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[02]

CORPORATE GOVERNANCE AND ETHICS

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ABSTRACT

The word Corporate Governance is composed of two words – Corporate and Governance. Corporate means Company form of business. They are normally characterized by limited liability of its owners, separate legal personality, scattered ownership in the form of shareholders, bifurcation of management from owner etc. Corporate Governance means the way in which a corporation is controlled and governed. It relates to the rules and procedure for making decision in corporate affair. Since Companies are creation of law, they cannot take decision like natural persons. So their decision making power and management is entrusted in a group of people called Board of Directors. Since lot of stock holders are involved in a company like – Shareholders, Government, Employees, Customers, Suppliers and Investors, any wrong decision or mala-fide act of the management of the Company may adversely effect those stock holders. A Company should act in such a manner that it is beneficial to all stock holders. Mere profit making is not acceptable as the main objective of a company in modern day society. It is essential that the board should have the required integrity and should be transparent in their policy and decisions. Excessive greed, integrity failure, tendency to cross ethical boundaries and ignoring the law of land at senior management level has resulted in many high level corporate fraud and corporate collapse in recent years.

Keywords: *Corporate Governance, Stock holders, Board of Directors, Ethics, Fraud, Collapse.*

INTRODUCTION

The word Corporate Governance is composed of two words – Corporate and Governance. Corporate means Company form of business. During pre-industrialized world, economic activities of human were mainly related to agriculture. People used to do trading on barter or otherwise, between individuals or between households. They used to do business with their own capital. Gradually business began to grow in an organized form and spread across country and continent. Evidence of local and international trade is found in all major ancient civilizations of Rome, India, Egypt etc. Special trading classes begin to emerge in most ancient civilizations. In India such business trading classes were called ‘Vaishya’. But even in those days, vast majority of the population used to live in villages. The

villages were mostly self-sufficient. Whatever basic things they need, they used to produce it. So the scope of trade was limited. After industrial revolution in Europe, advancement of machine leveraged the efficiency of labor many-fold, which in return resulted in surplus production. Such surplus production is far beyond the consumption capacity of the producer. This surplus production gave rise to need for finding new market for trade. Explorers from Europe sailed to various parts of the world in search of new markets in 15th and 16th Century. With the expansion of trade, new methods of financing were found out. The most popular among them was formation of Joint Stock Company. The earliest recognized Joint Stock Company was formed in England in 1553AD, named ‘Company of Merchant Adventurers to New Lands’. It had 250

shareholders. The ‘Dutch East India Company’ formed in 1602 is considered as the first multinational company.

CHARACTERISTICS OF A COMPANY

A Company form of organization has certain unique characteristics, which distinguish it from other forms of organization. Few such characteristics are as follows:

1. Separate legal entity – A Company has a separate legal existence independent of its members. Company can enter into contract on its own capacity and shareholders cannot be held responsible for the act of the Company.
2. Limited Liability – Since a Company is a separate legal entity, the members cannot be held liable for the debts of the Company.
3. Scattered Ownership – The capital of a Company is divided into small units called Shares. These shares are owned by vast number of people and they are called Shareholders.

4. Separation of Management from Ownership – The shareholders do not manage the day to day activities of the Company. It is entrusted in a small group of people called Board of Directors.
5. Transferability of Shares – The shares of a Company are easily transferable. In another word, the ownership of a Company may change hand easily.

STACK HOLDERS

In today’s scenario, most of the Companies do their business in a very large scale – sometimes at national level or at international level. There are many multinational Companies who have their presence globally. A lot of stock holders are involved in a company like – Shareholders, Government, Employees, Customers, Suppliers and Investors. Any wrong decision or mala-fide act of the management of the Company may adversely affect those stack holders. The main stack holders of a Company are as follows –

TYPE OF STACK HOLDER

THEIR CONCERN

- | | |
|------------------|--|
| 1) Share holders | - Profitability, Market price of Share, Solvency of the Company |
| 2) Employees | - Job Security, Rate of Pay, Retirement benefit, Promotion |
| 3) Government | - Taxation, Employment generation, Social responsibility |
| 4) Supplier | - Secured market for their products, Secured payment |
| 5) Customer | - Uninterrupted supply of good quality goods and services |
| 6) Society | - Employment, Environmental concern, Socially responsible projects |
| 7) Investors | - Security of Investment, good return on investment |

MANAGEMENT OF A COMPANY

Since a Company is an artificial person, it cannot take decision of its own like a natural person. Therefore the decision making power of a company is entrusted in a group of people called Board of Directors. The Board of Directors takes all the decisions, both for day to day activity as well as strategic decisions on behalf of the company. The Board manages the Company’s business. All the resources of **CORPORATE FRAUD IN RECENT TIME**

Excessive greed, integrity failure, tendency to cross ethical boundaries and ignoring the law of land at senior management level has resulted in many high level corporate fraud

the Company are at the disposal of the Board. It delegates some of its powers and responsibilities to the Chief Executive Officer (CEO) and through him to subordinate senior managers and officers. It oversees and monitors the performance of the CEO and managers. It is essential that the board should have the required integrity and should be transparent in their policy and decisions.

and corporate collapse in recent years. Here is a list of few big corporate frauds around the world –

<u>COMPANY NAME</u>	<u>YEAR</u>	<u>TYPE OF FRAUD</u>	<u>REMARK</u>
Enron	2001	Directors and management fraudulently concealed large losses in various projects. Huge debts were kept off from the Balance Sheet.	<ul style="list-style-type: none"> - 4500 employees loss job - Investors lossed US\$ 60 billion within few weeks because of crash in stock price - Pension fund of employees stopped - People’s faith in US financial market got destroyed.
WorldCom	2002	Profit was inflated by entering revenue expenditure as capital expenditure.	<ul style="list-style-type: none"> - Company became bankrupt - 30000 Employees lossed job - Investors lossed US\$ 180 billion
Lehman Brothers	2008	Hide about \$50 billion loan by showing it as sale	<ul style="list-style-type: none"> - Company became bankrupt
Satyam Computers	2009	Accounts were falsified to the tune of US\$ 1.5 Billion.	

RELEVANCE OF GOOD CORPORATE GOVERNANCE

Corporate governance refers to the set of rules, procedures, processes and principles by which a company is governed and controlled. It refers to the power, responsibility, accountability, relationship and transparency in conduct of those involved in the governance and control of the company. Main persons who are involved in the governance and control of a company are the board of directors and the management. Corporate governance also refers to the relationship among various participants, like board of directors, management, shareholders, employees, customers, suppliers and society at large in determining the performance and direction of a company. Since in today's world, companies operate in a very large scale and any foul playing or collapse of a company results in tremendous negative effect on its stakeholders and on the society, so it become vital that a good corporate governance system is in place in every company so that such unwanted effect resulting from lack of good corporate governance can be avoided. Every company should voluntarily put in place system for good and ethical corporate governance for the following reasons –

1. Credibility of the company increases in the eye of investors if it has a good corporate governance
2. Quality of management of the company increase. It helps the board and management in taking progressive and innovative decisions.
3. It brings transparency in functioning of the company.
4. It helps in giving equitable and fair treatment to all stakeholders of the company
5. The rights and responsibility of the board and management is codified in details. It removes arbitrariness in

decision making and in functioning of the company

6. It encourage ethical behavior in functioning of the company at various management level
7. It encourages fair and true financial disclosure of all material facts in the final accounts. Thus the chance of manipulation in accounts gets reduced
8. Efficiency, honesty and talents is encouraged in those companies where there is a good corporate governance in place
9. It insulate the company from the possibility of occurrence of corporate fraud and collapse
10. A good corporate citizen enjoy a position of respect
11. Since the potential investors find the company less risky to invest, fund can be raised easily at much less cost
12. It brings stability to the company and acts as an stimulant for growth and longevity of the company

PROCEDURE FOR GOOD CORPORATE GOVERNANCE

For developing good corporate governance culture, following steps may be taken by a company –

1. The company may develop a manual on corporate governance principles, documenting the function and role of the board of directors and its committees
2. Codify the procedure for appointment of directors so that only person with relevant experience, integrity and

qualification gets appointed as directors

3. Substantial number of directors should be independent directors
4. Form Corporate Governance Committee for making recommendation to the board on various governance related matters and monitor the performance of the board and subordinate management
5. Chairperson and the Chief Executive Officer should be two different person
6. Board meeting and shareholders meetings should be held frequently and all major decisions relating to the company should be taken in such meeting. The proceedings and decisions of the meetings should be properly documented.
7. Conflict of interest means a situation in which the personal interest of a person conflicts with the interest of the company so that the person may be prompted to act in a manner which is not beneficial to the company. The company should develop proper mechanism so that in case conflict of interest occurs on any act of the company with any director or top management, it can be properly handled.
8. There should be proper accounting system in place so that every material fact get recorded and chance of account manipulation get minimized.
9. There should be proper and effective internal and external auditing system in place.
10. There should be proper conflict resolution mechanism in place.

ETHICS IN CORPORATE GOVERNANCE

Good corporate governance does not in itself guarantee success of a business, unless the people behind their implementation have required integrity and ethics. Ethics is associated with moral principle and value in action and decision. Ethics and legality is not same. Some act may not be illegal from law point of view but it may be ethically inappropriate, and thus unacceptable to the society. Thus ethics is the bedrock of corporate governance. Corporate entities though are bestowed with many of the legal powers like human being but they have no moral sense. They cannot themselves differentiate between good and bad. The board has to embed ethics into the functioning of a corporate entity to give it conscience. The board being the primary decision maker, they should hold themselves accountable for the way the business is operated and its effect on the shareholders, investors, employees, customers and other stack holders. Short term profit should not override the long term sustainability of the business. Few typical methods which corporate entities are found to use in recent days and thereby compromising with corporate ethics are as follows –

1. Manipulation of accounts
2. Non-disclosure of material facts in the financial statements
3. Disclosing misleading information and window dressing in financial statement
4. Over exposure to risky transactions
5. Paying excessive bonus and remuneration to top management
6. Diversion of fund in a wrongful manner for some other business
7. Tax evasion
8. Insider trading

9. Transfer of controlling interest to rival entity in a wrongful manner

CONCLUSION

Until last two decades, the focus in corporate world was not on corporate governance but was on management. But recently after the high profile corporate fraud and collapse throughout the world, the focus has shifted to corporate governance and ethics. Now it is well accepted that mere profit making is not acceptable as the main objective of a company in modern day society. Long term sustainability after discharge of social responsibility and creation of value addition for all stake holders is more important than profit making. Governments of many developed and developing countries have also enacted laws for establishing good and ethical corporate governance practice in companies operating in their respective country. After collapse of Enrone Corporation, US government enacted Sarbanes-Oxley Act in 2002. In India the new Companies Act 2013 is enacted after Satyam scam. To avoid

occurrence of corporate fraud and corporate collapse, it is essential that the board of directors act in a responsive manner. A Company should act in such a manner that it is beneficial to all stack-holders.

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[03]

DETERMINANTS OF CORPORATE SOCIAL AND ENVIRONMENTAL DISCLOSURE ON WEBSITES: THE CASE OF BAHRAIN

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ABSTRACT

The aim of this study is to investigate the level of social and environmental information disclosure practices in websites of companies listed on Bahrain Bourse, also to determine the influence of firm size, profitability, financial leverage, firm age and audit firm size on the level of social and environmental information disclosures. To achieve the aims of this study, content analysis and statistical analysis were used. Content analysis by word count is used to determine the level of social and environmental disclosures on websites of Bahraini companies. To determine the factors that explain the level of social and environmental information disclosures, descriptive statistics and multiple regressions analysis were used. The findings indicate that 57.57% of the sampled listed companies provided social and environmental information in their 2012 annual reports and their websites. Commercial banks and insurance companies made the most disclosure of social and environmental information, while the least disclosure was made by companies in the hotels and tourism sector and industrial sector. Multiple regression analysis revealed that financial leverage and audit firm size had a significant relationship with the level of social and environmental information disclosure.

Keywords: *social and environmental, disclosure, websites, factors, Bahrain Bourse, Bahrain*

INTRODUCTION

Social and environmental reporting is commonly referred to as corporate social responsibility reporting (Deegan, 2007). The concept of corporate social and environmental responsibility was first introduced in 1990s by multinational companies, but no attention was given at that time. Environmental disasters and global warming have increased corporate environmentally responsibility awareness. Therefore, many corporations take as much responsibility for environmental issues and reflecting growing social expectations and concerns (Villiers and Staden, 2011). Organizations having the most active role in the market economy, cannot confine their attention to economic goals only, but must focus on a more extended qualitative approach

and pay attention to their environmental and social responsibility practices through internal and external reporting (Guthrie and Farneti, 2008). The development of these practices in early and mid-1990s had a trend taking the form of disclosure within annual report. Further, as such reporting practices become widespread and social and environmental disclosures made by some organizations become more extensive to report, companies started to publish it in a separate social and environmental report (Deegan, 2007). In response to investors' and other stakeholders' concerns about corporate environmental policies, many firms are voluntarily increasing their level of social and environmental disclosure since there is a scarcity of

alternative information sources. Motivated by the growing social and environmental information disclosures, the author performed this study to investigate the level of social and environmental information disclosure practices on websites of companies listed on Bahrain Bourse, also to determine the influence of firm size, profitability, financial leverage, firm age and audit firm size on the level of social and environmental information disclosures under legitimacy theory. The remainder of this paper is organized as follows: the next section reviews previous research; section three presents the research hypotheses; the study sample, data and its analysis and research method is provided in section four; while section five analyses and discusses the research results; finally, the conclusion of the study considered briefly in section six.

LITERATURE REVIEW

A review of literature from Western and Asia-Pacific regions indicate a low level of environmental disclosure practices but there has been a considerable increase in the number of organizations performing environmental accounting and reporting (Gibbon and Joshi, 1999). Haniffa and Cooke (2002) suggest that corporate disclosure practice reflects the underlying environmental influences that affect company accounting practices in different countries. Williams et al (1999) used content analysis to investigate corporate social disclosures from four countries: Australia, Singapore, Malaysia, and Hong Kong through annual reports and websites. They found that Australian and Singaporean companies provided more social disclosures on their websites than in annual reports but there were no significant differences in Malaysia and Hong Kong. Villiers and Staden (2011) also used content analysis to compare corporate environmental disclosures on websites and in annual reports of 120 North American firms. They found different levels of environmental disclosures, and companies disclosed more environmental information on their websites when faced with an environmental crisis and

more in their annual reports when they had a bad environmental reputation. In Thailand Kuasirikun and Sherer (2004) examined the annual reports of 63 Thai firms in 1993, and 84 in 1999, they found an increase from 44% to 45% in narrative environmental disclosures. Connelly and Limpaphayon (2004) examined a sample of 120 Thai listed companies' annual reports and found a significant positive association between market valuation and disclosures but not between environmental reporting and corporate accounting performance. Ratanajongkol et al. (2006) found that environmental disclosure made by the 40 largest Thai firms in 1997, 1999, and 2001 decreased over the study period. Rahman et al. (2010) found no relationship between environmental disclosure and financial performance of 27 Thai listed companies, but Suttipun and Standton (2011) found a relationship between the amount of disclosure and company size of 75 Thai companies. Suttipun and Stanton (2012) found that 96 percent of the 50 Thai listed companies provided environmental disclosures in their annual reports and 88 percent on websites. Cormier and Morgan (2004) examined the extent of web-based environmental disclosure as well as its determinants. They found that firm's context with industry, with wide trends and practices playing an important role in explaining both print and web environmental disclosure. Bolivar and Garcia (2004) examined the practices of corporate environmental disclosures of 35 Spanish firms on their web-sites. They found that financial environmental reporting disclosed in the financial statements was quite limited and there was a need to link non-financial environmental reporting and financial reporting to provide users of information with more details of corporate environmental disclosures. Naser et al. (2006) tested the variation in the level of corporate voluntary social responsibility disclosure, in a sample of 21 Qatari listed companies. They found a wide variations in Corporate social responsibility disclosure, and these variations were

associated with firm size and firm leverage. Also in Qatar, AlNaimi et al. (2012) found a low level of corporate social responsibility reporting (whether measured in terms of the number of companies disclosing or in terms of the corporate social responsibility reporting page proportion of the annual report) among Qatari companies. In Bangladesh Hossain et al. (2006) found on average 8.33% of Bangladeshi companies disclose social information in their annual reports, and the disclosure levels are associated with the nature of the company, presence of debentures in the corporate annual reports, and the net profit margin. Dutta and Bose (2007) found that web-based corporate reporting in Bangladesh is still infancy, only 38.81 percent of companies have a web, and a wide variation in the level of on-line corporate reporting across 15 sectors has been found. Dutta and Bose (2007) conducted another study in Bangladesh; also found that web-based corporate environmental reporting in Bangladesh is still in its infancy as the level of environmental disclosures on websites is very low. In Indonesia Setyorini and Ishak (2012) found that corporate social disclosure is associated with return on assets, firm's size, and firm's earning management. In Malaysia Alarussi et al. (2009) found that level of technology, ethnic of chief executive officer and firm size are significant factors in explaining both Internet financial disclosure and Internet environmental disclosures. Hassan et al. (2012) concluded that public listed companies in Malaysia have undertaken significant effort and have acted proactively in utilizing the Internet as a medium for social responsibility disclosures. This is evident from the fact that only 73% companies had provided social responsibility information on the Internet. Akrouf and Othman (2013) examined environmental disclosure determinants in Arab Middle Eastern and North African (MENA) companies. Using a sample of 153 web sites of listed companies, findings show a negative and significant relationship between environmental disclosure and 'family ownership', the level of

environmental disclosure is substantially affected by company size and performance. In Bahrain there are only three papers examining environmental disclosures. Al-Bastaki (1996) in a study on voluntary social disclosure of 25 listed companies found that none of the companies disclosed information related to environment. Gibbon and Joshi (1999) found that companies are environmentally sensitive, and none of the companies are performing environmental accounting for external purposes, and half of companies prepare environmental reporting for management requirements. Khasharmeh and Desoky (2013) found that only 24.5% of sampled companies (163 companies listed in the Gulf Cooperation Council (GCC) stock markets) received disclosure scores of 50 percent or more, on average, an industrial company disclosed about 37.0%, while a non-industrial company disclosed about 29.4%. The contribution of this study is to investigate the level of social and environmental information disclosure practices on websites of all companies listed on Bahrain Bourse which has not been the focus of previous researches. Prior studies Al-Bastaki (1996) investigated the voluntary social disclosure of 25 listed companies on Bahrain Stock Exchange. Gibbon and Joshi (1999) conducted a survey to examine the environmental awareness, disclosure practices and problems associated with environmental accounting and reporting of companies from the industrial sector in Bahrain. Khasharmeh and Desoky (2013) examined Bahrain as one of the GCC member states, and they used a disclosure index to examine the impact of firm characteristics on the level of corporate social responsibility disclosure. While, the current study includes all listed companies on Bahrain Bourse in year 2012, and it examines the level of social and environmental information disclosure by Bahraini companies on websites using content analysis and legitimacy theory.

HYPOTHESES

Five hypotheses that developed five predictor variables based on legitimacy theoretical framework. The variables were firm size, profitability, financial leverage, firm age and audit firm size.

FIRM SIZE:

Large firms in sensitive industries are deemed to be more subjected to public exposure, and often they would face more legitimate issues than smaller firms (Watts and Zimmerman, 1978). Under legitimacy theory, firms' societal existence depends on the acceptance of the society where they operate. Since the firms can be influenced by, and have influences to the society, legitimacy is assumed an important resource determining their survival (Deegan, 2002). The literature suggests that larger firms are more likely to come under public scrutiny and are expected to have more influence on the environment practices of the general business environment. Therefore, large firms with higher societal existence may have taken more legitimacy and may have a higher reputation and involvement of social responsibility than smaller firms. In the literature, the results regarding the association between firm size and environmental disclosure are mixed. Some studies (e.g., Cormier and Morgan, 2004; Naser et al., 2006; Alarussi et al., 2009; Suttipun and Standton, 2011; Setyorini and Ishak, 2012; Akroun and Othman, 2013) found a positive association, although (Davey, 1982; Ng, 1985; Roberts, 1992; Barako et al. 2006; Smith et al. 2007) did not find such a relationship. Based on the above discussion and following the legitimacy theory, it's expected that large firms will disclose more social and environmental information than smaller firms. Therefore, the following hypothesis is tested.

H1: There is a positive association between the level of social and environmental information disclosure on websites and Bahraini firm's size.

PROFITABILITY:

The relationship between corporate financial performance and corporate environmental disclosure is arguably one of the most controversial issues yet to be solved (Choi, 1998). The results of different studies measuring the relationship between corporate financial performance and corporate environmental disclosure show mixed results. An association between profitability and social responsibility disclosure has been demonstrated in a number of empirical studies (e.g., Smith et al., 2007; Janggu et al., 2007; Akroun and Othman, 2013). However, Cormier and Magnan (2004) documented a weak association between corporate social disclosure and profitability, while (Smith et al., 2007; Connelly and Limpaphayon, 2004; Rahman et al., 2010) found no significant relationship between profitability and corporate social responsibility disclosure. To determine the relationship between profitability and the extent of social and environmental information disclosure on websites, the following hypothesis is tested.

H2: There is a positive association between the level of social and environmental information disclosure on websites and Bahraini firm's profitability.

FINANCIAL LEVERAGE:

Agency theory suggests that the level of financial information disclosure increases as the leverage of the firm grows (Jensen and Meckling, 1976). Some previous studies have found a positive association between leverage and the extent of financial information disclosure (e.g., Bradbury, 1992; Malone et al., 1993). Richardson and Welker (2001) argue that social and financial information disclosures have similar determinants; therefore, a similar relationship is expected in the case of environmental disclosure. Roberts (1992) observes that a high degree of dependence on debt would encourage a company to increase social activities and disclose more environmental information in

order to meet its creditors' expectations on environmental issues. According to Christopher and Filipovic (2008) and Ma and Zhao (2009) the higher the leverage, the more the company is likely to disclose social information. Branco and Rodrigues (2008), found out that the relationship between corporate social responsibility disclosure and leverage may be significant in the case of the internet, in which, companies that were highly leveraged did established a closer relationship with their creditors and adopted alternative means to publish their social responsibility disclosure. Therefore, it's expected that, the higher the financial leverage, the more likely the company would disclose social and environmental information. Therefore, the following hypothesis is tested.

H3: There is a positive association between the level of social and environmental information disclosure on websites and Bahraini firm's financial leverage.

FIRM AGE:

Under legitimacy theory, companies' societal existence depends on the acceptance of the society where they operate. Since the companies can be influenced by, and have influences to the society, legitimacy is assumed an important resource determining their survival (Deegan, 2002). Therefore, older companies with longer societal existence may have taken relatively more legitimacy and may have a higher reputation and involvement of social responsibility than younger companies. As a company operates longer, there will be more communication needed to the outside community. This provides companies with wide social networks, affecting their public images (Yang, 2009). Previous studies support the significant association between age of firm and environmental information disclosure (e. g. Roberts, 1992; Yang, 2009).

Based on the above discussion, it might be expected that the longer a company has been listed on the Stock Exchange, the more likely

the company would disclose social and environmental information. Therefore, the following hypothesis is tested.

H4: There is a positive association between the level of social and environmental information disclosure on websites and Bahraini firm's age.

AUDIT FIRM SIZE:

It hypothesized that large audit firms are more likely to associate with clients that disclose a high level of information in their annual reports. The assumption here is that, in an attempt to keep their clients, due to the lack of economic power, small audit firms try to meet clients' demands (Malone et al., 1993). Large audit firms are expected to deal with multinational companies conducting their business activities over the world. Therefore, their work is more likely to be influenced by the International Accounting Standards and it is expected that their clients will provide more level of financial and non-financial information in their annual reports and websites. Previous studies have examined empirically the relation between the characteristics of the audit firm and the level of environmental disclosure and found a positive association between the audit firm size and the level of disclosure. It is believed to be an important responsibility of auditors to recommend their client companies to practice socially responsible accounting practices (Choi, 1998). Therefore, the following hypothesis is tested to determine the influence of audit firm on the level of social and environmental information disclosure on websites.

H5: Bahraini companies audited by large auditing firms disclose more social and environmental information on websites than those audited by small auditing firms.

RESEARCH METHODOLOGY

DATA AND STUDY SAMPLE

Due to the relatively small number of companies listed on the Bahrain Bourse all companies were considered for inclusion in the survey. At the end of 2012, there were 48 companies listed on Bahrain Bourse, 44 Bahraini companies and 4 non-Bahraini companies. The 44 Bahraini companies make

up the initial sample for this study. However, 5 companies are eliminated from the list of companies because of incomplete data and 6 companies are eliminated because of suspension. Therefore, the final sample consists of 33 Bahraini companies listed on Bahrain Bourse. These companies and their industry classifications are presented in Table 1. The data needed for this study were collected from the websites and annual reports of each company in the study sample.

Table 1

Distribution of Sample Companies

Sector	Number of Companies	Percentage
Commercial Banks	7	21.21%
Investment	11	33.33%
Insurance	5	15.15%
Services	4	12.12%
Hotels and Tourism	3	9.09%
Industrial	3	9.09%
Total	33	100%

WEBSITES AND THE SOCIAL AND ENVIRONMENTAL INFORMATION DISCLOSURE

The survey reveals that all Bahraini companies listed on Bahrain Bourse and included in the study sample have a websites. Company web addresses are collected from the Bahrain Bourse web. The survey and the descriptive statistics revealed a relatively low level of

social and environmental information disclosure. The results in Table 2 show that 57.57% of the sampled companies provided social and environmental information on their websites, also, the results revealed that commercial banks and insurance companies made the most disclosure 100% and 60% respectively, while the least disclosure was made by companies in the hotels and tourism sector and industrial sector, both with

33.33%. This result is supported by other previous studies performed in developing countries (e. g., Belal, 2001 in Bangladesh, Naser and Baker, 1999 in Jordan; Savage, 1994 in South Africa; Dutta and Bose, 2007 in **Table 2**

Bangladesh; AlNaimi et al., 2012 in Qatar; and Khasharmeh and Desoky, 2013 in GCC), which found a low level of corporate social responsibility reporting disclosure.

The Percentage of Companies Made Social and Environmental Disclosure

Sector	Number of Companies	Percentage
Commercial Banks	7	100%
Investment	5	45.45%
Insurance	3	60%
Services	2	50%
Hotels and Tourism	1	33.33%
Industrial	1	33.33%
Total	19	57.57%

Where:

Soc Env Dis = Social and environmental information disclosures on the website of each firm;

Size = firm size;
Prof = Profitability;
Fin Lev = Financial Leverage;
Age = firm age;
Aud F Size = audit firm size;
e = error term.

MODEL DEVELOPMENT:

To determine the influence of the five firm characteristics on the level of social and environmental disclosure the following multiple regression model is developed and fitted to the data.

$$\text{Soc Env Dis} = \beta_0 + \beta_1 \text{Size} + \beta_2 \text{Prof} + \beta_3 \text{Fin Lev} + \beta_4 \text{Age} + \beta_5 \text{Aud F Size} + e$$

THE LEVEL OF SOCIAL AND ENVIRONMENTAL DISCLOSURE

The dependent variable in the model is the level of social and environmental information disclosure on websites of Bahraini listed companies. The level of disclosure is

measured by word count using a checklist divided into 22 different items adopted from previous studies by (Wiseman, 1982; Deegan and Gordon, 1996; Hackston and Milne, 1996; and Suttipun and Stanton, 2012). The checklist as follows:

1. Environmental policy including lists of environmental objectives, environmental issues of concern, and prioritization of environmental issues in term of their impacts;
2. Environmental management systems including ISO14000 and responsible persons;
3. Risk management including environmental impact assessment;
4. Environmental audit;
5. Goals and targets including performance against targets, and actions taken;
6. Compliance with standards including benchmarks;
7. Awards;
8. Input including research and development, energy management, and non- renewable resources used;
9. Processes including technology employed, and capital equipment;
10. Product stewardship including life cycle analysis, and eco-labeling;
11. Wastes consisting of recycling, reduction, and reuse;
12. Land rehabilitation and remediation;
13. Air emissions;
14. Water effluent;
15. Spills;
16. Noise and odors;
17. Environmental spending and activities;

18. Rehabilitation costs consisting of operating costs, provisions, and contingent liabilities;

19. Environmental cost accounting;

20. Sustainable development reporting including a statement that the company subscribes to the principle of sustainable development, details of the principle, attempts to connect the environmental and economic dimensions, impact on the biosphere and habitat carrying capacity, natural trust account, eco-asset sheet, and natural capacity;

21. Education and training; and

22. Litigation about environmental issues.

Table 4 shows the disclosure level of social and environmental information, which measured by the average word count. The results revealed that the overall average is 101.63 words, commercial banks recorded the highest average number of words with average of 204.71 words followed by insurance companies with average of 108.72 words, while the least average recorded by companies in the hotels and tourism sector with average of 7 words. The results in Table 4 indicate that there are wide variations in the disclosure practices of social and environmental information disclosures of Bahraini listed companies; also, the standard deviations in Table 5 confirm this result.

INDEPENDENT VARIABLES

This section describes the five independent variables and how they are measured. The independent variables were measured, using data obtained from the 2012 annual reports of Bahraini listed companies. The five independent variables are the following:

1. **Firm size** was measured as the companies' 2012 total of assets.

2. **Profitability** was measured as the companies' 2012 earnings per share.

3. *Financial Leverage* was measured as the ratio of the companies' 2012 total liabilities to the companies' 2012 total of shareholders equity.

4. *Firm age* (the age of the Bahraini companies) were measured in years from the date of incorporation to the end of the 2012 financial year, which for most of the companies was 31 December 2012.

5. *Audit firm size* was measured as dichotomic variable that can take the value 1 or 0 depending upon it being audited by one of the big international auditing firms or not. If the company is audited by big audit firm will take the value 1, and 0 if the company is audited by small audit firm.

Table 4
Disclosure Levels (The Average Word Count in Social and Environmental Disclosures)

Sector	The Average Number of Words on Websites
Commercial Banks	204.71
Investment	108.72
Insurance	92.4
Services	39.5
Hotels and Tourism	7
Industrial	28
Total	101.63

RESULTS

Table 5 show the descriptive statistical tests results of dependent and independent variables for the sample of companies. The table presents the minimum, maximum, mean, and standard deviation for all variables in the regression model. According to the descriptive results the extent of social and environmental information disclosure on websites of Bahraini listed companies on average is 101.63words,

and the standard deviations indicate that there are wide variations in the level of social and environmental information disclosure between the listed companies and sectors. This result is supported by other previous empirical studies performed in developing countries (e. g., Naser et al., 2006 in Qatar; and Dutta and Bose, 2007 in Bangladesh), which found a wide variations in the level of corporate social responsibility reporting disclosure between companies and sectors.

Table 5

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Soc Env Dis	33	.00	472.00	101.6364	139.73677
Size	33	2724103.00	9.22E9	7.7417E8	1.72251E9
Prof	33	-.09	.76	.2722	.26360
Fin Lev	33	.05	7.90	1.4580	1.88576
Age	33	5.75	55.00	29.0345	13.09105
Aud F Size	33	.00	1.00	.7879	.41515
Valid N (list wise)	33				

Table 6 presents correlations coefficients between all variables. The results show that there are some moderately high correlations between variables, more specifically between firm size (Size) and financial leverage (Fin Lev), and between social and environmental information disclosures (Soc Env Dis) and financial leverage (Fin Lev). However, it has

been suggested (Farrar and Glauber, 1967; Judge et al., 1985) that correlation coefficients should not be considered harmful until they exceed 0.80. Table 6 reveal that the highest correlation is (0.444) between firm size and financial leverage. Therefore, collinearity did not appear to be a serious problem in interpreting the regression results.

Table 6

Correlations Coefficients between Variables

		Soc Env Dis	Size	Prof	Fin Lev	Age	Aud F Size
Soc Env Dis	Pearson Correlation	1					
	Sig. (2-tailed)						
Size	Pearson Correlation	.018	1				
	Sig. (2-tailed)	.919					
Prof	Pearson Correlation	.141	-.041	1			
	Sig. (2-tailed)	.434	.820				

Fin Lev	Pearson Correlation	.348*	.444**	-.053	1		
	Sig. (2-tailed)	.047	.010	.770			
Age	Pearson Correlation	.086	.171	.114	.100	1	
	Sig. (2-tailed)	.636	.342	.528	.579		
Aud F Size	Pearson Correlation	.288	.182	.256	-.092	-.052	1
	Sig. (2-tailed)	.104	.311	.150	.609	.772	

*. Correlation is significant at the 0.05 level (2-tailed).

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

The main results of this study are summarized in tables 7, 8 and 9. The R^2 and Adj R^2 and F-value for the model are presented in tables 7 and 8. The coefficient of determination (R^2) under the model was .543, which indicates that the model is capable of explaining 54.30% of the variability of the disclosure of social and environmental information in the sample Bahraini companies under study. The adjusted R^2 indicate that 29.5% of the variation in the dependent variable in the model is explained by variations in the independent variables. The multiple regression model, reported an F value of 2.255 for the level of disclosure, which significant at 7.8% level which indicates that the model is significantly explains the variations in social and environmental information disclosures of Bahraini companies. Table 9 presents a summary of the multiple regression results for the social and environmental information disclosure on websites of Bahraini listed companies. Standardized beta coefficients, t-statistics, and probability levels are given for each independent variable in the model. The empirical evidence indicates that there is a

highly significant positive association at 1.1% level between financial leverage (Fin Lev) and disclosure (Soc Env Dis). This result support Hypothesis 3, and suggests that Bahraini listed companies with high financial leverage disclose more social and environmental information on their websites than companies with low financial leverage. This result is consistent with that found in other previous studies (e.g., Naser et al., 2006; Branco and Rodrigues, 2008). Also this result supports the viewpoint that, a high degree of dependence on debt would encourage a company to increase social activities and disclose more environmental information in order to meet its creditors' expectations on environmental issues (Roberts, 1992). Also this result supports the Branco and Rodrigues (2008) finding that, the relationship between corporate social responsibility disclosure and leverage may be significant in the case of the internet, in which, companies that were highly leveraged did established a closer relationship with their creditors and adopted alternative means to publish their social responsibility disclosure, such as websites.

Table 7

Model Summary

Model	Adjusted R		Std. Error of the	
	R	R Square	Square	Estimate
	.543 ^a	.295	.164	127.76863

a. Predictors: (Constant), Aud F Size , Age, Fin Lev , Prof, Size

Table 8

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	184073.389	5	36814.678	2.255	.078 ^a
Residual	440770.247	27	16324.824		
Total	624843.636	32			

a. Predictors: (Constant), Aud F Size , Age, Fin Lev , Prof, Size

b. Dependent Variable: Soc Env Dis

Table 9

Multiple Regression Model Results

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-72.981	75.259		-.970	.341
Size	-2.350E-8	.000	-.290	-1.526	.139
Prof	24.924	90.077	.047	.277	.784
Fin Lev	37.357	13.637	.504	2.739	.011
Age	1.058	1.778	.099	.595	.557

Aud F Size	128.004	58.969	.380	2.171	.039
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a. Dependent Variable: Soc Env Dis

Moreover, the regression results indicate that there is a highly significant positive association at 3.9% level between audit firm size (Aud F Size) and disclosure. This result support Hypothesis 5, and suggests that Bahraini listed companies which audited by large audit firms disclose more social and environmental information on their websites than the companies which audited by small audit firms. This result is consistent with that found in other previous empirical studies (e.g., Hossain et al., 2006). Also this result supports the viewpoint that, it is believed to be an important responsibility of auditors to recommend their client companies to practice socially responsible accounting practices (Choi, 1998). Contrary to the expectations, the findings revealed that, the other independent variables (i. e. firm size; profitability; and firm age) do not appear to be significant in explaining the social and environmental information disclosures on websites of Bahraini listed companies. This finding is consistent with that found in other previous empirical studies (e.g., Smith et al., 2007; Connelly and Limpaphayon, 2004; Rahman et al., 2010) who found no significant relationship between profitability and corporate social responsibility disclosure, and (e.g., Barako et al. 2006; Smith et al. 2007) who did not find a relationship between environmental reporting and firm size.

CONCLUSION

The extent of social and environmental disclosures on Bahraini listed companies websites, is measured by word count using a checklist consisting 22 items. To determine the factors that influence the level of social and environmental information disclosures under legitimacy theory, descriptive statistics

and multiple regressions analysis were used. The findings indicate that 57.57% of the sampled listed companies provided social and environmental information on their websites. These disclosures were voluntary in nature and largely qualitative, and the standard deviations indicate that there are wide variations in the level of social and environmental information disclosure between the listed companies and sectors. Commercial banks and insurance companies made the most disclosure, while the least disclosure was made by companies in the hotels and tourism sector and industrial sector. Multiple regression analysis revealed that there is a highly significant positive association between financial leverage and disclosure. This result suggests that Bahraini listed companies with high financial leverage disclose more social and environmental information on their websites than companies with low financial leverage. Also, the regression results indicate that there is a highly significant positive association between audit firm size and social and environmental information disclosure. This result suggests that Bahraini listed companies which audited by large audit firms disclose more social and environmental information on their websites than the companies which audited by small audit firms.

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THE EFFECT OF OWNERSHIP STRUCTURE ON ACCRUALS QUALITY: THE CASE OF DUAL-CLASS FIRMS

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ABSTRACT

We study the accruals quality of dual class firms in relation to a control sample of single class firms. We argue that entrenched dual class managers will lack the control concerns that would motivate their single class counterparts to manipulate their earnings. Dual class managers will also likely avoid earnings management so as to lower their higher cost of capital due to potential agency problems. Last but not least is the possibility that the dual class structure is optimal for firms whose founders' valuable human capital is costly to communicate and these firms will not manage their earnings. Consequently, we expect the accruals quality of dual class firms to be better than that of single class firms. Using several different measures of accruals quality, we report evidence consistent with our expectations.

INTRODUCTION

Even though an overwhelming majority of publicly listed companies (up to 93-94 percent) in the United States (U.S.) have a single class of common stock, others like Google, Face book, LinkedIn, Group on, Yelp, and Zynga have opted for a dual class share structure. In a dual class firm, there are multiple classes of shares with different voting rights. In the case of Face book, each Class B share has ten votes compared with only one vote for each Class A share. This kind of structure enables Face book founder and CEO, Mark Zuckerberg, to hold more than 55 percent of the voting power with less than 30 percent equity commitment. Some studies have argued that dual class shares hurt stockholders since the insiders hold entrenched controlling positions and suffer disproportionately lower economic losses as a result of their sub-optimal decisions. However, other papers have concluded that in certain cases a dual class structure can benefit shareholders, especially if the human capital of the founder is costly to communicate to

outsiders. Rather than analyzing the motivations behind this choice, we focus on the consequences of deviating from the one share – one vote capital structure. Dual class managers hold a majority of voting rights and it is virtually impossible to remove them. Single class managers, on the other hand, can easily be removed due to poor performance of the firm or if they take actions that are not optimal in the eyes of the stockholders. As a result, single class managers will be more likely to manipulate earnings to meet expected earnings forecasts than dual class managers who lack this motivation as they do not have control concerns. This would imply that the working capital accruals of dual class firms will be of higher quality than those of single class firms. In this paper, we study the accruals quality of dual class firms and single class firms. To our knowledge, this is the first study to do so. By analyzing the effect of ownership structure on accruals quality, we can contribute to the literature on the reporting quality of dual class companies. In other words, if indeed the dual class structure is undertaken to protect the valuable human

capital of the founders and not just to entrench them, then we expect these founders to run their companies in a more optimal manner. As a result, dual class firms will have better accruals quality. Moreover, since the managers of dual class firms arguably feel less pressure from stockholders of the company to perform better, they would be less inclined to manipulate/manage the earnings of the firm to meet market expectations. We hypothesize that dual class managers will have fewer incentives to manage earnings and this will show in their accruals quality. Consistent with our expectations, we find that dual class firms exhibit better accruals quality than single class firms. The rest of the paper is organized as follows: Section 2 summarizes the relevant literature and motivates the hypothesis. Section 3 describes the data and methodology. Section 4 presents the results and section 5 concludes the paper.

LITERATURE REVIEW AND

HYPOTHESIS

Ownership Structure and Managerial Behavior

In one of the earliest theoretical studies, Grossman and Hart (1988) analyze the impact of a firm's security-voting structure on the market for corporate control. They show that one share-one vote maximizes firm value when only one of the parties in a control contest has significant private benefits of control. On the other hand, if both parties to the control contest have significant private benefits of control, then deviations from one share-one vote may help outside shareholders extract some of those benefits, and hence may be optimal. Their theory is consistent with the high occurrence of dual class structure among family firms in the study by DeAngelo and DeAngelo (1985) of 78 U.S. dual class companies. Harris and Raviv (1988) find that the simple majority rule and one share-one vote is an optimal governance scheme for choosing the best management team. However, if the aim is to maximize the value

of the securities issued, then it is optimal to issue two securities: voting rights with no cash flow claims and cash flow claims without any voting rights. While Harris and Raviv (1988) predict an increase in share price if a firm announces dual class recapitalization, since dual class structure is optimal according to their model, agency cost literature predicts a decrease in share price. This is due to the expectation that dual class recapitalization may increase potential agency problems by entrenching managers (Jensen and Meckling (1976)). Consistent with agency cost literature, Jarrell and Poulsen (1988) find significant negative announcement effects for 94 U.S. corporations that went through a dual class recapitalization. Dann and DeAngelo (1988) also provide evidence from the U.S. that defensive recapitalizations are value decreasing. However, Partch (1987) finds no negative effects for 44 U.S. dual class recapitalizations. With a sample of Canadian recapitalizations, Jog and Riding (1986) also report no abnormal stock price response. On the other hand, Cornett and Vetsuypens (1989) report positive returns around recapitalization announcements in the U.S. However, none of these studies control for managerial vote ownership prior to the recapitalization. Chang and Mayers (1992) document mixed results for a U.S. sample after controlling for pre-recapitalization managerial vote. In a separate vein, Jog, Srivastava, and Panangipalli (1996) analyze the performance of 213 Canadian firms that have gone through a dual class recapitalization. They document a better performance prior to the recapitalization and a worse performance after the recapitalization. For a sample of U.S. companies, Mikkelsen and Partch (1994) report reduced operating performance following a dual class recapitalization. On the other hand, Dimitrov and Jain (2001) focus on the long-run stock market and operating performance of 178 U.S. firms that performed a dual class recapitalization between 1979 and 1998 and conclude that issuing dual class shares is shareholder value increasing. Dimitrov and

Jain's (2001) results are consistent with arguments in dual class literature that dual class shares encourage investment in firm-specific human capital. For example, Alchian and Demsetz (1972) argue that dual class shares are beneficial if it is costly to communicate information about investment opportunities or managerial performance to outside investors. Fama and Jensen (1983) argue that insiders should maintain control when they possess certain firm-specific knowledge. Finally, DeAngelo and DeAngelo (1985) note an analogy between the benefits of dual class structure and the benefits of patent laws. Specifically, the additional control rights vested by the dual class equity provide the private rents that are required to encourage innovative activity. Consistent with these arguments, Taylor and Whittred (1998) observe that firm value depends on the human capital of founding managers in a sample of 53 Australian dual class IPOs. Further, Lehn, Netter, and Poulsen (1990) find higher growth rates of operating income for U.S. firms that have gone through a dual class recapitalization as compared to a sample of control firms with single class equity. In their theoretical paper, Chemmanur and Jiao (2012) show that dual class share structure would be optimal for talented managers with high near-term uncertainty projects. This uncertainty would bother the impatient outside investors especially when there is high information asymmetry between these investors and managers. These investors would easily act to remove single class managers were they to fail in meeting earnings forecasts. Dual class incumbents with highly valued human capital will not manipulate earnings even though it is difficult to communicate the value of the firm's promising future prospects to outside investors.

Accrual Quality

With the significant flexibility of financial reporting allowed by the generally accepted accounting principles (GAAP), in general, and accrual accounting in particular, earnings

quality has become the subject of much academic research, public discourse and regulations. Earnings per share being intricately related to stock prices and executive compensation, it is no surprise that managers of some firms often adhere to earnings management/ earnings guidance practices involving the manipulation of discretionary accruals (Hochberg, 2012; Wongsunwai, 2012). Peng (2011) investigated the association between quality of accruals and the usefulness of accounting earnings in incentive contracting. She argues that "high quality accruals can reduce the noise in earnings by better mapping current earnings into future cash flows, or increase the noise in earnings by increasing the sensitivity of earnings to uncontrollable economic shocks." Besides being useful for designing appropriate executive compensation packages, higher accruals quality is also related with lower cost of capital (Francis et al., 2005; Gray et al., 2009). Francis et al. (2005) examine the relationship between cost of capital and accruals quality for a broad sample of U.S. firms and report that lower quality accruals are associated with higher costs of debt, smaller multiples on earnings, and larger equity betas, i.e. higher overall cost of capital. Their findings support the view that differences in accruals quality proxies for information risk, which cannot be diversified away in equilibrium thereby leading to a higher cost of capital. Gray et al. (2009) find supporting evidence of the interplay between accruals quality, information risk, and cost of capital by re-examining the relationship for a sample of Australian firms and conclude that lower accruals quality leads to higher information risk and thus higher cost of capital. Our study tests the relationship between share structure and quality of reported earnings by comparing the accruals quality of firms issuing dual classes of shares versus firms issuing only a single class of shares. To the best of our knowledge, no other study has done so thus far. Other studies examining the relationship between ownership structure and earnings

quality have focused on venture capital backed firms (e.g., Hochberg, 2012; Morsfield and Tan, 2006; Wongsunwai, 2012), private equity backed firms (e.g., Chou et al., 2006; Katz, 2009), and differences in firms' ownership concentration (e.g., Leuz, 2003). Hochberg (2012), Morsfield and Tan (2006), and Wongsunwai (2012) find that venture capital backed initial public offerings (IPOs) have lower discretionary accruals and demonstrate lower likelihood of financial re-statements. Other studies (e.g., Cohen and Langberg, 2005; Darrrough and Rangan, 2005) report that venture capital backed firms tend to have less informative accounting earnings than non-venture capital backed firms. Thus, the evidence regarding the positive relationship between high accruals quality and venture-capital backed firms is mixed. With respect to private equity (PE) backed firms, Chou et al. (2006) report significant positive discretionary accruals in the year of the IPO by PE backed firms indicating earnings management. However, Katz (2009) finds that PE backed firms with publicly issued debt generally have higher earnings quality, engage in less earnings management, and report more conservatively both before and after the IPO compared with non-PE backed firms. They attribute this finding to the professional ownership, tighter monitoring, and reputational considerations exhibited by PE-backed firms with publicly issued debt. Givoly et al. (2010) developed and tested two alternative hypotheses, the demand hypothesis (i.e., public firms have better earnings quality due to higher demand for external reporting by shareholders and creditors of publicly traded firms), and opportunistic behavior hypothesis (i.e., public equity firms have a higher propensity to manage earnings versus private equity firms. Their results are consistent with the opportunistic behavior hypothesis which states that private equity firms have higher quality accruals and a lower propensity to manage earnings than public equity firms. Moreover, they report that public equity firms report more conservatively due to higher

litigation risk and agency cost concerns. Similar to private equity firms, dual class companies are more likely to have higher costs of capital as suggested by the agency cost literature (e.g., Jensen and Meckling (1976)). In an effort to lower their cost of capital, dual class company managers will be less likely to manipulate their earnings and jeopardize their cost of capital via a higher information risk premium. Further, assuming the dual class structure is not for the sole purpose of entrenchment but also for protecting the human capital of the founders, there would be less of a propensity to engage in opportunistic behavior of manipulating reported earnings numbers. In addition, in the absence of control concerns, managers of dual class firms will not feel as much pressure from their stockholders to manage earnings of the firm in order to meet market expectations. Therefore, we hypothesize that dual class firms will have better accruals quality than single class firms.

Hypothesis: Dual class firms have better accruals quality than single class firms.

DATA AND METHODOLOGY

In this section, we first discuss the selection of dual class sample and control sample firms used in our study followed by a discussion of characteristics of dual class sample firms. Next, we discuss the measurement of abnormal accruals and accrual quality. Finally, we discuss the empirical models used in the study along with a description of control variables used in our analyses.

DATA

The share class data were obtained from the Center for Research in Security Prices (CRSP) and SEC filings of public companies. The initial sample includes all companies that issued dual class shares some time before 1993. Thus, it is possible that some of them might have gone back to single class or may have been delisted. We again refer to the SEC filings of these firms in order to check whether they still persist as dual class public companies

as of the beginning of 1993. With this test we identify 177 public companies that have multiple classes of shares with different voting rights as of January 1993. We identify these firms as our “dual class firms.” As a result, we start with an initial sample of 2,798 firm-years between 1988 and 2006 for 177 dual class firms. Following prior studies we delete firm-year observations for financial firms (SIC 6000-6999). We also delete the firm-year observations post-unification for dual class firms that unified the multiple classes of stock into a single class. We have a final dual class sample of 711 firm-years after deleting firm-years without required data for estimation of absolute abnormal accruals (*AAAC*) and accrual quality (*AQLTY*), and also truncating the firm-years at the first and ninety-ninth percentiles for *AAAC* and *AQLTY* data. Following Nabar and Saini (2011), we control for fundamental determinants of accrual quality by matching each dual class firm-year with a control sample firm-year. Our control sample consists of all non-dual class firms (hereafter referred to as, “single class firms”). We use two different methods of selecting the matched control sample. First, our criteria for matching are year, industry (two-digit SIC code), and firm performance. Performance is measured as the return on assets (ROA) of the firm. Kothari et al. (2004) recommend the use of ROA-based matching in earnings management studies. Thus, we select our matched control sample by selecting the single class firm within same industry and with nearest ROA for a given fiscal year as the dualclass sample firm. We identify this matched control sample as “performance (ROA) - matched sample”. We have 711 matched pair firm-year observations in our performance-matched sample. Second, we also

use asset size in addition to year, industry, and performance as our criteria for selecting matched control firms. As a result, we identify matched control firms using a combined matching on performance and asset size (as measured by average assets) within same industry and fiscal year as the dual class firm. To do this we apply a restriction to our control sample of 711 matched pair firm-years from the first method above that the matched control firm has average asset size within 20% of the dual class firm-year’s average asset size. This restriction ensures that the average asset size of the performance-matched control firm is close to the average asset size of the dual class sample firm (specifically, ranging between 80% and 120% of average asset size of dual class firm-year). This results in a matched control sample of 589 firm-years. We identify this control sample as “combined performance- and size-matched sample”. Since we use five year lag and one year lead variables in our sample, the final regression sample ranges between 1993 and 2005. After deleting the firm-years with missing information on control variables our final samples consist of 1311 firm-years (673 dual class firm-years and 638 matched sample firm-years) and 1092 firm-years (564 dual class firm-years and 528 matched sample firm-years) using “performance-based matching” and “combined performance- and size-based matching,” respectively. Table 1 summarizes the sample selection process. We note that our final samples are not fully matched with an equal number of dual class and matched firms. To overcome this deficiency, we explicitly control for the two matching criteria – ROA and asset size – in our regressions.

Table 1

Sample Sizes

Panel A. Number of firm-years when using ROA match		
	Dualstock Firms	Performance (ROA) - matched control Firms
Initial sample firm-years (1988-2006)	2798	
Less: Sample firm-years for SIC in 6000-6999	-362	
Less: Sample firm-years for sample firms post-unification	-149	
Less: Firm-years with missing data on accruals and accruals quality	-1556	
Less: Firm-years with outlier data on accruals and accrual quality	-20	
Matched Sample (max. observations for descriptive statistics in Table 3)	711	711
Less: Firm-years with missing data on control variables	-27	-61
Less: Firms-years for years less than 1992 and greater than 2005	-11	-12
Number of firm-years used in regression	673	638
Total number of firm-years used in the regression: 1311		

Panel B. Number of firm-years when using ROA match		
	Dualstock Firms	Combine d ROA and Asset size matched control

		Firms
Initial sample firm-years (1988-2006)	2798	
Less: Sample firm-years for SIC in 6000-6999	-362	
Less: Sample firm-years for sample firms post-unification	-149	
Less: Firm-years with missing data on accruals and accruals quality	-1556	
Less: Firm-years with outlier data on accruals and accruals quality	-20	
Less: Firm-years with no match available	-122	
Matched Sample (max. observations for descriptive statistics in Table 3)	589	589
Less: Firm-years with missing data on control variables	-21	-57
Less: Firms-years for years less than 1992 and greater than 2005	-4	-4
Number of firm-years used in regression	564	528
Total number of firm-years used in the regression: 1092		

We obtain firm-specific data for determining absolute abnormal accruals (*AAAC*), accrual quality (*AQLTY*), and control variables from COMPUSTAT. Next, we discuss our sample characteristics.

SAMPLE CHARACTERISTICS

Our sample period for regression analyses is 1993 to 2005. Panel A of Table 2 shows the number of dual class firm-years within the sample period from the two matched samples. There is a general decrease in the number of dual class firm-years during the sample period after the year 1997. From the performance-

matched sample of dual class firms, a total of 370 dual class firm-years (approximately 55%) are from first six years (1993-1998) as opposed to 303 (approximately 45%) from the last seven years (1999-2005). We observe a similar pattern for the combined performance- and size-matched sample of dual class firms. A total of 308 dual class firm-years (approximately 55%) are from first six years (1993-1998) as opposed to 256 (approximately 45%) from the last seven years (1999-2005). Panel B of Table 2 shows the industry classification of the dual class firm-years from the two matched samples. In general,

approximately 62% of the dual class firm-years are from the manufacturing industries (SIC 2000-3999). Wholesale and retail

industry (SIC 5000-5999) is the second most represented industry in the dual class sample.

Table 2. Sample Description

Panel A: Annual Distribution of Dualstock Sample Firm Years				
Year	Dualstock firm-years in Performance (ROA) matched sample		Dualstock firm-years in Combined Performance (ROA) and Asset size matched sample	
	Frequency	Percent	Frequency	Percent
1993	59	8.77	42	7.45
1994	62	9.21	49	8.69
1995	64	9.51	53	9.40
1996	65	9.66	56	9.93
1997	63	9.36	56	9.93
1998	57	8.47	52	9.22
1999	53	7.88	46	8.16
2000	48	7.13	40	7.09
2001	47	6.98	37	6.56
2002	44	6.54	37	6.56
2003	40	5.94	35	6.20
2004	36	5.35	32	5.67
2005	35	5.20	29	5.14
Total	673	100.00	564	100.00

Panel B: Industry Classification of Dualstock Sample Firm Years				
SIC	Dualstock firm-years in Performance (ROA) matched sample		Dualstock firm-years in Combined Performance (ROA) and Asset size matched sample	
	Frequency	Percent	Frequency	Percent

1000-1999	36	5.35	36	6.38
2000-2999	211	31.35	174	30.85
3000-3999	212	31.50	180	31.92
4000-4999	45	6.69	45	7.98
5000-5999	117	17.38	87	15.43
6000-6999	-	-	-	-
7000-7999	35	5.20	28	4.96
8000-8999	17	2.53	14	2.48
Total	673	100.00	564	100.00

Table 3 reports select financial characteristics of dual class sample firms. We also compare the mean (median) sample firm characteristics with the corresponding matched single class firm characteristics and analyze the differences in mean (median). Panel A reports the results using the performance-matched sample. In general, mean dual class firms are smaller in size (assets as well as sales) than the mean single class firm matched on performance. However, the median size is not significantly different for the two. As expected for the performance-matched sample, the *ROA* of a mean (median) dual class firm is similar to the *ROA* of a mean (median) single class firm. Mean growth (as measured by market-to-book and five-year sales growth) of dual class firms is less than the matched single class firm. However, median growth is not significantly

different for the two. Mean length of operating cycle for the dual class firms is longer than the corresponding single class firm. However, median length of operating cycle is not significantly different for the two. Compared to average single class firms, average dual class firm had less debt in their capital structure as measured by debt-to-equity ratio. Panel B of Table 3 reports the financial characteristics results using the combined performance- and size-matched sample. The results are quite similar to Panel A except for the asset size and operating cycle. The average dual class firm and the corresponding single class firm have similar assets. Mean operating cycle length for the two samples is similar while the median operating cycle length is shorter for the dual class firms.

Table 3. Financial Characteristics of Dualstock firms and Matched firms

Panel A: Performance (ROA) matched Sample						
VARIABLE	DUALSTOCK		MATCHED		DIFFERENCES	IN
	SAMPLE (MEDIAN)	MEAN	SAMPLE (MEDIAN)	MEAN		
<i>Assets (\$ millions)</i>	2,012		3537		-1,525***	

	(656)	(586)	(8)
<i>Sales (\$ millions)</i>	1,606	3,157	-1,551 ^{***}
	747	684	8.55
<i>Return on Assets</i>	0.0576	0.0582	-0.0007
	(0.0567)	(0.0577)	(-0.0001)
<i>Market-to-Book value</i>	2.2880	2.5681	-0.2802 ^{***}
	(1.8027)	(1.9710)	(-0.0857)
<i>5-Year Sales Growth (%)</i>	48.2448	74.3039	-26.0590 ^{***}
	(30.8491)	(38.1365)	(-4.1000)
<i>Operating Cycle (days)</i>	111	103	8 ^{***}
	(97)	(94)	(1)
<i>Debt-to-Equity</i>	0.6036	0.8105	-0.2069 ^{***}
	(0.3017)	(0.4313)	(-0.0436) ^{***}

Panel B: Combined Performance (ROA) and Size (Average Assets) matched Sample

VARIABLE	DUALSTOCK SAMPLE (MEDIAN)	MEAN	MATCHED SAMPLE (MEDIAN)	MEAN	DIFFERENCE (MEDIAN)	MEAN
<i>Assets (\$ millions)</i>	2,064		2054		10	
	663		(637)		(2)	
<i>Sales (\$ millions)</i>	1,470		1,594		-124	
	(725)		(686)		(18) ^{***}	
<i>Return on Assets</i>	0.0567		0.0556		0.0012	
	(0.0563)		(0.0557)		(-0.0001)	
<i>Market-to-Book value</i>	2.3203		2.4900		-0.1697 [*]	
	(1.8246)		(1.9238)		(-0.0466)	
<i>5-Year Sales Growth (%)</i>	52.2385		60.0597		-7.8210	
	(32.4658)		(32.4028)		(-2.1800)	
<i>Operating Cycle (days)</i>	112		112		1	

	(95)	(107)	(-6)**
<i>Debt-to-Equity</i>	0.6403	0.7403	-0.1000
	(0.3366)	(0.4316)	(-0.0271)***

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

Next, we discuss the model used to estimate the absolute abnormal accruals and accruals quality.

ESTIMATION OF ABSOLUTE ABNORMAL ACCRUALS (AAAC) AND ACCRUALS QUALITY (AQLTY)

We measure absolute abnormal accruals (AAAC) using the Dechow-Dichev (2002) (hereafter DD) model as modified by McNichols (2002). The DD model estimates accruals by regressing working capital accruals (TCA) with operating cash flows in the current period, prior period, and future period of the firm. The magnitude of error in

$$TCA_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 CFO_{i,t} + \alpha_3 CFO_{i,t+1} + \alpha_4 \Delta REV_{i,t} + \alpha_5 PPE_{i,t} + e_{i,t} \quad (1)$$

where, $TCA_{i,t}$ is the total current accruals in year t and equals change in current assets (Compustat #4) minus change in current liabilities (Compustat #5) minus change in cash (Compustat #1) plus change in debt in current liabilities (Compustat #34); $CFO_{i,t}$ is cash flow from operations (Compustat #308) in year t ; $\Delta REV_{i,t}$ is the annual change in sales revenue (Compustat #12); $PPE_{i,t}$ is net property, plant, and equipment (Compustat #8). All variables in equation (1) are deflated by average total assets (Compustat #6) and truncated at the first and ninety-ninth percentiles. We estimate the model (Equation 1) for each two-digit SIC industry group with at least 20 firms in year t . The estimated abnormal accrual for a firm-year is defined as the firm-specific residual ($\hat{e}_{i,t}$) from the annual cross-sectional estimation of (1). The absolute

estimation of working capital (current) accruals is identified as absolute abnormal accruals (AAAC). Higher AAAC implies lower accrual quality. McNichols (2002) modified the DD model by including the fundamental factors from the Jones (1991) model, namely, change in revenues and property, plant, and equipment (PPE) to reduce the estimation error in DD model. Several recent studies have used this modified DD model for measuring AAAC (Francis et al., 2005; Jones et al., 2008; Gray et al., 2009; Peng, 2011; Nabar and Saini, 2011).

Following prior studies, we estimate the following annual regressions within two-digit SIC industry groups:

abnormal accrual (AAAC) for a firm-year is computed as:

$$AAAC_{i,t} = \text{Absolute}(\hat{e}_{i,t}) = TCA_{i,t} - \text{Predicted } TCA_{i,t}$$

A high value of AAAC (large residuals) implies a large error in estimation of working capital accruals and therefore, is indicative of poor accruals quality. Table 4 presents the summary of results from the estimation of Equation (1), i.e. it reports the cross-sectional mean, median, and standard deviation for each estimated coefficient. The results are consistent with DD (2002) and McNichols (2002). Accruals are positively associated with prior period and subsequent period cash flows from operations and negatively associated with current period cash flows from operations. Similarly, accruals are positively associated with the change in sales revenue and negatively associated with property, plant, and equipment.

Table 4. Estimation Results from Regression of Total current accruals on Cash flows, Changes in Sales, and Plant, Property and Equipment

$$TCA_{i,t} = \alpha_0 + \alpha_1 CFO_{i,t-1} + \alpha_2 CFO_{i,t} + \alpha_3 CFO_{i,t+1} + \alpha_4 \Delta REV_{i,t} + \alpha_5 PPE_{i,t} + e_{i,t}$$

Variable	Mean Estimate	Median Estimate	Std.Dev.
<i>Intercept</i>	-0.0015	-0.0005	0.0405
<i>CFO_{t-1}</i>	0.1905	0.1662	0.2189
<i>CFO_t</i>	-0.3469	-0.3439	0.2649
<i>CFO_{t+1}</i>	0.1333	0.1290	0.2169
<i>Change_sales_t</i>	0.1054	0.1114	0.0915
<i>PPE_t</i>	-0.0015	0.0009	0.0828
<i># of industry-years used</i>	658		

Regression was conducted for the industry-years with more than 20 observations. Above estimates are the means of coefficients from all the regressions. Estimation results are based on 99,221 firm-year observations (after truncating the outliers at 1st and 99th percentile) with available data from the Compustat Annual Industrials and Research file for years 1986-2005 and excluding the firms years with SIC between 6000-6999.

However, Francis et al. (2005) state “if a firm has consistently large residuals, so that the standard deviation of those residuals is small, that firm has relatively good accrual quality because there is little uncertainty about its accruals.” Therefore, larger accruals may not always be indicative of accrual quality of the firm. Following Francis et al. (2005), our measure of accrual quality in this study is based on variability of the abnormal accruals ($\hat{e}_{i,t}$). Specifically, we measure accrual quality $AQLTY_{i,t} = \beta_0 + \beta_1 DUALCLASS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 STDCFO_{i,t} + \beta_4 STDSALES_{i,t} + \beta_5 LOC_{i,t} + \beta_6 NEGEARN_{i,t} + \beta_7 LMB_{i,t} + \beta_8 SGROWTH_{i,t} + \beta_9 DE_{i,t} + \beta_{10} ROA_{i,t} + \beta_{11} AUDITOR_{i,t} + \beta_{12} YEAR_i + \beta_{13} INDUSTRY_i + \varepsilon_{i,t}(2)$

($AQLTY$) as the standard deviation of the firm-specific residuals ($\hat{e}_{i,t}$) over rolling 5-year windows. Thus,

$$AQLTY_{i,t} = \sigma(\hat{e}_{i,t}),$$

calculated over years $t-4$ through t . A large value of $AQLTY$ is indicative of poor accruals quality.

EMPIRICAL MODEL

Our empirical model tests our hypothesis that dual class firms have higher quality of accruals when compared to single class firms. As discussed earlier, we use standard deviation of abnormal accruals, $AQLTY$, as our proxy for accrual quality. We model $AQLTY$ as a function of an indicator variable ($DUAL CLASS$) for dual class firm and different variables controlling for firm characteristics in the following cross-sectional regression equation:

where,

$AQLTY_{i,t}$ =	accrual quality measure for firm i in year t as described earlier;
$DUALCLASS_{i,t}$ =	1 if firm i is a dual class firm in year t and 0 otherwise;
$SIZE_{i,t}$ =	natural logarithm of average total assets of firm i in year t ;
$STDCFO_{i,t}$ =	standard deviation of scaled cash flow from operations (CFO) measured over the previous five years from $t-5$ to $t-1$;
$STDSALES_{i,t}$ =	standard deviation of scaled sales revenue (REV) measured over past five years from $t-5$ to $t-1$;
$LOC_{i,t}$ =	natural logarithm of the length of operating cycle measured as the sum of average days of accounts receivable and average days of inventory;
$NEGEARN_{i,t}$ =	incidence of negative earnings over past five years from $t-5$ to $t-1$
$LMB_{i,t}$ =	natural logarithm of market value of equity to book value of equity;
$SGROWTH_{i,t}$ =	growth in sales revenue over past 5 years from $t-5$ to $t-1$;
$DE_{i,t}$ =	debt to equity ratio of firm i in year t ;
$ROA_{i,t}$ =	return on assets measures as earnings before extraordinary items for firm i in year t divided by average total assets in year t ;
$AUDITOR_{i,t}$ =	1 if firm i for year t is audited by one of the Big 8 auditors and 0 otherwise;
$YEAR_i$ =	fiscal year of the sample observation;
$INDUSTRY_i$ =	two-digit SIC code for firm i .

We predict that the coefficient on $DUALCLASS$ will be negative in Equation (2) above indicating that dual class firms have better accrual quality compared to single class firms. Our dependent variable, $AQLTY$, is an inverse measure of accrual quality. Higher value of $AQLTY$ is indicative of poorer accruals quality. Based on Francis et al. (2005), we include five innate determinants of accrual quality namely, firm size ($SIZE$), variability of cash flows ($STDCFO$), variability of sales ($STDSALES$), length of operating cycle (LOC), and occurrence of negative income in prior years ($NEGEARN$), as control variables in regression. These innate

variables control for the operating environment of the firm. Consistent with prior research we predict a negative coefficient for $SIZE$ suggesting that smaller firms are associated with lower quality of accruals. Firms with operating environment uncertainty as measured by the length of operating cycle, standard deviation of cash flows, and standard deviation of sales are expected to have poor quality of accruals. We predict a positive coefficient on $STDCFO$, $STDSALES$, and LOC . Also, the firms with higher frequency of negative earnings are expected to have poorer quality of accruals and we predict a negative coefficient on $NEGEARN$. We also include

several financial variables as explanatory variables in our model. Prior research suggests that working capital accruals are associated with the growth of the firm (e.g., Klein, 2002; Francis et al., 2005; Nabar and Saini, 2011). We use two different measures of growth - natural logarithm of market to book ratio (*LMB*) and sales growth (*SGROWTH*). We include the debt to equity ratio (*DE*) to control for debt covenants that may influence working capital accruals. DeFond and Jiambalvo (1994) report the use of income-increasing abnormal accruals by managers to avoid the violation of debt covenants. We predict a poorer accrual quality for firms with large amounts of debt in their capital structures and expect a positive coefficient on *DE*. We also include *ROA* to control for firm performance in our regression model and expect that profitable firms will have smaller estimation errors when estimating current accruals and hence, better accruals quality. Becker et al. (1998) show that firms audited by Big-N auditors have higher quality of accruals compared to firms audited by Non-Big-N auditors. Srinidhi and Gul (2007) also conclude that higher audit quality results in better accruals quality. We include *AUDITOR* to proxy for the firm's audit quality measured as whether the firm is audited by a Big-N audit firm during the given year. In addition, we also conduct a univariate test of differences in means (medians) for the dual class firm-years relative to the matched firm-years. The mean value of *AAAC* is significantly smaller for the dual class firm-years (0.0270) than the matched control firm-years for, both, the performance-matched control sample (0.0312) and the combined performance- and size-matched control sample (0.0304). This indicates that a dual class firm has smaller abnormal working capital accruals as compared to a single class control firm during the sample period. This is also indicative of better accruals quality at dual class firms relative to single class control firms. Similarly, the mean value of *AQLTY* is also significantly smaller for the dual class firm-years (0.0339)

also include year and industry dummies in our regression model to control for year-specific and industry-specific effects on accruals quality of a firm. Additionally and consistent with some of the prior earnings quality studies (e.g., McNichols, 2002; Barua et al. 2010; Nabar and Saini, 2011), we also use absolute abnormal accruals, *AAAC*, as an alternative proxy for accruals quality of the firm. Based on *AAAC*, our empirical model is:

$$AAAC_{i,t} = \beta_0 + \beta_1 DUAL\ CLASS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 STDCFO_{i,t} + \beta_4 STDSALES_{i,t} + \beta_5 LOC_{i,t} + \beta_6 NEGEARN_{i,t} + \beta_7 LMB_{i,t} + \beta_8 SGROWTH_{i,t} + \beta_9 DE_{i,t} + \beta_{10} ROA_{i,t} + \beta_{11} AUDITOR_{i,t} + \beta_{12} YEAR_i + \beta_{13} INDUSTRY_i + \varepsilon_{i,t}(3)$$

Where, *AAAC_{i,t}* is absolute abnormal accruals for firm *i* in year *t* and all other variables are the same as defined previously. Next, we discuss the descriptive statistics and the results of our regression analyses.

RESULTS

DESCRIPTIVE STATISTICS

Table 5 presents descriptive statistics of absolute abnormal accruals (*AAAC*), accruals quality (*AQLTY*), and control variables separately for the dual class firm-years and the two sets of matched control firm-years. We

than the control firm-years for both performance-matched control sample (0.0387) and combined performance- and size-matched control sample (0.0391). This indicates that dual class firms have less variability in the abnormal working capital accruals than the single class control firms. These results support our hypothesis that accruals quality is better at dual class firms than single class control firms. Comparison of *ROA* and *SIZE* indicates that dual class firms and control firms have similar profitability and asset size suggesting that our matching procedure has worked reasonably well. Table 5 also indicates that mean as well as median values of *STDCFO*, *STDSALE*, and *NEGEARN* are significantly different for the dual class firms

relative to single class control firms. Also, the growth variables, *SGROWTH* and *LMB*, indicate that mean (median) growth of the average dual class firm was significantly lesser than that of the average single class control firm. Dual class firms experience a mean (median) sales growth of approximately 45% (31%) compared to the 76% (39%) for the average performance-matched single class firm and 59% (33%) for the combined performance- and size-matched single class

firm. Mean (median) *DE* ratio for dual class firms was approximately 63% (33%) and significantly lower than the performance-matched control firm, i.e. 82% (45%), indicating that dual class firms used significantly lower amounts of debt in their capital structure as compared to single class control firms. Furthermore, a higher proportion of dual class firms are audited by Big-N auditor relative to single class control firms.

Table 5. Descriptive Statistics of dependent and control variables

Variable	Dualstock Sample (N = 673)		Performance (ROA)- matched Sample (N= 638)		Performance (ROA) and Size (Avg. assets)-matched Sample (N=528)	
	Mean	Median	Mean	Median	Mean	Median
<i>AAAC</i>	0.0270	0.0195	0.0312***	0.0224**	0.0304***	0.0221***
<i>AQLTY</i>	0.0339	0.0295	0.0387***	0.0338***	0.0391***	0.0352***
<i>ROA</i>	0.0585	0.0567	0.0595	0.0581	0.0571	0.0559
<i>SIZE</i>	6.3834	6.4797	6.3260	6.2842	6.3120	6.4060
<i>STDCFO</i>	0.0367	0.0293	0.0427***	0.0360***	0.0382	0.0324***
<i>STDSALES</i>	0.1217	0.0856	0.1563***	0.1189***	0.1363**	0.1065***
<i>LOC</i>	4.4897	4.6234	4.4783	4.5800	4.5363	4.7290*
<i>NEGEARN</i>	0.0847	0.0000	0.1160***	0.0000***	0.0973	0.0000**
<i>LMB</i>	0.6358	0.6162	0.7850***	0.7348***	0.7386**	0.7184**
<i>SG</i>	0.4528	0.3061	0.7644***	0.3930***	0.5920*	0.3309
<i>DE</i>	0.6287	0.3272	0.8228***	0.4488***	0.7492	0.4428***
<i>AUDITOR</i>	0.9465	1.0000	0.9138**	1.0000**	0.9091*	1.0000**

***, **, and * indicate significance of differences in mean (median) of dualstock firm and matched-firm at 1%, 5%, and 10% respectively.

Table 6 reports Spearman correlation coefficients among different variables used in our analysis for the dual class sample firm-

years. As expected, we find a strong positive correlation (approximately 38%) between *AAAC* and *AQLTY*, suggesting that firms with

larger abnormal current accruals also have lower accrual quality as indicated by greater standard deviation of abnormal current accruals. *SIZE* has a significant negative correlation with *AAAC* and *AQLTY* respectively indicating that larger firms have smaller abnormal current accruals and better accruals quality. *STDCFO* and *STDSALES* have a significant positive correlation with *AAAC* and *AQLTY* indicating that higher variability of cash flow and sales revenue results in higher abnormal accruals and lower accruals quality. A strong and significant

negative correlation (approximately 40%) between *SIZE* and *STDCFO* as well as between *SIZE* and *STDSALES* indicates that larger firms have more stable cash flows and sales revenue. *LMB* is significantly positively correlated to *AQLTY* indicating that firms with higher growth have lower accrual quality. A significant negative correlation between *DE* and *AQLTY* indicates that firms with higher debt in their capital structure have less variation in abnormal current accruals and therefore, better accruals quality.

Sample firms

	<i>AQLTY</i>	<i>ROA</i>	<i>SIZE</i>	<i>STDCFO</i>	<i>STDSALES</i>	<i>LOC</i>	<i>NEGEARN</i>	<i>LMB</i>	<i>SG</i>	<i>DE</i>	<i>AUDITOR</i>
<i>AAAC</i>	0.378***	-0.056	-0.110***	0.163***	0.120***	0.120***	0.063*	0.012	-0.010	-0.073*	0.039
<i>AQLTY</i>		0.003	-0.106***	0.184***	0.203***	0.125***	0.012	0.092**	-0.098**	-0.072*	0.007
<i>ROA</i>			-0.087**	0.146***	-0.004	0.021	-0.372***	0.596***	0.162***	-0.464***	0.008
<i>SIZE</i>				-0.402***	-0.407***	0.162***	-0.148***	0.193***	0.014	0.248***	0.035
<i>STDCFO</i>					0.403***	-0.047	-0.012	0.066*	0.134***	-0.254***	0.056
<i>STDSALES</i>						-0.162***	0.057	-0.123***	0.085**	-0.015	-0.028
<i>LOC</i>							-0.172***	0.023	-0.020	-0.118***	-0.085**
<i>NEGEARN</i>								-0.149***	-0.155***	0.226***	0.056
<i>LMB</i>									0.198***	-0.163***	0.120***
<i>SG</i>										0.137***	-0.050
<i>DE</i>											0.018

***, **, and * denote significance at the 1%, 5%, and 10% significance levels, respectively based on two-tailed tests.

Regression Results

In this section, we present the results of the estimation of our accruals quality models (Equations 2 and 3). The presence of heteroskedasticity can invalidate the tests of significance. Therefore, to control for correlated errors, we conduct all tests of

significance of coefficients based on a heteroskedasticity consistent covariance matrix (White, 1980). Table 7 reports the results of estimation of Equation (2) using the performance-matched sample as well as the combined performance- and size-matched sample of dual class firm-years and single

class firm-years. Panel A reports the regression results using the performance-matched sample. Consistent with our hypothesis, the results indicate that dual class firms have better accruals quality than single class control firms. In Model 1, we run a univariate regression of *DUALCLASS* on *AQLTY* and find a significant negative coefficient of -0.0048 (p-value < 0.0001) on *DUALCLASS*. We report multivariate regression analyses results under Models 2 and 3. Specifically, we estimate Equation (2) without and with the inclusion of industry dummies, respectively in Models 2 and 3. The results from these models are consistent with Model 1 results. We find a significant negative coefficient on *DUAL CLASS* (-0.0028, p-value = 0.0139 for Model 2 and -0.0024, p-value = 0.0304 for Model 3). These results suggest that dual class firms have lesser variability (standard deviation) of the abnormal current accruals relative to single class control firms confirming that the dual class firms have better accruals quality than single class control firms. We also find that coefficients on variables controlling for innate characteristics of current accruals (*SIZE*, *STDCFO*, *STDSALES*, *LOC*, and *NEGEARN*) are all significant. *SIZE* has a negative coefficient indicating the large firms have

lesser volatility in their abnormal current accruals and hence have better accruals quality. Coefficients on *STDCFO* and *STDSALES* are positive indicating that firms with higher variability in their cash flows and sales revenue have poorer accruals quality. A positive coefficient on *LOC* and *NEGEARN* indicates that firms with longer operating cycles and firms with frequent reporting of the negative earnings have poorer accruals quality. We also find that firms with higher growth have poorer accruals quality as indicated by a significant positive coefficient on *LMB*. We also report the regression results using the combined performance- and size-matched sample in Panel B of Table 7. The results are consistent with the results reported in Panel A. The coefficient on *DUALCLASS* in Model 1 (p-value < 0.0001), Model 2 (p-value = 0.0002), and Model 3 (p-value = 0.0003) are all negative and significant suggesting that dual class firms have lesser volatility of abnormal current accruals than single class firms. This indicates that dual class firms have better accruals quality than single class firms. The results for innate control variables and firm growth are also consistent. Additionally, we find that firms with a Big-N auditor have better accrual quality as indicated by a significant negative coefficient on *AUDITOR*.

Table 7.

Panel A. Regression of Accrual Quality (*AQLTY*) on explanatory variables using Performance (*ROA*)-matched control sample

	PREDICTED	MODEL 1	MODEL 2	MODEL 3
VARIABLE	SIGN	COEFFICIENT	COEFFICIENT	COEFFICIENT
<i>Intercept</i>		0.0387***	0.0121**	0.0083
<i>DUALSTOCK</i>	-	-0.0048***	-0.0028**	-0.0024**
<i>SIZE</i>	-		-0.0014***	-0.0014***
<i>STDCFO</i>	+		0.0695***	0.0725***
<i>STDSALES</i>	+		0.0243***	0.0287***

<i>LOC</i>	+		0.0059 ^{***}	0.0068 ^{***}
<i>NEGEARN</i>	+		0.0094 ^{***}	0.0107 ^{***}
<i>LMB</i>	+		0.0025 ^{**}	0.0016 [*]
<i>SG</i>	+		-0.0000	0.0001
<i>DE</i>	+		0.0002	0.0005
<i>ROA</i>	-		-0.0187	-0.0175
<i>AUDITOR</i>	-		-0.0027	-0.0038
<i>FYEAR</i>			Included	Included
<i>INDUSTRY</i>				Included
<i># Observations</i>		1311	1311	1311
<i>Adjusted-R²</i>		1.15%	10.40%	13.08%
<i>Model F-Value</i>		16.28 ^{***}	7.61 ^{***}	4.65 ^{***}

***Significant at 1%; **Significant at 5%; *Significant at 10%

Panel B. Regression of Accrual Quality (*AQLTY*) on explanatory variables using Performance (*ROA*) and Size (*Average Assets*)-matched control sample

	PREDICTED	MODEL 1	MODEL 2	MODEL 3
VARIABLE	SIGN	COEFFICIENT	COEFFICIENT	COEFFICIENT
<i>Intercept</i>		0.0392 ^{***}	0.0241 ^{***}	0.0138
<i>DUALSTOCK</i>	-	-0.0057 ^{***}	-0.0047 ^{***}	-0.0045 ^{***}
<i>SIZE</i>	-		-0.0008 [*]	0.0002
<i>STDCFO</i>	+		0.0806 ^{***}	0.0878 ^{***}
<i>STDSALES</i>	+		0.0233 ^{***}	0.0276 ^{***}
<i>LOC</i>	+		0.0036 ^{***}	0.0047 ^{***}
<i>NEGEARN</i>	+		0.0066 [*]	0.0062 [*]
<i>LMB</i>	+		0.0024 ^{**}	0.0012
<i>SG</i>	+		-0.0008	-0.0008
<i>DE</i>	+		-0.0000	0.0005

<i>ROA</i>	-	-0.0061	-0.0041
<i>AUDITOR</i>	-	-0.0061**	-0.0064**
<i>FYEAR</i>		Included	Included
<i>INDUSTRY</i>			Included
<i># Observations</i>	1092	1092	1092
<i>Adjusted-R²</i>	1.63%	6.48%	10.51%
<i>Model F-Value</i>	19.06***	4.29***	3.42***

***Significant at 1%; **Significant at 5%; *Significant at 10%

ADDITIONAL ANALYSIS

We also conduct the regression analyses using absolute abnormal accruals, *AAAC*, as our dependent variable and indicator of firm's accrual quality. Specifically, we estimate Equation (3) and the results of estimation are reported in Table 8. Panel A reports the results of estimation using the performance-matched sample. We find a significant negative coefficient on *DUALCLASS* for Model 1 (p-value = 0.0049), Model 2 (p-value = 0.0543), and Model 3 (p-value = 0.0623) indicating that dual class firms have smaller absolute abnormal accruals than the matched single class firms. This suggests that dual class firms have better accruals quality relative to single class control firms. The coefficients on all other variables are qualitatively similar to those reported in Table 7. Additionally, we find a significant negative coefficient on *ROA* indicating that firms with higher returns (profitability) have smaller abnormal accruals. Similarly, Panel B of Table 8 reports the estimation results of Equation (3) using the combined performance- and size-matched sample. The results are consistent with prior results. We find a significant negative coefficient on *DUALCLASS* for Model 1 (p-value = 0.0053), Model 2 (p-value = 0.0292), and Model 3 (p-value = 0.0618) indicating that dual class firms have better accruals quality than single class control firms.

Table 8.

Panel A. Regression of Absolute Abnormal Accruals (*AAAC*) on explanatory variables using Performance (*ROA*)-matched control sample

	PREDICTED	MODEL 1	MODEL 2	MODEL 3
VARIABLE	SIGN	COEFFICIENT	COEFFICIENT	COEFFICIENT
<i>Intercept</i>		0.0312***	0.0094	0.0189
<i>DUALSTOCK</i>	-	-0.0042***	-0.0029*	-0.0028*
<i>SIZE</i>	-		-0.0019***	-0.0021***
<i>STDCFO</i>	+		0.0550*	0.0450
<i>STDSALES</i>	+		0.0091	0.0118

<i>LOC</i>	+		0.0054 ^{***}	0.0069 ^{***}
<i>NEGEARN</i>	+		0.0125 ^{**}	0.0134 ^{***}
<i>LMB</i>	+		0.0029 ^{**}	0.0022 [*]
<i>SG</i>	+		0.0001	0.0004
<i>DE</i>	+		-0.0008	-0.0003
<i>ROA</i>	-		-0.0424 ^{***}	-0.0403 ^{**}
<i>AUDITOR</i>	-		0.0019	0.0011
<i>FYEAR</i>			Included	Included
<i>INDUSTRY</i>				Included
<i># Observations</i>		1311	1311	1311
<i>Adjusted-R²</i>		0.53%	5.74%	7.00%
<i>Model F-Value</i>		7.96 ^{***}	4.47 ^{***}	2.83 ^{***}

***Significant at 1%; **Significant at 5%; *Significant at 10%

Panel B. Regression of Absolute Abnormal Accruals (AAAC) on explanatory variables using Performance (ROA) and Size (Average Assets)-matched control sample

	PREDICTED	MODEL 1	MODEL 2	MODEL 3
VARIABLE	SIGN	COEFFICIENT	COEFFICIENT	COEFFICIENT
<i>Intercept</i>		0.0304 ^{***}	0.0190 ^{**}	0.0228
<i>DUALSTOCK</i>	-	-0.0044 ^{***}	-0.0034 ^{**}	-0.0028 [*]
<i>SIZE</i>	-		-0.0016 ^{***}	-0.0007
<i>STDCFO</i>	+		0.0529	0.0503
<i>STDSALES</i>	+		0.0074	0.0118
<i>LOC</i>	+		0.0035 ^{***}	0.0056 ^{***}
<i>NEGEARN</i>	+		0.0134 ^{***}	0.0141 ^{***}
<i>LMB</i>	+		0.0031 ^{**}	0.0026 [*]
<i>SG</i>	+		0.0018 [*]	0.0023 ^{**}
<i>DE</i>	+		-0.0012 ^{**}	-0.0008
<i>ROA</i>	-		-0.0093	-0.0045 ^{**}

<i>AUDITOR</i>	-	-0.0038	-0.0059*
<i>FYEAR</i>		Included	Included
<i>INDUSTRY</i>			Included
<i># Observations</i>	1092	1092	1092
<i>Adjusted-R²</i>	0.62%	3.67%	7.51%
<i>Model F-Value</i>	7.81***	2.81***	2.67***

***Significant at 1%; **Significant at 5%; *Significant at 10%

Overall, the results in Tables 7 and 8 are consistent and indicate that dual class firms have better accruals quality than single class control firms. However, there is significant improvement in the adjusted- R^2 's when using volatility of abnormal current accruals, *AQLTY*, compared to absolute abnormal accruals, *AAAC*, as a measure of accruals quality of the firm.

CONCLUSION

This paper compares the accruals quality of dual class firms with a matched control sample of single class firms. Managerial characteristics of dual class firms are different than those of single class firms. Entrenched dual class managers lack the control concerns that motivate their single class counterparts to manipulate their earnings. Also, dual class firms, in general, have higher cost of capital than single class firms. Therefore, managers of dual class firms have an incentive to not manage earnings so as to lower the cost of capital of the firm. As a result, we hypothesize that managers at dual class firms have less of an incentive to manage earnings than the managers at single class firms. Specifically, our tests show that accruals quality of dual class firms will be better than that of single class firms. Our proxy of accruals quality (*AQLTY*) is the variability of prediction errors of the modified DD (2002) model (as modified

by McNichols, 2002) for predicting working capital accruals. We also use magnitude of prediction errors of the modified DD model, absolute abnormal accruals (*AAAC*), as an alternative measure of accruals quality. We incorporate controls for fundamental determinants of accruals quality: (1) by including several control variables, likely to influence accruals quality, in our regression models; and (2) by matching our dual class sample firm-years with single class firm-years based on industry and performance as well as based on industry, performance, and asset size. The evidence, obtained using several different measures of accruals quality, is consistent with expectations. In contrast with the implications of agency cost literature, dual class firms do not seem to be suffering from the moral hazard problems that some researchers had cautioned about. Instead, these firms show higher accruals quality consistent with arguments in literature that dual class share structure may be optimal for firms whose founders' human capital would be costly to communicate to outside investors. This may also explain the prevalence of dual class structure around the world, especially in capital markets characterized with much higher information asymmetry than observed in the U.S.

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FINDING BEHAVIORAL CAPS IN MARKET PATHS

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ABSTRACT

Indian stock markets display greater volatility; over and above the fundamental reasons. The market behaves irrationally crossing the boundaries of logical parameters. The reason lies in the domain of behavioral finance. Investor psychology has a bigger role to play since it marks the turnarounds in the equity markets. The paper takes the Indian stock market data of last few years and comes up with different kinds of possible behavioral caps. It captures and examines the movement in the market beyond the expectancy of logical dimensions under the purview of fundamental analysis. The paper aims at explaining the lengths of market volatility underlining the features and factors of behavioral finance leading to market volatility. The paper highlights the inefficiencies in the market due to which behavioral finance shadows the importance of fundamental analysis. The paper makes us study the integrities, patterns and directional movements of market volatility.

Keywords: *volatility, fundamental analysis, behavioral finance, stock market, investor psychology*

INTRODUCTION

The ups and downs of the financial markets are always in the news. Wide price fluctuations are a daily occurrence on the world's stock markets as investors react to economic, business, and political events. Of late, the markets have been showing extremely erratic movements, which are in no way

tandem with the information that is fed to the markets. Thus chaos prevails in the markets with investor optimism at unexpected levels. The Indian stock markets witnessed their largest ever fall in absolute terms, before staging a marginal recovery. They have quickly transformed themselves into gambling dens. Local, long term investors have been overtaken by speculators with access to trading terminals and playing in stocks. This speculative money has no rational behavior. The history of the stock market is full of events striking enough to earn their own names: the Great Crash of 1929, the 'Tronics

Boom of the early 1960s, the Go-Go Years of the late 1960s, the Nifty Fifty bubble of the early 1970s, and the Black Monday crash of October 1987. Each of these events refers to a dramatic level or change in stock prices that seems to defy explanation. This high volatility has given sleepless nights to a lot of investors as well as market regulators. Irrational exuberance has substituted financial prudence. Volatility of an asset is measured by the variability in the price over time measured as the variance or the standard deviation of the returns on the asset. The more the standard deviation the more volatile the asset is. This is also a measure of the riskiness of the asset since the more variation it has the more unpredictability associated with its returns. Has the Indian stock market volatility increased? Has the Indian market developed into a speculative bubble due to the emergence of "New Economy" stocks? Why is this volatility so pronounced? The paper tries to answer these questions and identifies the various factors under the sphere of Behavioral

finance which cause the volatility to increase to exorbitant levels. The paper intends to analyze the determinants of the individual investor behavior of Indian stock market and factors affecting their investment decisions. The paper tries to unearth the rationale for

these weird movements, and here we introduce the concept of BEHAVIORAL CAPS. The paper takes the Indian stock market data of last few years and comes up with different kinds of possible behavioral caps.

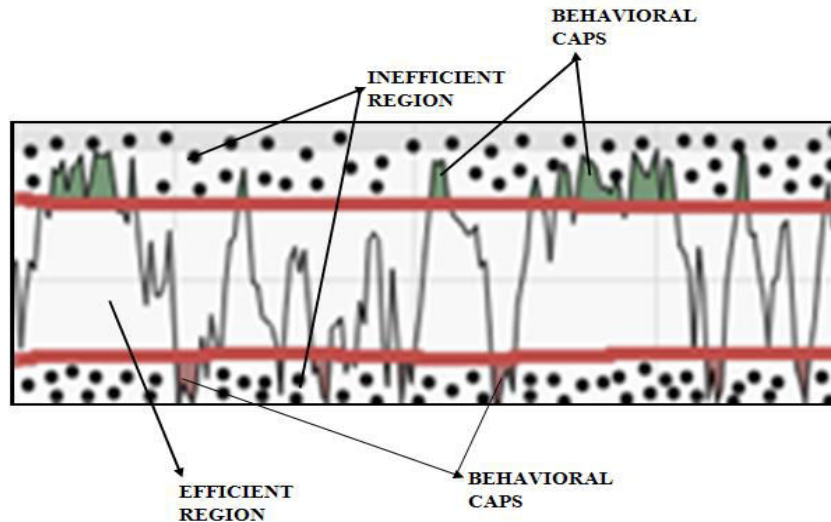


Figure 1. Showing Behavioral Caps; Efficient and Inefficient Region

Behavioral Caps, as shown in Figure 1, are defined as the movement in the market beyond the expectancy of logical dimensions under the purview of fundamental analysis. The inefficient region consists of behavioral caps and captures the market movements which are not supported by fundamental analysis; these movements are the result of Behavioral Finance. Whereas the market movement in the efficient region is due to fundamental reasons. The lines (red in colour) those separate the efficient and inefficient region are called logical boundaries. Thus, crossing the logical boundaries by the investors due to the investor psychology, sentiments, expectations, preferences and emotions; lead to the formation of BEHAVIORAL CAPS. The next section discusses the role of investor psychology in marking turnarounds in the equity market; leading to the formation of behavioral caps.

ROLE OF INVESTOR PSYCHOLOGY IN MARKING TURNAROUNDS IN THE EQUITY MARKET AND THUS LEADING TO FORMATION OF BEHAVIORAL CAPS

Indian stock markets display greater volatility; over and above the fundamental reasons. The market behaves irrationally crossing the boundaries of logical parameters. The reason lies in the domain of behavioral finance. Investor psychology has a bigger role to play since it marks the turnarounds in the equity markets. According to economic theorists, investors think and behave “rationally” when buying and selling stocks. Generally investors are presumed to use all available information to form “rational expectations” in investment decision making. In reality, individual investors do not think and behave rationally. To the contrary, driven by greed and fear, investors speculate stocks between unrealistic highs and lows. They are misled by extremes

of emotion, subjective thinking and the herd mentality. Behavioral finance is an emerging science, and a relatively new and developing field of academic study that exploits the irrational nature of investors. Most of investment decisions are influenced to some extent by investors' prejudices and perceptions that do not meet the criteria of rationality. It attempts to better understand and explain how emotions and cognitive errors influence investors and the decision-making process. The ultimate shape of the market is defined by Behavioral Finance. That is why the market movements beyond the fair scales are called as Behavioral Caps. The efficient markets hypothesis (EMH) maintains that market prices fully reflect all available information. Developed independently by Paul A. Samuelson and Eugene F. Fama in the 1960s, this idea has been applied extensively to theoretical models and empirical studies of financial securities prices, generating considerable controversy as well as fundamental insights into the price-discovery process. The most enduring critique comes from psychologists and behavioral economists who argue that the EMH is based on counterfactual assumptions regarding human behavior, that is, rationality. Preference reversal and the apparent violation of transitivity (logically consistent choice) IS characterized as an anomaly—a finding inconsistent with microeconomic theory. Ad hoc observations have been reinforced by numerous laboratory experiments and other empirical analyses revealing an extraordinary catalogue of anomalies. Most of the anomalies are predominantly short or intermediate term phenomena, but some prevail over the long run. The anomalies can be catalogued as violations to what Richard Thaler characterized in 1987 as fifteen principles of the rationality of mainstream economics. The fundamentalist view put forward by economists who argue that volatility can be explained by Efficient Market Hypothesis is examined. Thus, the view that volatility is caused by psychological factors is explained in

the current research paper. The incidence and seriousness of the anomalies may be explained by overconfidence (sometimes underconfidence), a “status quo effect,” loss aversion, a desire to avoid ambiguity, an imperfect understanding of probabilities, the statistically incorrect incorporation of new information, inattention to possibly contradictory information, and the fact that we often make judgments based on imperfect (and not always relevant) recollection of the utility we experienced in the past, rather than on estimates of anticipated utility. Some note has been taken of the possible role of cognitive dissonance in influencing economic behavior, beginning with the work of George Akerlof and William Dickens, and, more frequently of such factors as herding instincts and groupthink (which assume that others know something that indeed they may not), the social influence of peer pressure and social emulation, social learning, the response to “momentum” trading and several communication phenomena, the latter perhaps best exemplified in Robert Shiller’s *Irrational Exuberance*. The possible role of emotions was acknowledged, but almost always as something that *interfered* with rational decision making. It has become recognized, moreover, that emotional factors sometimes *stimulate* us to undertake cognitive analysis in our decision making—though emotional factors also can contribute to less rational decisions, decisions that are less in the long term interest of the decision maker, as has been often emphasized. Emotions can improve decision making, in particular where natural choice theory is not able to resolve a situation and where no satisfactory rule of thumb is available, but they can also manipulate and undermine rationality, preventing us from thinking clearly about the consequences of actions. It is the expectations of the investor that decide the market integrities and derive the asset prices. The Asset price processes are described by the expectations, preferences and sentiments of the investors. Expectations make the investors behave emotionally. While the

investors' responses to price changes and their price forecasts are well accepted major factors contributing to large price fluctuations in financial markets, the investors' heterogeneous and dynamic risk aversion preferences too play a critical role in the dynamics of asset price fluctuations. The dynamics of Asset price fluctuations governed by Investors' fluctuating sentiments and expectations which are the main driving forces for excess price fluctuations and the associated volatility clustering; highlights the approach of Behavioral Finance. The "top down" approach to behavioral finance focuses on the measurement of reduced form, aggregate sentiment and traces its effects to stock returns. Emotional crowds dominate the determination of both prices and volatility, with fundamentals playing a small role. Putting Shiller's research together with Benartzi and Thaler's (1993) analysis, it is reasonable to conclude that both stock market volatility and long-term returns are largely determined by investor emotions. The emotional reaction of investors leads to short-term volatility. Kahneman and Tversky (1979) argue that the sensitivity to losses is greater than the sensitivity to gains. The cause of irrationality lays in human emotions and moods. Generally people who are in good moods are more optimistic in their choices and judgments than those in bad moods. Shefrin (2000) points at two kinds emotions – greed and fear – that have contradictive influence on investors' risk approach and strongly influence the way they construct their investment portfolio. Greed pushes people to treat stocks as lottery tickets – they want to win as much as possible and as quickly as possible. In the result, they do not diversify and take risky positions in two-three assets hoping to earn high returns if their picks are right. On the other hand, fear is like breaks in a speeding car. It gives limits to greed. People usually care about the future and are afraid of unexpected negative events that could dramatically lower the level of their consumption. They tend to hold some

proportion of their wealth in very safe assets (cash deposits) that serve like a security policy ("just-in- case..."). In other word, a combination of greed and fear leads to wrong diversification of investment portfolios. The tendency of human beings to overreact and under-react in certain circumstances, deviating from Bayesian optimum rational decision-making, arises from psychological biases such as *conservatism* and the *representativeness heuristic* (Kahneman and Tversky, 1973; Kahneman, Slovic and Tversky, 1982; Daniel, Hirshleifer and Subrahmanyam, 1998; Kaestner, 2005). The former psychological bias, the state of *conservatism*, refers to the condition where investors subconsciously are reluctant to alter their beliefs in the face of new evidence (Edwards, 1968). On the other hand, the *representativeness heuristic* is the illusion of seeing patterns in a random walk or more generally 'order among chaos' (Barberis, Shleifer and Vishny, 1998). Under the *representativeness heuristic*, investors will consider a series of positive company performances as representative of a continuous growth potential, and ignore the possibility that this performance is of a random nature. This leads to excessive optimism and overvaluation of the company's prospects. In addition, memory constraints such as memory loss in humans also provide an explanation why investors tend to weight recent information more favorably than earlier information. Apart from the psychological state of conservatism, another cause of investors' under-reaction to new information is the heterogeneity of the investing public. Not everyone has equal access to sources of information. Rather, information diffuses gradually across the public domain, while the ability of investors to successfully extract information from current prices has been questioned (Hong and Stein, 1998). Apart from individual stocks, according to behavioral finance the phenomenon of judgment bias is also evident when examining industry performance. Behaviorists also argue that different trading attitudes and information

flow in the market can also trigger irrational behavior. Further evidence on this hypothesis was given by Hong and Stein (1998). Another argument of Behavioral Finance with respect to the overreaction phenomenon is the impact of analysts' coverage on certain stocks. The ability of brokers to form and structure investors' beliefs and expectations contributes to inefficient pricing if their recommendations are biased in the first place. Indeed, although the dynamic nature of modern business dictates that severe competition in the market place restrains successful firms from retaining abnormal profits for a long period of time, most investors fail to foresee this reality. This overestimation leads to the overpricing of currently successful firms. This mistake is then followed by the second inefficiency, *biased self-attribution*, whose roots are again found in the area of psychology. Individuals tend strongly to attribute events that confirm the validity of their actions to high ability, while at the same time attributing events that disconfirm their actions to external reasons. Finally, social influence and interaction with other people also may cause irrational behavior. Investors may make common mistakes in a correlated manner as the result of their learning process in a society, direct interpersonal communication, influence of social groups in which they live, and – most of all – because of the force of media news. People often behave like sheep – they follow each other like in a herd. But what is interesting – herding does not always have to be irrational. Herding leads to a situation when investors concentrate more on predicting what other market participant think than on real information related to a particular security. It starts to be less important if the fundamentals of the company are good or not. It is rather important if other investors like the stock or not, and if they are prepared to pay for it in the near future even more than its current market price. Such a way of thinking facilitates asset mispricing. When important information related to securities is disregarded, and investors are pronoun to various fashions and

fads, market quotes may deviate far from fundamental values.

INDIAN STOCK MARKET: AN EMPIRICAL ANALYSIS

The discussion under this section throws light on the features and factors of behavioral finance leading to market volatility in India. The decade (1998-2008) saw a great momentum in the investment scenario of Indian Financial market. There was an unprecedented spurt in the stock trading volume both in the regular stock exchanges and over the counter exchange of India. People from various walks of life, through information technology advancement empowered themselves to be well informed, stormed in to the investment market. What was hither to the domain of upper middle and above, became a common playground for even the middle and lower middle groups. They jumped into the market with little savings that they have, in the hope of making big bucks without recognizing the underlying and hidden risk element in such investments. Overlooking the need to understand the fundamentals of the market themselves, they just relied on others' opinions and suggestions. This led to a remarkable shift from rationality to irrationality in the investment behavior. According to behavioral finance, the psychological factors not only drive prices away from fair value but create excess volatility in the market. In the current research paper post crisis period i.e. after 2008 is taken. The period from 2008-13 is analyzed to understand the financial market paradigm shift overtime. Indian market data is taken from 2008-13 and with the help of technical indicators, the excess volatility and formation of behavioral caps is shown. The technical indicators help in visualizing the behavioral caps formed during the period. In the current research technical indicators such as EMA (Exponential Moving Average), Bollinger Bands, RSI (Relative Strength Index), Momentum, ATR (Average True range), CCI

(Commodity Channel Index), EMV (Ease of Movement), Fast Stochastic (%), MACD (Moving Average Convergence and Divergence), Stoch RSI, Slow Stochastic, William's % R are used to analyze the excess volatility during the period 2008-04-01 to 2010-03-31, 2010-04-01 TO 2012-03-31, 2012-04-01 to 2013-12-31 and 2008-04-01 to 2013-12-31. This paper does not provide the explanation of all the technical indicators. It explains some of the well-known technical indicators across the countries, even in India, like EMA, MACD, RSI& STOCHASTIC which are used to show behavioral caps in the period 2008-04-01 to 2013-12-31 as shown in the GRAPH 1 below. *(Due to the space constraint, the researcher has shown only one graph for the period 2008-04-01 to 2013-12-31.)*The graph shows weekly closing prices of S&P CNX NIFTY line chart from the date 2008-04-01 to 2013-12-31 (x-axis taken as time period & y-axis as value of NIFTY). Upper indicators are the indicators which are superimposed on the original market line. EMA [20] and EMA [50] are used as an upper indicator in the graph. It is a type of moving average that is similar to a simple moving average, except that more weight is given to the latest data. This type of moving average reacts faster to recent price changes than a simple moving average. Here, 20-day (red line) and 50-day EMAs (blue line) are used as signals of long-term trends. The more the divergence between the EMA lines from the original market line, the greater is the volatility in the market. Lower indicators are the indicators which are shown over a particular range or scale. In the graph, three lower indicators are used which are RSI (specifically Stoch RSI), CCI and William's %R. RSI is a technical momentum indicator that compares the magnitude of recent gains to recent losses in an attempt to determine overbought and oversold conditions of an asset. The RSI ranges from 0 to 100. An asset is deemed to be overbought once the RSI approaches the 70 level, meaning that it may be getting overvalued and is a good candidate

for a pullback. Likewise, if the RSI approaches 30, it is an indication that the asset may be getting oversold and therefore likely to become undervalued. Stoch RSI is an oscillator that measures the level of RSI relative to its high-low range over a set time period. This makes it an indicator of an indicator. RSI can oscillate between 80 and 20 for extended periods without reaching extreme levels. Notice that 80 and 20 are used for overbought and oversold instead of the more traditional 70 and 30. Traders looking to enter a stock based on an overbought or oversold reading in RSI might find themselves continuously on the sidelines. RSI thus shows the overbought and oversold positions in the market leading to the formation of behavioral caps as seen in the graph. CCI is an oscillator used in technical analysis to help determine when an investment vehicle has been overbought and oversold. It quantifies the relationship between the asset's price, a moving average (MA) of the asset's price, and normal deviations (D) from that average. The CCI has seen substantial growth in popularity amongst technical investors; today's traders often use the indicator to determine cyclical trends in not only commodities, but also equities and currencies. The CCI, when used in conjunction with other oscillators, can be a valuable tool to identify potential peaks and valleys in the asset's price, and thus provide investors with reasonable evidence to estimate changes in the direction of price movement of the asset. The formation of behavioral caps can be clearly seen from the graph. In technical analysis, William's %R is a momentum indicator measuring overbought and oversold levels, and thus the formation of behavioral caps similar to a stochastic oscillator. It was developed by Larry Williams and compares a stock's close to the high-low range over a certain period of time, usually 14 days. It is used to determine market entry and exit points. The William's %R produces values from 0 to -100, a reading over 80 usually indicates a stock is oversold, while readings below 20 suggests a stock is

overbought. Thus all the technical indicators show excess market volatility and formation of Behavioral caps. The markets crossed the boundaries of the efficient region which is

supported by fundamental reasons and gone into the inefficient region which is supported by the principles of Behavioral Finance at various different intervals of time.

Graph 1

Excess volatility and formation of behavioral caps in the Indian stock market for the period 2008-13 (source: www.icharts.in)

Symbol	<input type="text" value="NIFTY"/>	<input style="border: none;" type="button" value="?"/>	<input type="button" value="Refresh Chart"/>
Period	<input type="text" value="Weekly"/>	Log Chart <input checked="" type="checkbox"/>	Color Bars <input checked="" type="checkbox"/>
Chart Size	<input type="text" value="Large"/>	Chart Type	<input type="text" value="Line"/>
<input type="radio"/> Predefined Date Range		<input checked="" type="radio"/> Custom Date Range	
<input type="text" value="3 Months"/>	From Date	<input type="text" value="2008-04-01"/>	To Date <input type="text" value="2013-12-31"/>

Upper Indicators		Lower Indicators		<input type="button" value="Refresh Chart"/>
<input type="text" value="Exponential Moving Average"/>	<input type="text" value="Close,20"/>	<input type="text" value="StochRSI"/>	<input type="text" value="14"/>	
<input type="text" value="Exponential Moving Average"/>	<input type="text" value="Close,50"/>	<input type="text" value="Commodity Channel Index"/>	<input type="text" value="20"/>	
<input type="text" value="None"/>	<input type="text" value=""/>	<input type="text" value="William's %R"/>	<input type="text" value="14"/>	



The reason behind the excess volatility and behavioral caps in the Indian markets as seen in the graph is the principles of Behavioral Finance. There are numerous empirical evidences in India to support this argument. Out of these evidences, an attempt has been made to bring into light one of the case as explained below. May 24, 2013 (extracted from equitymaster.com)- Yesterday, the Asian

stock markets tanked. The [Japanese benchmark index Nikkei](#) plunged over 7%. The Indian stock markets too dropped by nearly 2%. The triggers for this panic were some comments made by the US Federal Reserve Chairman Ben Bernanke and weak economic data from China. Mr. Bernanke's comments were pertaining to the future of the quantitative easing program. Mr. P

Chidambaram's immediately responded to the stock market decline. He hurriedly came out to manage investor sentiments by telling them not to link the global factors to India. He even went on to explain how everyone had misunderstood the comments of the US central banker. "There was no need for any nervousness," he seems to have said. One thing is certain. Mr. Chidambaram appears to be the most nervous person at the moment. And he is going out of his way to keep investors from fleeing. What is he really afraid of? Is he worried about FIIs deserting Indian markets? It seems so. The Indian rupee is highly vulnerable to [FII flows](#), which tend to be very volatile. And given India's dependence on imports, a falling rupee is the FM's worst nightmare. Consequently, irrational moves emerge in the Indian Stock markets because Indian investors' confidence gets shaken up due to reverse move made by the FIIs. This case shows two principles of Behavioral Finance which are Overreaction and Under Confidence. The Indian investors overreacted to the move made by the FIIs and this shows that they were not confident of their investment decisions. This is empirical evidence from the Indian markets where we have seen that behavioral finance could overweigh the fundamental reasons. Specifically, here, behavioral finance exaggerated the move of the market caused by the fundamental global economic factors. Like this, the behavioral finance overpowers the other fundamental logical parameters leading to market volatility such as Government policy, FII flows, Elections, Poor monsoons, Terrorism attacks. Say, 5% impact in the market due to a fundamental factor lands up to more than 5% because of investor psychology whose study is referred to as Behavioral Finance. The other broad dimensions of investor behavior that could have an impact on their investment decisions are Overconfidence, Investor Optimism, and Investor Involvement Risk Preferences etc.

CONCLUSION & RECOMMENDATIONS

Behavioral finance changes the way we should look at capital markets. This new approach has significant consequences not only directly to investors, but also to corporate finance, market regulators and policy makers. An average investor – whenever an individual or professional – should not hope to consistently beat the market. The investors try to look out for reasons that justify holding onto the stock and overlook fundamentals. Most investors have displayed emotional incapacity to deal with such situations. Humans are driven by fads, prejudices, manias, and irrational bouts of optimism and pessimism. The active investors should bear in mind that they also may be a subject of behavioral biases and heuristics. Therefore, achieving higher returns is possible not only thanks to better analysis and strategies, but also requires a better self-control i.e. minimizing the behavioral mistakes that investors do. Individuals in order to achieve best results in their portfolio should redirect their emotions, harness the market's emotions, and mitigate the impact of client emotions on their portfolio that at aggregate level in the market would lead to market efficiency. The risk for any investor is surrendering to his emotions. Investors are either blinded by greed at one extreme or are enveloped in fear at another extreme. The clueless investor is like a ship floating in a dark sea - with no lights, no navigation maps, and no stars to guide him. The poor fool will float with the tide and ride the waves of greed and fear. His survival is at risk. His only hope is to be rescued by a greater fool. A knowledgeable investor makes sure he has a map, a torch, some idea of the stars to guide him when the lights go out, and an anchor to hold on to in rough seas. When the markets fall for some irrational reason and fear grips the markets, the disciplined investor will buy into this falling market. When markets rise for silly reasons and irrationally and greed set in, the disciplined investor will sell. To this end, there is a need to educate and counsel the

investors from time to time about the wisdom required in the stock trading and also about the unethical and tactical practices of brokers, shady dealings of the companies and the insider trading. The NSE conducts Awareness & Education seminars on a regular basis across various centers. Informative brochures & booklets are distributed. 415 investor awareness programs were held during 2008. It has also created Investor Protection funds. However, Behavioral finance offers no investment miracles, but it can help investors train themselves how to be watchful of their out behavior and, in turn, avoid mistakes that will be disastrous. The investors should be aware of all the principles of Behavioral Finance, so that they can work on those principles and thus act rationally as much as they can. Markets can never become fully efficient, but as long as the investors make a move towards controlling their emotional mistakes, the markets would start converging towards efficiency. Our paper aims towards individuals mastering their emotions and save them from the traps of behavioral caps in the market paths.

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[06]

EXPEDIENCY TO INTRODUCE OPTIONS TO THE COLOMBO STOCK EXCHANGE, SRI LANKA

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ABSTRACT

In Sri-Lanka, still none of the derivatives is traded through the Colombo Stock Exchange (CSE) and here it is studied the expediency to introduce options to the CSE. It is focused on studying mathematical, legal and operational practicability in introducing options. Black-Scholes formula is used to calculate option prices and it is inspected for simple arbitrage possibilities. It was identified that the high option prices are resulted due to high volatility and high risk-free interest rate. Under Securities and Exchange Commission of Sri-Lanka (Amendment) Act, No. 47 of 2009, options are defined as a security and Central Clearing Corporation is suggested to renew as the clearing house. Lack of awareness and transparency, absence of proper regulations and inefficient market conditions are generating some problems in introducing and implementing options in Sri Lankan context.

Key words: *Expediency, Volatility, Options*

INTRODUCTION

Before 1973 all option contracts were what are now called 'over-the-counter' (OTC). Trading on an official exchange began in 1973 on the Chicago Board of Options Exchange (CBOE), with trading initially only in call options on some of the most heavily traded stocks. In the last 36 years Options have become increasingly important in finance and now options are actively traded on many exchanges throughout the world.

Option is a kind of a derivative and a derivative exchange is a market where individual trades standardized contracts that have been defined by the exchange. But in Sri-Lanka still there is no any derivative exchange and the only stock exchange is the Colombo Stock Exchange (CSE). Thus this paper consolidated with the expediency to introduce options to the CSE.

This paper mainly concerned about introducing stock options on highly liquid stocks in CSE and the study is mainly partitioned under Mathematical feasibility, Legal feasibility and Operational feasibility. Since CSE is a fresher to the option market, getting a precise and clear theoretical knowledge about that versatile financial instrument was a must pre-requisite.

In this paper, under the mathematical feasibility it is targeted European style stock options and the Black-Scholes formula is used for option pricing. In order to seek the mathematical feasibility, firstly it is confirmed the pricing accuracy by comparing my calculations with already quoted well known stock option prices, secondly some option pricing was done for domestic stocks by using some real data from exchange and finally it is identified the option price movements,

checked for arbitrage possibilities and recognized the pricing barriers, which are risk-free interest rate and volatility.

Under the legal feasibility, it is discussed about the legal factors that have been taken currently and some of proposed facts.

Many options are registered and settled via a clearing house. This central body is also responsible for the collection of margin from the writers of options. In this paper it is discussed the suggested action regarding the clearing house and the option disclosure document that caters characteristics and risks of stock options to the market participants.

LITERATURE REVIEW

With the invention of derivative instruments like futures and options and also with the founding of derivative markets, the market system in many countries and regions, mostly in the advanced countries and regions, has been promoted much so far especially in providing the instruments and mechanism of risk-shifting because of the characteristics and unique advantages of derivative market. Tian (2005) argued that establishing financial derivative market is the requirement of strengthening the financial market functions. The future and option markets have become important mediums of price discovery in cash markets are equally strong. Antoniou, Holmes and Priestley (1998) indicate that trading in these products improve the overall market depth, enhance market efficiency, increase market liquidity, reduce informational asymmetries and compress cash market volatility. Equity derivatives have usually reduced volatility and strengthened liquidity in equity markets, enhanced returns to institutional investors such as mutual or pension funds, and reduced the cost of equity listings for firms (Fratzscher, 2006). Moreover, the introduction of the option markets produces a smaller bid-ask spread in the underlying market and therefore a greater liquidity (Maniar, 2007).

But some contradictory arguments also can be found about trading futures and options. As Shenbagaraman (2003) concluded, the introduction of derivative products failed to make any significant impact on market volatility in India. Furthermore, Skinner (1989) noted that with the introduction of derivatives, it could be produced a situation in which investors in the spot markets move their operations to derivative markets, reducing the trading volume of the underlying asset and consequently increasing the volatility of the underlying asset market.

In Sri Lankan context, the concept of operating a derivative market and introducing derivatives especially stock options is utterly innovative episode and it is important to have a synopsis about history of derivative trading in the world and to brief derivative trading in regional emerging markets. The first known instance of derivatives trading dates to 2000 B.C. when merchants, in what is now called Bahrain Island in the Arab Gulf, made consignment transactions for goods to be sold in India (Dodd, 2004). Swan (1993) noted that derivatives trading, dating back to the same era also occurred in Mesopotamia (as cited in Dodd, 2004). A more literary reference comes from Aristotle's work named 'Politics', 2,350 years ago, regarding a case of market manipulation through the use of derivatives on olive oil press capacity (as cited in Dodd, 2004). Derivatives trading in an exchange environment and with trading rules can be traced back to Venice in the 12th Century. Forward and options contracts were traded on commodities, shipments and securities in Amsterdam after 1595. The Japanese traded futures-like contracts on warehouse receipts or rice in the 1700s.

According to Shamsheer and Taufiq (2007) in India, the Bombay Cotton Trade Association started futures trading in 1875 and, by the early 1900s they had one of the world's largest futures industries. In 1952, the government banned cash settlement and options trading

and derivatives trading shifted to informal forwards markets. A series of reforms of the stock market between 1993 and 1996 paved the way for the development of exchange traded equity derivatives markets in India. Index futures were introduced in June 2000, followed by index options in June 2001, and options and futures on individual securities in July 2001 and November 2001, respectively. South Korean economy is an industrial economy. Korea Stock Exchange (KSE) launched futures, KOSPI 200 Index, in May 1996 and options on the stock index in July 1997. Malaysian futures market started in the 1980s when the Kuala Lumpur Commodity Exchange (KLCE). The first futures contract traded on the KLCE was palm oil which was launched on October 23, 1980. February and March 1984 and a series of crises led to the collapse of the three and a half year old crude palm oil futures contract. The stock index futures contract was introduced on the Kuala-Lumpur Option and Financial Futures Exchange (KLOFFE) on the 15 December 1995.

When analyzing the literature of history of derivative trading most of the countries started trading derivatives by using commodity futures and then they stepped into index options and finally to stock options. Nevertheless in the early 1970s, Fisher Black, Myron Scholes, and Robert Merton achieved a major breakthrough in the pricing of stock options (Hull, 2009). This Black – Scholes model values European call and put options on a non-dividend-paying stock is derived. It has also been pivotal to the growth and success of financial engineering in the last 30 years. But recently it is found some promising methods to value financial derivatives such as Monte Carlo simulation, Binary option trees and so on. For this study, it is used Black – Scholes formula for the valuations because it is the prime model to calculate European stock option prices and widely used in the world.

According to the case of Shanghai, there has been a history of futures exchanges that failed because of weak clearing houses and poor margin systems, for example the Hong Kong Futures Exchange went bust in 1987 after the stock market collapse. Therefore a sensible design of derivative products is critical for its sustainability. As a prerequisite, there needs to be a well-functioning and liquid cash market, where risk management has been tested, volatility is within reasonable limits, and both long and short positions can be efficiently traded. The most important lesson from the Asian and Russian crises reveals that derivative markets can create systemic risk if prices of underlying instruments are not market-determined. The market infrastructure at derivatives exchanges and clearing houses needs to be soundly developed. Transparent legal and regulatory structures as well as a level playing field are important preconditions as well.

Whereas market volatility remains high in Asia, but the opportunities for diversification and risk management opportunities are good if there are futures markets that are efficient with liquidity. Therefore, equity based financial futures and option markets must be developed in this region. Study of their success does reveal one obvious factor that can be applied universally which is the contracts must be relevant to the economy (Shamsher & Taufiq, 2007).

MATHEMATICAL FEASIBILITY

Definitions

European Call Option is a contract with the following conditions:

- At a prescribed time in the future (Expiration date), the holder of the option may
- Purchase a prescribed asset (Underlying asset) for a
- Prescribed amount (Strike price).

The other party to the contract, who is known as writer (seller), does have a potential obligation: he must sell the asset if the holder (buyer) choose to buy it.

Option price (Premium) is the up-front price of the option, paid by the holder to the writer.

European Put Option is an option contract in which the holder has the right to sell the underlying asset at the expiration date for the strike price.

Option pricing

Important parameters under the Black-Scholes option pricing model,

- Current stock price
- Options strike price
- Time (in years) until the option expires

- Interest rate (per year on a continuously compounded basis) on a risk-free investment (usually 3 month T-bills) throughout the duration of investment
- Stock volatility (measured on an annual basis)

Black- Scholes Formula.

- S = Today's stock price
- T = Maturity period of the option (in years)
- K = Strike price
- r = Annual risk-free interest rate
- σ = Annual volatility of stock

$$\text{Define } d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}} \text{ and } d_2 = d_1 - \sigma\sqrt{T}$$

Then the call price c and put price p are given by,

$$c = SN(d_1) - Ke^{-rT}N(d_2)$$

$p = Ke^{-rT}N(-d_2) - SN(-d_1)$, where $N(\cdot)$ is the cumulative distribution function for a standardized normal random variable, given by

$$N(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{y^2}{2}} dy$$

When studied the historical option market in the world it is identified that the best selection to introduce options to the CSE is introducing European call options for the highly traded stocks that are not paying dividends. Then it is studied the importance of each parameter in determination of call prices. In order to seek

that, it was vary one of the parameter at a time, by setting others fixed and it is noted that S , σ , r , T are positively correlated with c and K is negatively correlated to c .

Before employed the Black-Scholes equation to the domestic stock prices it is required to

confirm the pricing accuracy. Therefore it is decided to calculate option prices for some well-known underlying stocks in the world market which is already quoted its option prices. Thus it is used the real historical prices and respective information for the interested stocks. Then it is calculated the option prices

for different maturity periods and for different strike prices and compared with quoted prices. Most of quoted In-the-money and At-the-money option prices were accurate for the two decimal places with the calculated prices and thus it is assumed that we had enough confident regarding the pricing accuracy.

Table 1

Call and Put option prices: Comparison of my calculation with real traded data

1 month options

Call	Call							Aug - 2005							Put	
	Close	Open	High	Low	Last	Vol	OI	Strike	OI	Vol	Last	Low	High	Open		Close
5.67	5.7	0	0	0	0	0	222	20	0	0	0	0	0	0	0.05	0.0002
3.19	3.1	3	3	3	3	253	3976	22.5	2026	0	0	0	0	0	0.1	0.06
0.98	0.9	0.7	0.95	0.65	0.9	10731	36822	25	26699	601	0.3	0.25	0.4	0.4	0.3	0.28
0.085	0.1	0.1	0.1	0.05	0.1	65	6127	27.5	6009	60	2.05	2.05	2.3	2.3	2.05	1.9
0.001	0.05	0	0	0	0	0	101	30	22	0	0	0	0	0	4.5	4.3

Notes. Real traded data Retrieved on August 15, 2012 from www.yahoofinance.com

Table 2

6 month options

Call	Call							Jan - 2006							Put	
	Close	Open	High	Low	Last	Vol	OI	Strike	OI	Vol	Last	Low	High	Open		Close
4.2	4	3.9	4	3.9	4	85	76960	22	120060	0	0	0	0	0	0.2	0.15
3.79	3.6	3.6	3.6	3.6	3.6	10	654	22.5	15572	0	0	0	0	0	0.25	0.22
2.0	1.95	1.95	2	1.95	1.95	115	112060	24.5	187034	2	0.7	0.7	0.7	0.7	0.65	0.68
1.85	1.65	1.45	1.7	1.45	1.65	430	40161	25	14938	21	0.85	0.8	0.85	0.8	0.85	0.86
1.0	0.7	0.6	0.7	0.6	0.7	692	285606	27	115325	10	1.85	1.85	1.85	1.85	1.85	1.84
0.8	0.55	0.55	0.55	0.45	0.55	239	17946	27.5	4371	0	0	0	0	0	2.25	2.15

Notes. Real traded data Retrieved on August 15, 2012 from www.yahoofinance.com

After the conformation of pricing accuracy with some real data, it is focused on calculating option prices for domestic stocks. It is considered five of high liquidity stocks and historical prices were gathered. Initially it is used historical call prices from 02/01/2006 to 30/12/2008 of the selected stocks and both call and put prices were calculated by employing the Black-Scholes formula directly. In these calculations it is assumed 02/01/2009

as the option trading date and option prices were calculated for different strikes & for different maturities.

Checking for Simple Arbitrage Opportunities

By using above calculated option prices it is checked for simple arbitrage possibilities

(these are the possibilities that can be checked before the option is traded).

Exercise Arbitrage

The easiest arbitrage opportunities in the option market exist when options violate simple pricing bounds.

- With a call: $c > S - K$
- With a put: $p > K - S$

Arbitrage across options

Check for put-call parity. $S + p - c = Ke^{-rT}$

But when analyzing the market movements it is identified that the CSE was inactive before 18/05/2009 and after 19/05/2009 it was actively traded. Therefore again stock prices were gathered from 19/05/2009 to 29/12/2009, daily option prices were calculated and option price movements were studied relative to the stock price movements.

Legal Expediency

It is asked from the Legal division of Securities and Exchange Commission of Sri Lanka (SEC), about the legal enforcements regarding the option market. Then it is informed that there is a legal enforcement about derivative trading under the Securities and Exchange Commission of Sri-Lanka (Amendment) Act, No.47 of 2009. From

amendment of section 55 of the principal enactment, it is stated that derivatives including Futures and Options are defined under the definition of 'Securities'.

Operational Expediency

When option is being operated, there should be an Option Clearing Corporation (OCC) which guarantees that option writers will fulfill their obligations under the terms of options contracts and keeps a record of all long & short positions. It is asked from the Financial Services Academy (FSA) of SEC, Sri-Lanka about the operational process of options and it is informed that they are planning to establish a clearing house named 'Central Clearing Corporation' that will perform not only the option clearing but also the stock clearing.

RESULTS

When consider the option prices for domestic stocks it is noted that 6 month option prices are highly cost and all the option prices are cost more relative to the world option prices in figure wise for same maturity and strike. It is identified that the high risk-free interest rate and the high volatility of the stock returns are the major factors that lie behind the resulted high option prices. It is inspected for simple arbitrage possibilities: simple pricing bounds are protected for both calls and puts and the put-call parity relationship also is satisfied. Also it is noted that option price movements are identical to the stock price movements.

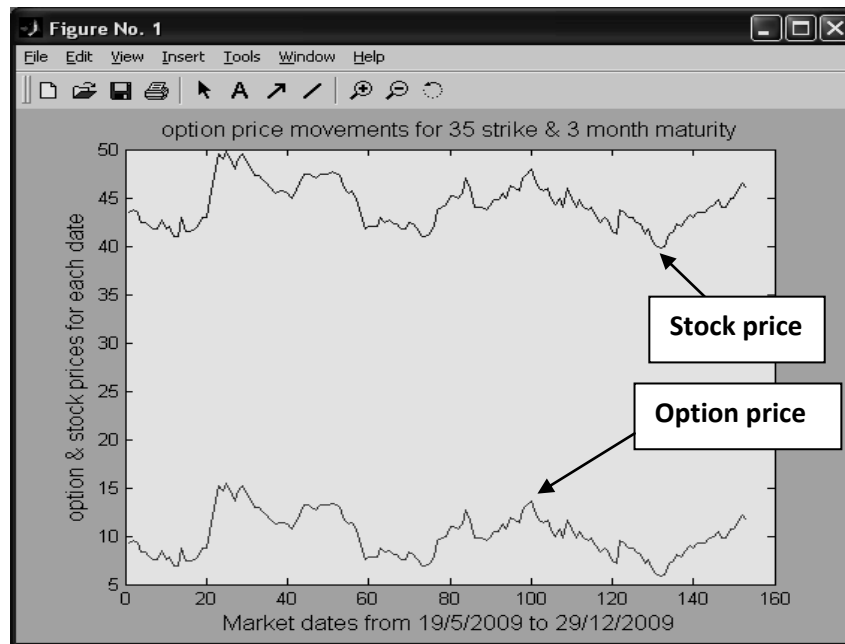


Figure 1: Option price and equity price movement of studied stock.

DISCUSSION

When compared to the other exchanges in the world, Colombo Stock Exchange (CSE) is very small and highly sensitive. Due to that sensitivity, stock prices during the latter part of the civil war were highly volatile, not realistic and not reliable. Thus, it is understood that focusing on option prices which are calculated depending on historical prices from 02/01/06 to 30/12/08 are not trustworthy and which manipulate the real picture. With the end of the civil war in Sri-Lanka, the stock exchange behaved very actively and it was very efficient. Thus after 19/05/09 the volatility remains in small figures (relatively) and the risk-free interest rate also tended to decrease. But it was arose a new problem of lack of data when calculating the daily option prices.

When considering the legal factors, it has to be redefined all the interpretations, terms and definitions stated mainly under the section 55 and section 28 in SEC Act., Sri Lanka and it may force to change the existing name 'Colombo Stock Exchange' (CSE) as 'Colombo Security Exchange' (CSE) when introducing derivatives (Options & Futures).

In addition, it is also required establishing a central counter party before trading options.

FINDINGS AND CONCLUSION

It is identified that high volatility and high risk-free interest rate are major problems. More importantly, most of the stocks in the market are having non constant volatility and which brought a prime barrier to use Black-Scholes formula for pricing. Other option pricing methods are not encouraged to use due to their complexity and it is strongly suggested to use a portfolio of stocks to avoid this non constant volatility problem. Hence to focus on stock index may provide a valuable insight on introducing stock options to Sri Lankan context as history and the literature suggest. Also lack of transparency and lack of data availability are also creating problems when gathering information. Market participants 'lack of awareness about options and its role in financial markets is also a huge problem in introducing the product and it is required to educate all the capital market segments by giving necessary training include seminars, workshops, handouts, newspaper articles, web based derivative related information. At the same time, short selling is not permitted in Sri-Lanka and it is needed to proceed short selling

far before option trading is allowed. Apart from that introduce Futures to the market in the first place may also be a better move. When considering all the facts, it can be concluded that the expediency is still very low to introduce options to the CSE.

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IDENTIFYING RETURN DISTRIBUTION OF SRI LANKAN STOCK MARKET INDEX

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ABSTRACT

In the current financial world, prediction of stock returns has become a vital task. Many prediction techniques available recently depend on the return distribution of stock index. Identifying return distribution of stock return has an immense interest among researchers nowadays. Many researchers have proposed different distributions to model the return distribution of stock market indices. However a study aimed at finding the distribution of return series of local stock indices was not found. In this study return distributions of All Share Price Index (ASPI) of the Colombo stock exchange was examined. The study period consist of 5 years daily data from 1st August 2007 to 31st July 2012 of the ASPI. Results display that the return distribution of ASPI cannot be modeled using Normal distribution and Student's t distribution. The Scaled t distribution with parameters $\mu = 0.0000613719$, $\sigma = 0.00619983$ and $\nu = 2.54137$ can be introduced as the best distribution to model the return distributions of All share price index. Kolmogorov-Smirnov (K-S) Test has been used to access the suitability of fitted distribution. Random numbers were generated using Scaled t distribution with above mentioned parameters and the K-S test was carried out using the generated series and the return series of ASPI. The same procedure was repeated 100 times in order to improve the accuracy of results. Minimum p-value of 0.0534 was obtained in the simulation study and exhibit that the test is not significant under 5% level of significance above 95% times. Finding of this research will help many researches in the financial sector of Sri Lanka to use an appropriate distribution for modeling the ASPI returns and hence to enhance the forecasting accuracy.

Keywords: *Return Distribution, All Share Price Index, Scaled t Distribution, Kolmogorov-Smirnov test*

INTRODUCTION

Predictability of financial markets depicts crucial importance in recent world. Stock market exhibits great interest due to profitability and development of many techniques among all financial markets. Many researchers interested in predicting stock market index recently. Finding distribution of stock returns will be useful in building prediction models for stock indices. Therefore, identifying an appropriate distribution to model the return distribution of stock index becomes a vital important factor nowadays. Over the last few decades many researchers attempt to find a suitable distribution to model

stock return distribution. Even though the traditional belief is that the return distribution follows the Normal /Gaussian distribution, many researches provide evidence to say that the return distribution is deviate from the Normal distribution. In 1991 Badrinath and Chatterjee found that the return distributions are elongate from the Gaussian distribution by their research done for the New York Stock Exchange. Peiro (1994) showed that the daily stock returns display significant departures from normality by examining six stock markets namely New York, Tokyo, London, Paris, Frankfurt, Paris and Madrid. The

research done for thirteen European markets and four Scandinavian markets by Aparicio and Estrada in 1997 clearly rejected the normality of stock return distribution. Many other researches provided substantiation to reject the normal distribution to model return distribution of stock market indices such as Wang and Hu (2001), Fortin and Kuzmics(2002),Egan(2007), Rachen et al. (2007), Doric and Doric(2011). Since the stock return distribution deviate from the Normal distribution, next approach of the researchers were to find a suitable distribution to model the return distribution of stock market indices. By considering different techniques and different stock markets many researchers have tried to find the stock return distribution. The research carried out by Doric and Doric in the year 2011 to find the adequate return distribution of Belgrade Stock Exchange suggested that the Student's t distribution and Normal Inverse Gaussian distribution are acceptable to model the return distribution of stock indices. A study done by considering six stock markets by Peiro in 1994, recommended Scaled t distribution as the best distribution to model return distribution of all considered markets by rejecting several other distributions such as Normal, Paretian, Logistic, Student's t, exponential power and discrete mixture of two normal. Scaled t distribution was introduced as the best distribution to model return distribution by Aparico and Estrada (1997) in their study which considered thirteen European markets. Same researchers have done a similar study for four Scandinavian markets and proved the same result. i.e. the Scaled t distribution is well fitted to return distribution, by rejecting Logistic distribution

The Following formula was used to calculate the daily returns of the market index:

$$R_t = (P_t - P_{t-1}) / P_{t-1} \quad \text{-----} \quad (1)$$

where R_t - return of the day t, P_t - closed stock price of the day t and P_{t-1} - closed stock price of the day t-1.

and exponential power distribution. By considering S&P 500 index Egan (2007) provided the fact that the Scaled t distribution can be used to model return distribution accurately. Although literature provides evidence regarding different distribution to model stock return distribution of many stock indices, no evidence was found about a study which aimed at finding the distribution of returns of the local stock indices. Therefore, finding the suitable distribution to model All Share Price Index (ASPI) of Colombo Stock Exchange which is the objective of this research is a timely need. This task can be commenced by considering the distributions recommended by other researchers to model return distribution of different stock indices. Finding of the most suitable distribution to model ASPI index will help many researches in the financial sector of Sri Lanka to use an appropriate distribution instead of Normal distribution for modeling the ASPI returns and hence to enhance the forecasting accuracy. The rest of the article is organized as follows: In the next section, the data and techniques useful for the study are described. Results of the study and discussion are demonstrated subsequently. Then the conclusion is provided and references conclude the article.

METHODOLOGY

DATA COLLECTION AND DATA PRE-PROCESSING

Daily Closed Price of All Share Price Index for five years period from 1st August 2007 to 31st July 2012 was considered in this study. As a proved mechanism, holidays were filled with previous day's value in the series and the data series covers 1290 observations.

NORMAL DISTRIBUTION

The normal distribution is symmetric bell shaped curve which is widely used and important statistical distribution. Many natural phenomena can be modeled using the normal distribution. Normal distribution or the Gaussian distribution is a continuous distribution with following probability density function (p.d.f.):

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}} \quad (2)$$

where μ is the mean or expectation of the distribution and σ is the standard (Mood, Graybill and Boes (1974)).

STUDENT'S T DISTRIBUTION

The t distribution is a continuous probability distribution with one parameter called degrees of freedom. The probability density function of Student's t distribution is displayed in Equation 3.

$$\frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\nu\pi} \Gamma\left(\frac{\nu}{2}\right)} \left(1 + \frac{x^2}{\nu}\right)^{-\frac{\nu+1}{2}} \quad (3)$$

Where ν is the degrees of freedom and $\Gamma(\bullet)$ represent the gamma function (Mood, Graybill and Boes (1974)).

SCALED T DISTRIBUTION

The *Scaled t* distribution is useful for modeling data distributions with heavier tails which has three parameters namely location, scale and shape. Smaller values of the shape parameter yield heavier tails. The probability density function of the Scaled t distribution is as follows:

$$f(x) = \frac{\Gamma\left(\frac{\nu+1}{2}\right)}{\sqrt{\pi(\nu-2)\sigma^2} \Gamma\left(\frac{\nu}{2}\right)} \left[1 + \frac{(x-\mu)^2}{(\nu-2)\sigma^2}\right]^{-\frac{\nu+1}{2}} \quad (4)$$

where $\Gamma(\bullet)$ represent the gamma function, μ is the location parameter, σ is the scale parameter

and ν is the shape parameter (Aparicio and Estrada (1997)).

QUANTILE-QUANTILE PLOT (Q-Q PLOT)

The Quantile-Quantile plot can be used to determine whether two data sets come from populations with a common distribution. In this graphical technique, quantiles of the first data set against the quantiles of the second data set is plotted and a 45-degree reference line is used to interpret. If the two data sets come from a population with the same distribution the points should fall approximately along this reference line. The greater the departure from this reference line, the greater the evidence for the conclusion that the two data sets have come from populations with different distributions. This technique can provide an assessment of "goodness of fit" that is graphical and more powerful approach than the common technique of comparing histograms of the two samples (Beirlant et al. (2004)).

KOLMOGOROV-SMIRNOV TEST (K-S TEST)

The Kolmogorov-Smirnov test is a nonparametric test which is used to assess the equality of continuous, one-dimensional probability distributions. In one-sample K-S test, a comparison of a sample with a reference probability distribution is performed and the null hypothesis is that the sample is drawn from the reference distribution. The Kolmogorov-Smirnov statistic quantifies a distance between the empirical distribution function of the sample and the cumulative distribution function of the reference distribution in one sample test. Comparison of the two samples is performed in two-sample K-S test under the null hypothesis that the two samples are drawn from the same distribution. In two sample test K-S statistic quantifies a distance between the empirical distribution functions of two samples. In each case, the

distributions considered under the null hypothesis are continuous distributions.

The two-sample Kolmogorov–Smirnov test is one of the most useful and general nonparametric methods for comparing two samples. The following null and the alternative hypothesis are used in the two sample K-S test.

H_0 : Two samples are drawn from the same distribution

H_1 : Two samples are not drawn from the same distribution.

The Kolmogorov–Smirnov statistic for two-sample test is:

$$D_{n,n'} = \sup_x |F_{1,n}(x) - F_{2,n'}(x)| \quad (5)$$

where \sup_x is the supreme of the set of distances and $F_{1,n}$ and $F_{2,n'}$ are the empirical distribution functions of the first and the second sample respectively. The null hypothesis is rejected at level α (which is the significance level) if, $D_{n,n'} > c(\alpha) \sqrt{\frac{n+n'}{nn'}}$ where the value of $c(\alpha)$ is given in tables (Conover (1999)).

RESULTS AND DISCUSSION

Even though evidence from literature suggests that the stock return distribution cannot be modeled using Normal distribution, Normal probability plot was drawn to the ASPI return series to check the normality and displayed below.

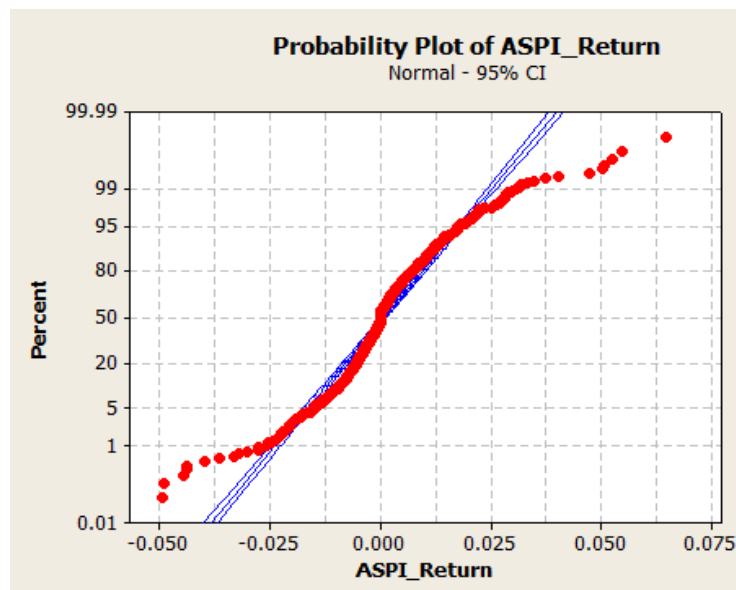


Figure 1: Normal probability plot of ASPI

Figure 1 exhibit that the normal probability plot of ASPI deviates from the straight line. Therefore it is evident that the normal distribution cannot be used to model the return distribution of All Share Price Index.

Student's t distribution was fitted to the return series of the ASPI and check the adequacy using Kolmogorov–Smirnov test. Numerous tests were carried out by changing parameters of the distribution. Results indicate that the p-

values obtained in all the cases are less than 0.05 and the test is significant under 5% level of significance in all the cases. Therefore it can be concluded that Student's t distribution is also not suitable to model the return distribution of all share price index of Colombo stock exchange. With the evidence from literature, Scaled t distribution was fitted to the return series of ASPI and calculated the parameters of the distribution. Suitability of the fitted distribution was assessed using Q-Q

plot and Kolmogorov–Smirnov test. Figure 2 illustrates the fitted Scaled t distribution for

the return series of the ASPI.

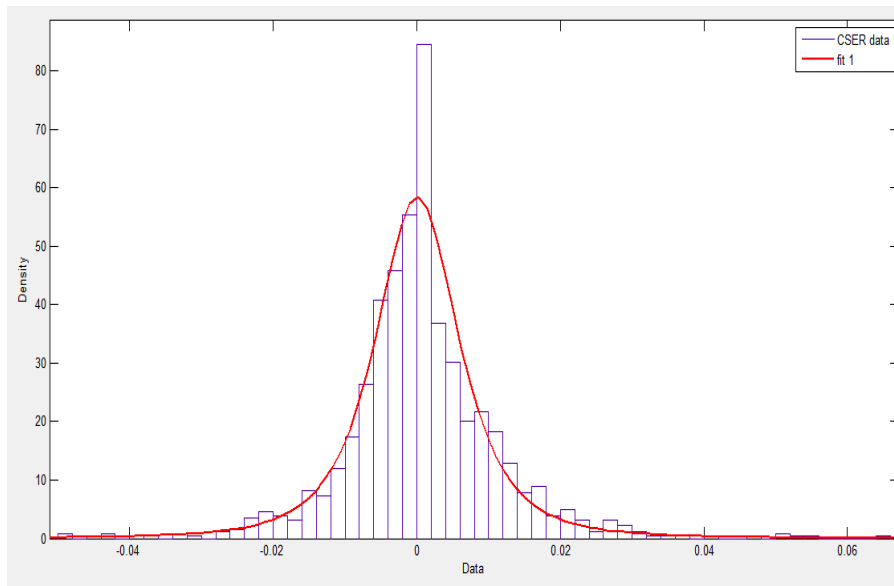


Figure 2: Fitted Scaled t distribution for ASPI return series

Figure 2 shows that scaled t distribution exhibits a good fit to the return distribution of the ASPI. Three parameters are associated with the Scaled t distribution namely location

parameter (μ), scale parameter (σ) and shape parameter (ν). Estimated parameters for fitted Scaled t distributions for the ASPI series are represented in Table 1.

Table 1: Estimated parameters of the fitted Scaled t distributions for three series

Return Series	Parameter Estimates		
	μ	σ	ν
ASPI	0.0000613719	0.00619983	2.54137

The shape parameter ν of the Scaled t distribution can capture the heaviness of tails in the fitted distribution. A smaller ν indicates heavy tails. Since it is a known fact that the return distribution of stock market indices exhibit heavy tails, estimated values

for ν which are small lead to consider that the heavy tails are well captured by the Scaled t distribution in the return series.

The following figure illustrates the Q-Q plot drawn to evaluate the fitted Scaled t distribution graphically.

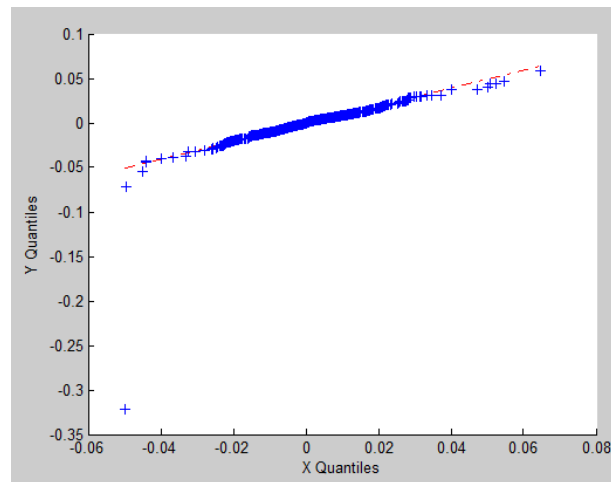


Figure 3: Q-Q plot for ASPI return series

In Figure 3, Q-Q plot demonstrate linear patterns which confirms that the two distributions considered in graph are similar. Therefore, it can be said that the fitted Scaled t distributions with respective parameters exhibit a good fit for the return distribution ASPI index.

Kolmogorov-Smirnov Goodness-of-Fit test was used to assess the adequacy of fitted Scaled t distributions for return series and p-values were calculated. Random numbers were generated using Scaled t distribution with above mentioned parameters and the K-S test was carried out using the generated series and the return series of ASPI. The same procedure was repeated 100 times in order to improve the accuracy of results. Minimum p-value of 0.0534 was obtained in the simulation study. Results indicated that the test is not significant under 5% level of significance above 95% times. Therefore it can be said that the Scaled t distribution with parameters $\mu = 0.0000613719$, $\sigma = 0.00619983$ and $\nu = 2.54137$ can model the return series of ASPI index very well. This result will be useful for further research in constructing models to predict the ASPI of Colombo Stock Exchange.

CONCLUSION

Return distributions of the ASPI is deviate from the Normal distribution and Student's t distribution. Scaled t distribution can be recommended as the best distribution to model the return distribution of the All Share Price Index of Colombo Stock Exchange.

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[08]

THE EXTENT OF APPLYING THE BALANCE SCORECARD APPROACH IN THE JORDANIAN ISLAMIC BANKS

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ABSTRACT

This study aimed at investigating the extent of managers' awareness to the importance of adopting the BSC in Jordanian Islamic Banks and its effect on the financial performance. Also it measures the extent of adopting the non-financial measures on the Islamic Banks' financial performance. A survey was distributed over 86 Jordanian Islamic banks branches in order to obtain the needed data, this include the use of non – financial measures, the awareness level of the Jordanian Islamic Banks' managers of the BSC approach and the extent of using the BSC approach in the Jordanian Islamic Banks. As a result 31 questionnaires were returned and 25 of them were accepted for analysis. It was found that the banks' managers are aware enough to the significance of applying BSC in evaluating the performance and they currently use the non-financial measures in evaluating performance. Moreover, the results show that Jordanian Islamic Banks are not adopting the BSC approach. It was recommended for Jordanian Islamic Banks to apply the BSC approach in evaluating performance due of the expected benefits and there is a need to use other measures such as the efficiency of advertising and promotion measure alongside with non – financial measures that are used.

Keywords: Islamic Banks, BSC, Jordan

INTRODUCTION

For several years, Islamic banks have been measuring and evaluating their performance using financial measures. Examples of these measures include, but are not limited to the following: net accounting profit, net cash flow, return on investment, return on equity, economic value-added market and price per share. Commendable performance measures greatly aid in illustrating a clear plan of the ability of Islamic banks to attain the goals they have set for themselves in advance. It is only natural that an action plan should be considerate of the sub-targets that can be achieved and are compatible with the strategic targets of the Islamic banks. In order to apply this concept, Islamic banks use a range of measures. The aforementioned financial

measures are reliable as a result of their dependence on financial and accounting information, which can be measured in monetary units, compared, and computed without difficulty. In addition, financial measures illustrate the costs of financial transactions, with much precision. Unfortunately, these measures suffer from some limitations. This is mainly because they rely on past information and reports, which include inherent flaws, such as personal use of estimates. These reports are either prepared annually or semi-annually, which results in the reflection of only the short-term goals of Islamic banks. Moreover, short-term goals are not linked with long-term strategy. Financial measures do not help managers of Islamic

banks to understand the factors leading to the success of their business and the development of staff skills (Al-Khatatneh and Saaideh, 2009). With the most recent technological advancements and rising competition, Islamic banks are looking to new measures that appear to help in avoiding the shortcomings that occur when the aforementioned financial measures were used (Daw, 2004). Recently, there have been new varieties of measures that do not depend only on financial information and accounting reports. Furthermore, the new advancements help in avoiding the negative results that occur when financial measures were used; these include: quality standards, worker productivity, flexibility and innovation, providing management services effectively, measuring the reputation of the services provided, measuring satisfaction and loyalty of customers, and managing internal processes (Al-Natour, 2005). These measures can be traced without difficulty and linked to the strategy of specific Islamic banks; what's more is that they guide managers in making informative and reliable decisions. For example, it is possible to measure the low quality of service easily in the light of the use of these measures and thus take appropriate remedial steps. Non-financial measures shed light on the needs of customers in the suitable time and focus on intangible assets such as intellectual capital maintaining the loyalty of customers and providing a fair basis for measuring the performance of staff (Al-Khatatneh and Saaideh, 2009).

SIGNIFICANCE OF THE STUDY

The importance of this study based on the significance of Jordanian Islamic banks contribution to the national economy through the provision of services comply with Islamic Share'ah. The following statistics shows that significance: The total assets of the Jordanian Islamic Banks (3 banks) at the end of June 2012 were 4,538 million JOD while the total assets for the whole banks in Jordan (26 banks) were 38,031 million JOD at the same

time, this shows that the rate of the total assets for the Jordanian Islamic banks is about 11.9% from the total assets for the whole banks in Jordan (Central Bank of Jordan Statistics, 2012). The remarkable to use comprehensive system for evaluating performance based on financial and non-financial measures is needed to raise the effectiveness and efficiency of the performance of these banks.

STUDY OBJECTIVES

This study was prepared to reach the following objectives:

- 1- Introducing the BSC approach, which is based on both financial and non-financial measures in a balanced way in assessing performance in Jordanian Islamic banks in order to meet deficiencies resulting from the use of financial measures which is used to evaluate performance.
- 2- Identifying the awareness level of Jordanian Islamic banks managers to the importance of applying the BSC.
- 3- Finding out the extent of using non-financial measures in evaluating performance in Jordanian Islamic banks.
- 4- Determining the extent of applying the BSC approach in Jordanian Islamic banks.
- 5- Making recommendations based on the results that were obtained to help in the development of the performance of Jordanian Islamic banks.

LITERATURE REVIEW

There are some previous studies discussed the BSC implementation in several fields.

These studies have been increased in the last few years due to the success that achieved by implementing BSC in evaluating performance .the most related studies as follows: A study by Ahmad Dudin (2009) aimed to identify the obstacles that impede the application of BSC by Jordanian commercial banks from the perspective of the banks personnel. After

having performed the process of statistical analysis, the following conclusions were reached are: there is a statistical significant effect for the independent variable obstacles all together (planning and information, financial factors, administration factors, orientation and education, technical factors, and legislative factors) on the use of the balanced scorecard In Jordanian commercial banks, there are no statistically significant differences in the conception made by the researched sample on using BSC in Jordanian commercial banks attributed to demographic characteristics (gender, age, academic degree, job experience and job title). Also, Al-Khatatneh and Saaideh (2009) prepared a study aimed to measure the awareness level of Jordanian Industrial companies' managers of the significance of using non-financial Measures of the Balanced Score cards (BSC) in evaluating performance of their companies. The main results of the study turn out to be: The Jordanian industrial companies' managers are highly aware of the significance of using non-financial measures in evaluating performance and , there are no differences in awareness level of the significance of using non-financial perspectives of the BSC related to managers' age, experience and academic qualifications. Moreover, Abu Fedda and Dergham (2009) investigated the effect of applying the Balanced Scorecard to enhance the performance of financial strategic national bank Gaza. The main results of the study were: the Palestinian national banks operating in the Gaza have good perception that their success requires serious work to enhance the strategic financial performance, banks have a clear perception on the extent of the financial performance, which enable them to achieve the financial strategic performance, and the four perspectives of BSC can be used together or separately to enhance the financial performance of banks. Also, Noor & Zwelef (2005) discussed the importance, philosophy and technique of applying BSC in their study. It focused on how to transform the organization strategy to be understood by all

employees. The upshots for this study were: the BSC is considered as the best tool to measure and evaluate the banks performance, there is no integrative implantation of BSC in Jordanian Banks, the banks use non-financial measures to evaluate performance and finally, BSC considered as a way to bridge the gap between organization strategy and measures to evaluate performance. Furthermore, Daw (2004) Prepared a study highlights the importance of using integrative evaluation systems in increasing the efficiency of monitoring systems. He compared between the traditional monitoring system that depends on using traditional financial measures in evaluating performance and using a comprehensive stile in which is Balanced Scorecard. The most important result in this study was to suggest a model that calculates awards and incentives by using BSC model through a statistical formula. The last study was for Maswadeh (2004) which prepared her study to identify the non-financial measures that used to evaluate and enhance performance in the private Jordanian universities. In this study she discussed and analysis all the non-financial measures that used by universities in evaluating performance. The most important outcome for this study is developing a special BSC model to evaluate performance in private universities. As mentioned previously some studies focused on identifying the obstacles that impede the BSC application, whereas another studies focused on explaining the advantages of using the non – financial measures in evaluating performance. Also, some of them focused on building a modified model for the BSC. The populations of the previous studies varied into: industrial, universities, and commercial banks. What makes this study different from other studies is that it aims to determine the extent of applying the BSC approach in the Jordanian Islamic banks. And according to the researchers knowledge that till preparing this studies nobody prepared any similar study on the Jordanian Islamic banks.

THEORETICAL FRAMEWORK

BSC DEFINITION

The BSC is a management approach that is used in business, industry, government, and non-profit organizations in the whole world to link business activities to the vision and strategy of the organization, improve internal & external communications, and monitor organization performance against strategic goals.

CHARACTERISTICS OF BSC

The use of financial and non-financial measures in the same tool to measure performance is the most important feature for the BSC which are represented in one report. The report is not a replacement for the traditional financial measures but it is a summary that gives the most relevant information to those reading it. The BSC is a performance model that links between the organization objectives and its strategy and managing the entire component to achieve the organization objectives (Abernethy et al, 2005). The Balanced Scorecard emphasized that relation between the measures and the performance should derive from the strategy, and proposed design methods that focused on choosing measures and targets associated with the main activities required to implement the strategy. As the initial readers for this were the readers of the Harvard Business Review, the proposal was translated into a form that made sense to a typical reader of that journal. So that, the first designs were encouraged to measure three categories of non-financial measure in addition to financial outputs - those of "Customer" , "Internal Business Processes" and "Learning & Growth". Many companies before choosing their performance objectives and measures, they create vision, mission statements, put & define a strategy of how the vision and mission will be achieved (Atkinson et al, 2007). Also, after establishing company's vision, mission and strategy, the senior management team select performance measurement to provide the needed specificity

that makes vision, mission and strategy statement even more meaningful and actionable for all employees (Atkinson et al, 2007).

BSC PERSPECTIVES

The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it related to each of these perspectives which are:

LEARNING & GROWTH PERSPECTIVE

This is one of the most significant perspectives regarding the BSC, as it focuses on employees and workers who produce and deliver services & goods for customers. This perspective focuses on training employees along with improving cultural conduct for individual and corporate development. People are the main resource of knowledge. In the current climate of rapid technological change, it is becoming necessary for employees to be in a continuous learning mode. Measures can be put into place to guide managers in focusing training funds where they can help the most. In any case, learning and growth constitute the essential foundation for success of any organization. It also includes things like mentors within the organization, as well as that ease of communication among employees that allows them to readily get help on a problem when it is needed. It also includes technological tools, what the criteria call "high performance work systems".

INTERNAL PROCESS PERSPECTIVE

This part concentrates on several processes. It improves the relationship with suppliers. It focuses on the way to deliver goods to customers. Managing internal process play an important role in developing products and services and choosing the most required product from the market. Moreover, the internal environment that the employees work in is important since it shed light on all factors that affect employees positively. The internal

process measures help the managers run their business well and know if the products and services meet customers need.

CUSTOMER PERSPECTIVE

Customers are those who purchase goods and get services. Thus, focusing on meeting customers' needs will help the company get benefit & profit and grow rapidly. Latest management philosophy has emphasized the importance of customer satisfaction in any business. If the company doesn't fulfill customers' requirement, they will eventually move to another provider that will meet their needs. Although the current financial picture may look good in some organizations, poor performance from this perspective is thus a leading indicator of future decline. Measures for satisfaction should be determined in terms of kinds of customers and the kinds of processes for which we are providing a product or service to those customer groups.

FINANCIAL PERSPECTIVE

The financial field shed light on increasing profit along with decreasing expenses as much as possible. And in order to face daily requirements, they keep enough liquidity. Kaplan and Norton do not ignore the traditional need for financial data. Managers will do whatever necessary to provide data accurately and on time. Actually, often there is more than enough collecting and processing of financial data. It is hoped that more of the processing can be centralized and automated, with the implementation of a corporate database. However, the current emphasis on financials leads to the "unbalanced" situation with regard to other perspectives. Maybe, there is a need to include additional financial-related data, such as risk assessment and cost-benefit data, in this category

BSC BENEFITS:

The benefits of the Balanced Scorecard are realized when the Balanced Scorecard is used in day-to-day operations. Data update, analysis

and reporting are performed regularly within the management and reporting processes. The benefits that can be obtained from a Balanced Scorecard depend on what it is used for, how well it is designed, and how it is applied. Among the long row of benefits of applying Balanced Scorecard, these are the most significant:

- 1 - To develop and define a set of major targets.
- 2 -To give a common understanding of the events planned for the completion of the strategic goals.
- 3 - Providing management report that describes the operational performance across the four perspectives of the card.
- 4 - Linking causal procedures and facilitate the development goals.
- 5 -Increasing the understanding and knowledge within the management team through discussions about the expectations of employees and their initiatives towards improving processes (Horngren et al, 2003).

DATA COLLECTION METHOD

There are many methods to data collection such as archival records, documentation, meeting, telephone interview, personal interview, questionnaire, and direct observation. This research adopted questionnaire method as a way for data collecting to examine the main factors affecting BSC implementation. This survey consists of the factors that previous studies stated which might affect the BSC implementation. Accordingly the questionnaire includes four parts:

Part1: general information about the sample of the study.

Part2: questions about the awareness level of the importance of applying the BSC.

Part3: questions about the extent of using the non-financial measures.

Part4: questions about the extent of applying the BSC A approach.

RELIABILITY AND VALIDITY

Reliability is the degree to which an instrument measures the same way each time it is used under the same conditions with the same subjects. That is, reliability refers to the accuracy (consistency and stability) of measurement by the instrument or repeatability of an assessment over a variety of conditions (Bernard, 2000). Variables with composite measures were evaluated for their internal consistency through the Cronbach's Alpha measure. The value of Alfa is 0.634 and it is higher than the acceptable rate 60% which reflects that items in the questioner were related to each other.

POPULATION AND SAMPLE

The population of this study consists of Jordanian Islamic banks managers with a total

number of (111). The number of distributed questionnaires to the branches was 86 which is the sample size, while the received questionnaires were 31. Six of them were eliminated as they are not completed; 25 was accepted with a rate of 29%.

NORMAL DISTRIBUTION TEST

To test whether data is normal distributed, Kolmogorov-Smirnov test (K-S test) was used prior to the hypothesis testing in order to use parametric statistical techniques which require normally distributed data. The results of (K-S) test are shown in Table 1. The P-values are More than 0.05 then the null hypotheses which states that data is not normally distributed is refused and the affirmative hypotheses which states that data is normally distributed is accepted and parametric analysis methods can be used safely (Bernard , 2000).

Table 1 P-values for Study Variables (Kolmagrov –Smirnov Test)

		VAR00001	VAR00002	VAR00003
N		25	25	25
Normal parameters	mean	34.5	37.24	48.84
	Std.dev.	2.38	3.351	2.76
most extreme	Absolute	0.22	0.106	0.179
differences	Positive	0.14	0.078	0.174
	Negative	-0.22	-0.106	-0.143
kolmogrov -smirnov Z p- values			0.528	0.897
Asymp.sig(2-taild)	p-values	0.178	0.943	0.397

a-test distribution is Normal b-Calculated from data

DATA ANALYSIS METHODS

Statistical Package for Social Science (SPSS) was used to test the hypothesis and investigate the problems of the study using T-test.

STUDY HYPOTHESES

After reviewing the literature that covered the topic of applying the BSC approach, the

researchers developed the following hypotheses that were set out:

Ho1: The Jordanian Islamic banks managers have a little aware of the importance of applying BSC.

Ho2: The Jordanian Islamic banks managers do not take in consideration the non-financial measures in evaluating performance.

Ho3: The Jordanian Islamic banks do not implement the BSC approach in evaluating the performance.

HYPOTHESES TESTING

Below are the results for each of the study hypotheses.

THE FIRST HYPOTHESIS

The first hypothesis is set to determine if the Jordanian Islamic banks managers are aware of the importance of applying BSC. The researcher has indicated some statements in the questionnaire to measure the managers' awareness of the importance of applying the BSC approach. The most important factor was the high awareness level of using non-financial measures in evaluating performance which is shown in the statements (2, 5 and 8) that indicate the importance of using non-

financial measures as well as financial measures and this reflects a high awareness level of the benefits of using the BSC which indicates that the managers are cognizant of using BSC approach because it plays a major role in improving the control performance, bank strategy and increasing management efficiency & effectiveness. As shown in Table 2, there is a high awareness level about the importance of applying BSC approach because the mean scores are above 3 for all answers (the mean was 3.44) and the T-value has a high degree which is significant at the level of (0.05). Consequently, and based on the results shown in the same table, we can conclude that the Jordanian Islamic Banks Managers are conscious of the importance of applying BSC.

Table 2 Questions related to testing the first hypothesis

No	Question	Mean	S.D	T-Value	Sig
1	I think that linking the vision and mission of the company strategy and turning them into strategic goals is essential.	4.08	0.84	6.29	0.000
2	I think that it is easy to assess performance through more than one type of measures (financial and non-financial)	3.96	0.85	5.71	0.000
3	I believe that the Balanced Scorecard Method helps in improving control performance.	4.16	0.75	6.82	0.001
4	I see that the Balanced Scorecard Method contributes to the implementation of the bank's strategy.	4.16	0.71	7.75	0.000
5	I consider that the non-financial objectives of the Bank are as much importance as financial objectives	4.20	1.04	8.45	0.000
6	I think that BSC contributes in increasing the efficiency and effectiveness of management	3.64	0.99	3.08	0.001
7	The best method to evaluate the performance of the bank is through profit.	3.16	1.16	0.81	0.002
8	I see that the use of non-financial measures in the evaluation of performance will increase the profits.	3.52	1.08	2.24	0.001
9	I think that the use of financial measures has proved its ability to assess the best performance than other measures.	1.64	1.08	2.96	0.000
	Results	3.44	0.68	8.14	0.000

THE SECOND HYPOTHESIS

This section tests whether the Jordanian Islamic Banks managers consider the non-financial measures in evaluating performance or not. The non – financial measures are: Customers, internal process and learning & growth. The data of this hypothesis is split into three tables, the first one for customers (Table 3), the second one for internal process (Table 4) and the final one(Table 45) for learning & growth. The most important factor was providing services to the customers which is shown in the statements (10, 11, 12, 14, and

15) that indicates that the Islamic banks are always trying to reduce customers' expenses and providing the services with the lowest cost and the highest quality to them. As shown in Table 3, the mean score for all answers was (3.72) and the T-value has a high degree which is significant at the level of (0.05). Consequently, and based on the results shown in the same table, it could be concluded that the Jordanian Islamic Banks Managers use the non-financial measure (customer measure) in evaluating performance.

Table 3 Questions related to testing the second hypothesis (customers) section

No	Question	Mean	S.D	T-Value	Sig
10	There is a specialized staff to serve customers.	4.00	1.04	4.80	0.002
11	Appropriate services are provided to customers at the lowest possible cost.	4.04	1.10	4.72	0.000
12	The bank tries to reduce customers' expenses as much as possible.	3.64	0.99	3.23	0.003
13	Most new customers come to the bank based on the recommendations of the current customers.	3.40	0.96	2.08	0.051
14	The bank is trying to identify the customers' satisfaction with the services provided.	3.44	1.12	1.96	0.002
15	Bank's share in the market is relatively stable.	3.92	0.91	5.05	0.000
16	We try to get new customers in several ways.	4.00	1.15	4.35	0.000
17	We seek to determine the extent of customers' loyalty to the bank.	3.52	1.05	7.24	0.000
18	The bank is able to determine the ability of keeping current customers.	3.68	0.99	3.43	0.000
19	We strive Continually to find out the needs of different customers.	3.60	1.22	2.46	0.000
	Results	3.72	1.24	9.14	0.002

Secondly, the questions related to measure the use of non-financial measures (internal processes measures) are indicated in Table 4. The most important factor in this table was monitoring quality services provided to customers, demonstrated in the statements (22, 23,24,25,28 and 29) which indicates that the Islamic banks are always trying to improve the internal processes by monitoring quality of

services and follow up the services provided procedures which should be explained clearly to assist employees in reaching the best levels of performance. As shown in Table 4, the mean score for all answers was (4.03) and the T-value has a high degree which is significant at the level of (0.05) Consequently, and based on the results shown in the same table it could be deduced that the Jordanian Islamic Banks

Managers use the non-financial measure (internal processes measures) in evaluating performance.

Table 4 Questions related to testing the second hypothesis (internal process) section

NO	Question	Mean	S.D	T-value	Sig
20	There is a periodic review of the efficiency and effectiveness of business performance.	3.68	1.25	2.72	0.000
21	The bank allocates a specific amount for performance development operations.	4.02	0.65	11.69	0.002
22	The bank monitors the quality of services provided to customers.	4.28	0.61	11.31	0.000
23	The complaints on the services provided to the customers are limited.	3.96	0.84	5.71	0.003
24	The services provided are fast and efficient.	4.20	0.64	9.23	0.001
25	There are specific procedures to address any lack in providing services.	4.00	0.76	6.58	0.002
26	The bulletins are prepared for customers on how to deal with the new provided services.	4.08	0.91	5.93	0.001
27	We believe that the organization's internal operations help to achieve the strategic objectives of the bank.	4.20	0.97	6.90	0.000
28	We believe that the services provided to customers are of high quality.	3.92	0.86	5.35	0.000
29	We believe that after-services introduced for customers get customer satisfaction.	4.00	0.91	5.50	0.000
30	There are written instructions on how to perform and deliver services.	4.08	0.81	6.67	0.002
31	Job descriptions for staff are clear and specific.	3.92	0.91	5.05	0.032
	Average	4.03	0.65	8.02	0.000

Thirdly, the researcher has identified the statements related to the use of non-financial measures (learning & growth measure) in Table 5. The most important factor in this table was providing training courses for employees which are closely connected with their needs. As shown in the statements (32, 33 & 35) that indicate that the banks are seeking to develop employees' skills to be able

to cooperate with the work environment. This encourages the employees to join these courses continually. Consequently, based on the results shown in the same table it could be inferred that the Jordanian Islamic Banks Managers use the non-financial measure (learning & growth measure) in evaluating performance

Table 5 Questions related to testing the second hypothesis (learning & growth) section

NO	Question	Mean	S.D	T- value	Sig
32	New employees are given training courses	3.80	0.87	4.60	0.001
33	Advanced courses are given to veteran employees.	4.16	0.90	6.44	0.001
34	A part of the budget is allocated for training and developmental programs.	4.24	0.88	7.04	0.000
35	The courses offered are closely related to the staff needs	4.36	0.70	9.71	0.000
36	Bank supports its staff to obtain professional degrees.	4.00	0.81	6.58	0.001
37	The bank tries to keep his staff.	4.20	0.71	8.45	0.002
38	Promotion opportunities are directly linked to the employees' desire.	4.24	0.72	8.61	0.001
39	The bank support attempts to development and creativity among employees	4.16	0.75	7.73	0.000
40	Bank seeks to implement innovative ideas in the work field.	4.32	0.75	8.80	0.000
41	Bank support development and application of research	3.84	0.85	4.94	0.000
42	Services provided by R&D department are useful.	3.84	0.80	5.25	0.000
	Results	4.13	0.79	8.23	0.000

The results shown in Tables 4, 5, and 6 are related to the second hypothesis and based on these results it could be deduced that the Jordanian Islamic Banks managers consider the non – financial measures in evaluating performance.

THE THIRD HYPOTHESIS

This hypothesis is set to determine the level of applying BSC approach in Jordanian Islamic Banks. The results show that there is no specialized team to develop bank vision and link it with the bank strategy. This is clearly shown in the results of the statement (43). hiring a specialized team or seeking help from a specialized institutes is a top management decision which is directly

affected BSC implementation. Whereas, the vision and mission were established, the strategy didn't take specific steps on how they should be achieved. This is obviously shown in the result of the statement (44). Moreover, the objectives set were not linked to the strategy and the measures for each department don't correspond with the objectives. That is clearly shown in the answers of the statements (45 & 46). The results of table 6 shows that the mean score was (2) with a high T-Value which is not significant at the level of (0.05). Consequently, and based on the results shown in the same table, we can conclude that the Jordanian Islamic Banks don't apply BSC approach in evaluating performance.

Table 6 Questions related to testing the third hypothesis

NO	Question	Mean	S.D	T- value	Sig
43	There is a specialized team to develop vision and the banks strategy .	1.72	0.84	7.61	0.225
44	The strategy shows how to achieve the vision and the mission in specific steps.	1.56	0.65	11.07	0.013
45	A set of objectives are set and developed to be achieved and linked to bank strategy by specific steps.	1.64	0.64	10.62	0.009
46	Appropriate measures for each department are established and are corresponding with the objectives.	1.56	0.51	14.11	0.165
47	A software of performances measures is implemented which supports data collection and analysis .	1.60	0.65	10.77	0.201
48	The departments managers develop goals and budgets related to there departments and evaluate performance	1.48	0.51	14.90	0.002
49	Feedback is received from the implementation of targets and compliance with the strategy established periodically.	1.46	0.59	12.88	0.329
	Results	1.58	0.64	10.01	0.227

THE RESULTS

This study investigated the BSC application in the Jordanian Islamic Banks. The adoption of BSC has been discussed extensively in many researches. The main objective of this study is to determine the extent of applying the BSC approach in Jordanian Islamic banks. Also, it aimed to explore the awareness level of Jordanian Islamic banks managers to the importance of applying BSC. In addition, to find out the extent of using non-financial measures in evaluating performance in Jordanian Islamic banks. The results can be mentioned as follow:

1- The Jordanian Islamic banks managers are aware enough of the importance of applying the BSC. Accordingly, there will be no difficulties in explaining the importance of applying the BSC. Moreover, it will be easier to implement the BSC in the future because it provides an integrative approach to evaluate performance and achieve successful planning.

2- The Jordanian Islamic Banks managers are using non – financial measures (customers, internal process and learning & growth) in evaluating performance. This result reflects the managers’ high concern of keeping the

current customers and gaining new customers as well. Also, concentrating on internal process which might create the value and have a positive effect on customers’ satisfaction. Besides, giving good training for employees, identifying the essential infrastructures which should be built and establishing useful procedures

3- The Jordanian Islamic Banks do not implement the BSC approach in evaluating performance. The reasons for that might be the cost of implementing BSC and the lack of qualified employees, to get over these reasons a feasibility study might be prepared to indicate the BSC application benefits and the costs related and the employees might be given courses related BSC Approach. Moreover, the level of top management involvement directly affect implementing the BSC, so they can sit up new section its main responsibility reviewing the vision, mission and link them with the strategy, that will help in implementing the BSC approach. In addition, linking with specialized institutes will be useful and make it easier to implement the BSC approach. However, further research might be implemented on Jordanian Islamic

Banks is suggested to identify the obstacles of implementing the BSC approach in Jordanian Islamic banks.

THE RECOMMENDATIONS

There are some recommendations based on the results of the study which can be summarized as follows: Due to the strong competition in banking sector, Jordanian Islamic banks have to recognize the importance of BSC approach and adopt it. This may enhance competitiveness of these banks nationally and internationally. Preparing feasibility study is an essential step to implement BSC because of the expected benefits in the near future. The Jordanian Islamic banks allocated money in their annual budget for the training courses. The results show that, these courses match both employees and work needs. It is recommended to start giving training courses related to BSC implementation which will help in direct application. Furthermore, the Jordanian Islamic banks do not have a specialized team whose main duty is to develop the vision and the mission of the banks. Such team helps to link vision and mission with the banks' strategy. It is recommended to communicate with specialized institutes in order to get professional solutions and effective support to implement the BSC. Finally, the results show that the Jordanian Islamic banks managers use non-financial measures due to their importance in evaluating performance. It is recommended to use other measures such as the efficiency of advertising and promotion measure alongside with non – financial measures that are used.

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[09]

AN ANALYSIS OF THE U.A.E. BANKING SECTOR

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ABSTRACT

Over the last decade, Islamic banking has experienced global growth rates of 10-15 percent per annum, and has been moving into an increasing number of conventional financial systems at such a rapid pace that Islamic financial institutions are present today in over 51 countries. The aim of this paper is to study the banking sector of UAE and inspect how ready it is, to be a hub for global finance. The UAE has a fragmented banking sector with Dubai and Abu Dhabi being the major driving forces of the economy. In this paper we try to measure the efficiency of various banks over the period of last six years to analyze the number of efficient and stable banks in UAE. This paper addresses this analysis by measuring efficiency through employing the loan-deposit ratio, ROE, ROA, cost-income ratio and capital-asset ratio. The UAE banking sector has grown drastically and is now gearing up for global competition on an international scale in this decade. This paper distinguishes the major banks as Islamic and Conventional and examines their performance and efficiency both in normal times and also during the financial crisis period of 2008-2009 and after the crisis period using the above mentioned parameters.

Keywords: *Islamic banking, economy, capital-asset ratio, loan-deposit ratio, ROE, ROA*

INTRODUCTION

The United Arab Emirates (U.A.E.) is a federation of seven small emirates namely Abu Dhabi, Dubai, Sharjah, Umm Al Qaiwain, Ras Al Khaimah, Fujairah and Ajman. This country is traditionally an oil and gas exporting nation and it is also one of the main members of the Gulf Cooperation Council (GCC). The country aims to emerge as the financial and service sector leader in the Middle East and be a hub for global Islamic finance. Like most of the developing countries, the banking sector makes up the core of the financial system in UAE and it operates under the rules and regulations of the UAE Central Bank. Under the Federal Law 10, the Central bank of UAE was established and from then on it took over the responsibilities of the Currency Board. The Bank's duties include advising the government on financial issues, issuing currency and maintaining the

gold reserves. With aggregated assets equivalent to 142% of GDP in 2008, the UAE banking sector was considered to be the second largest in GCC countries after Bahrain (Al-Hassan, et al., 2010). By 2010, the total numbers of licensed banks operating in UAE was 52, of which 24 were nationalized banks and 28 were foreign banks. The banking sector in UAE is still characterized by a predominant ownership by government and domestic shareholders. However, it is still the least concentrated among all GCC banking sectors with the three largest banks (Emirates NBD bank, National bank of Abu Dhabi and Abu Dhabi Commercial bank) accounting for only 32% of the total banking assets (Al-Hassan, et al., 2010). The UAE banking sector performed extremely well during the 2003-08 oil boom, but it is also during the boom that the risks started to build up on banks' balance sheets. Flourishing economic activity and abundant

liquidity resulting from higher oil prices promoted excessive credit growth, inflation and asset price increased especially in the real estate sector. During the same time, banks increased their exposure to real estate and construction sector as well as equity markets which led to a build up of vulnerabilities on their balance sheets that took a toll later when the global crisis took place in 2008. The latest global financial crisis of 2008-2009 has clearly brought out sources of vulnerabilities which the financial system and specifically the banking sector of UAE was largely exposed to. The devastating global crisis affected UAE economy through trade and financial channels. The fall in oil prices had a direct impact on government finances. Also, the sharp falls in Dubai and Abu Dhabi securities markets and tightened global liquidity conditions spreads on sovereign debt enlarged the impact of the latest crisis. Moreover, the reversal of capital inflows that entered the country earlier in 2007 and 2008 speculating on a revaluation of Dirham had further intensified the liquidity pressures since banks used a substantial part of these inflows to finance long-term projects creating critical maturity mismatches on their balance sheets. These developments triggered a sharp decline in assets and real estate prices, weakened banks balance sheets and led to a slowdown in economic activity. Ultimately, banks became more reluctant to lend and some were forced to deleverage. To counter those unexpectedly severe shocks brought on by the global crisis, the UAE government and Central Bank took decisive actions that included an expansionary fiscal policy, capital and liquidity injections, interest rate cuts and blanket guarantee of deposits for three years. The measures enacted by the federal government helped moderate the impact of the financial crisis on the banking sector through strengthening their capital bases and injecting emergency liquidity into the system. However, the ratio of nonperforming loans is still at alarmingly high levels. The latest economic crisis of 2008-2009 had clearly shown that there was a strong correlation between

macroeconomic factors and the soundness of UAE banking sector. Thus, in order to maintain a well-functioning and sound banking sector in UAE, it is very important for bankers to effectively study the macroeconomic context surrounding and impacting banks.

LITERATURE REVIEW

In general, efforts to study the performance of UAE banking sector are very little which leaves a huge vacuum for future research on this subject. Other than the work undertaken by IMF's financial sector assessment program on evaluating the stability of UAE banking sector, there is almost no significant work undertaken to investigate the dynamics and vulnerabilities of this crucial sector and its linkages with the entire economy. In fact, the central bank of UAE which is supposed to be in charge of maintaining the stability of the financial system has recently conducted and published a financial stability report that attempts to investigate the strengths and potential risks of this sector. Al Tamimi and Al-Amiri (2003) critically examined two major Islamic banks in UAE (Dubai Islamic Bank and Abu Dhabi Islamic Bank). These two banks dominate the Islamic banking sector at UAE. They compared the service quality of these banks with the well established SERVQUAL standards. The study found that these two major banks have statistically significant perceived service quality. This finding is contrary to the belief that most of the domestic conventional and Islamic banks may have a service quality issue with customers. Most of the studies have indicated the existence of a positive relationship between service quality and profitability. Rao (2002) studied 35 domestic and foreign banks working in UAE for 1998 to 2000 and precisely examined cost efficiency, scale and scope measure and cost productivity growth rate. As a result of his extensive research, Rao concluded that substantial cost inefficiencies and scope economies existed in UAE banks.

M.K. Hassan used two different periods for comparing and put into use accounting ratios divided into profitability, liquidity, risk, and solvency. M.K. Hassan also measured the sample institutions' commitment to the Islamic community and showed that Islamic banks tended to have more liquidity than Western banks, at least in terms of cash deposits. UAE Islamic banks had a cash-deposit ratio of 0.02 compared to 0.01 for Western banks. M. K. Hassan indicated that risk increased in the Islamic banks in the latter phases of their development, yet Islamic banks in UAE were found to be less risky overall than Western banks with performance in serving the community approximately the same as that of the sample of Western banks. Abdullah et al. (2010) found some critical weakness associated with the operational aspects of GCC banks. The concentration risk, fast credit growth and low liquidity levels by international comparison have been pointed out as the three major weaknesses of GCC banks. Samad (2004) examined the different types of banking in Bahrain for a period of 10 years from 1991 to 2001. He carefully examined income statements and balance sheets of these banks using profitability, liquidity and credit risk performance. He finds no major difference with respect to profitability and liquidity but he found that credit risks are much less in Islamic banks than their Western counterparts. This meant that Islamic banks were more cautious while sanctioning loans and thus their superior credit performance. Johnes, Izzeldin, and Pappas measured the efficiency of Islamic versus Western banks through the Arab States within the GCC area. Two tools were used by them mainly to measure the efficiency, the financial ratios analysis, and the DEA. Data were collected for six banks in the GCC area for 2004 to 2007. They concluded that leaders of Islamic banks were less cost efficient but more revenue and profit efficient than Western banks. According to Srairi, Islamic banks usually took on more risk than Western ones because of lack of experience and

unfamiliarity with all the financial tools that could assist them. As a result, Islamic banks required more capital to manage this level of risk.

GLOBALIZATION OF THE UAE

BANKING SECTOR

The United Arab Emirates has joined the World Trade Organisation and the country has a dream to attract global capital and banks to their country. They have already opened up their country's banking sector to foreign banks and global financial institutions. Over the last decade, Islamic banking has experienced global growth rates of 10-15 percent per annum, and has been moving into an increasing number of conventional financial systems at such a rapid pace that Islamic financial institutions are present today in over 51 countries. In UAE, the launch of The Dubai International Financial Centre in 2004 marked the beginning of a new financial hub in the Middle East. DIFC is a financial free zone and it was seen as the first step towards the liberalization of the economy. In 2013, when The Vice President of UAE and ruler of Dubai, H.H. Shaikh Mohammad Bin Rashid Al Maktoum announced that the government had decided to make the city the global capital of Islamic economy, UAE got a new boost. UAE has now created a financial free zone named Dubai International Financial Corporation (DIFC) which does not control or restrict financial institutions. Foreign banks now enjoy full ownership and autonomy with no restrictions on capital repatriation and a zero tax rate. DIFC is seen as the first step towards a complete liberalization of the UAE banking sector. Notable foreign banks including Deutsche Bank, Citigroup, Barclays Bank have entered the UAE market. One of the main objectives was to bring back about two trillion dollars worth of Arab capital from foreign and offshore banking sectors. UAE banks are now represented in all major financial centres of the world. The largest domestic banks operate almost 50 offices in

more than 16 countries. The offices consist of branches, representative offices, banking branches, offshore banking units and subsidiaries.

RESEARCH METHODOLOGY

This is an analytical and cross-sectional study analysing and comparing the micro and macro characteristics of the different banks in UAE. The scope of this study includes 12 banks of UAE, 4 of which are Islamic and the rest are conventional banks. For the purpose of the study, review of 6 year has been made from 2006 to 2012. The choice of number of years has been made on the availability of the data. The six year period has been divided into three parts – before crisis, during crisis and after crisis for analysing stability. The empirical analysis in this paper is based on a panel data comprising a sample of 12 national banks from a total of 51 banks currently operating in the UAE (of which 23 are national banks and 28 foreign banks) based on their robustness and popularity. The analysis covers the period

between 2006 and 2012. The selected time period will help assessing the impact of the global economic crisis and bank-specific characteristics on the soundness of UAE banking sector. The sample selection is bound by availability of data on relevant information on banks especially variables that are used to assess banks soundness (such as capital adequacy ratio, non-performing loans to total gross loans and return on assets). As for the bank-specific characteristics, we make use of data obtained from audit charts of these banks annual financial results such as total assets, deposits, gross loans, interest margin, non-performing loan and bank's exposure to real estate market (the percentage of real estate and construction loans to total bank loans). Also, to measure banks financial soundness, we use the same financial ratio calculations as capital adequacy ratio (total capital as a percentage of risk-weighted assets), the return on equity (ROE) and return on assets (ROA) to measure bank profitability.

ANALYSIS AND DISCUSSION

Graph 1 indicates the period of three years from 2007 till 2009.

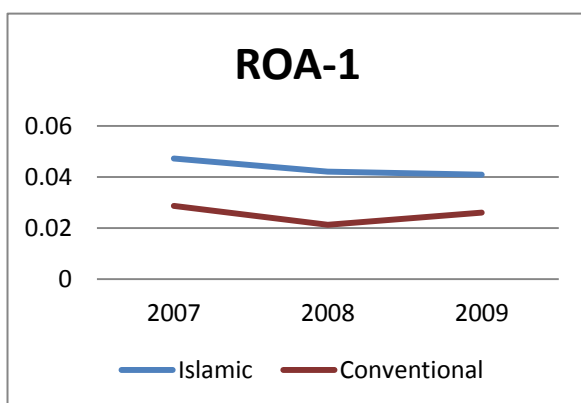
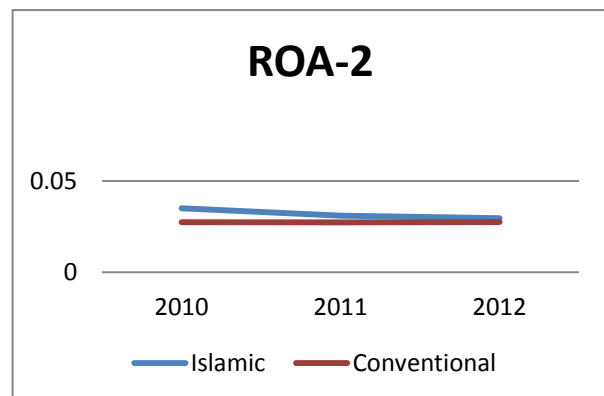


Figure 1. This graph shows the variation of Return on Assets with the red line depicting Conventional Banks and the blue line depicting Islamic Banks.

The return on assets is a measure of how efficient a bank is in utilizing its assets. The ROA which measures overall profitability has

Graph 2 indicates the period of three years from 2010 till 2012.

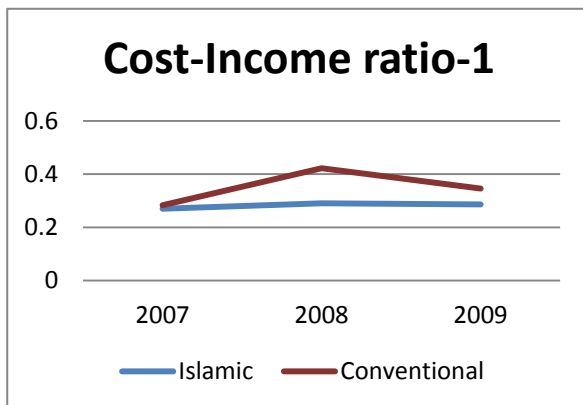


been continuously falling since 2007. Nonetheless Islamic banks have featured better than their conventional counterparts in all the

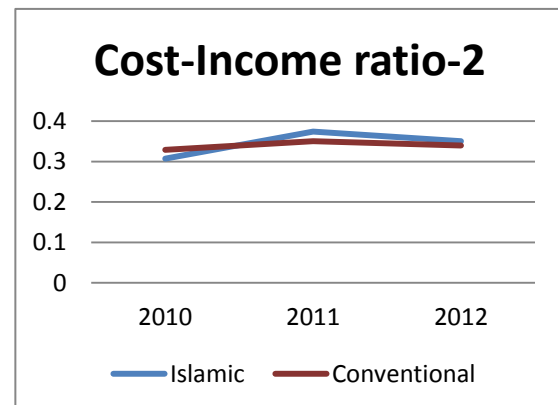
six years. Conventional banks had a steep fall from the year 2007 to 2008 but pulled back to the original mark in 2009 and got stabilized thereafter till 2012. Before the crisis period ROA was at 2.9 percent which went down to approximately 2.1 percent during the crisis period and stabilized at 2.7 percent in the post crisis period. Islamic banks on the other hand fell from 4.7 percent to 4.2 percent during crisis and then further declined to 3.1 percent till 2011 before stabilizing. The difference

noticed here is that conventional bank's reaction to crisis was spontaneous and fell by 27.5 percent within a year whereas Islamic banks fell only by 10.5 percent in the same year. The slower response to crisis helped U.A.E. to pump less money into the banking system and concentrate on other sectors of the economy as well. It also provided time for the country to analyse the causes and strengthen its policies before further economic decline.

Figure 2. This graph shows the variation of Cost-Income ratio with the red line depicting Conventional Banks and the blue line depicting Islamic Banks.



The Cost Income ratio is a key financial measure in valuing banks. It shows banks costs in relation to its income. The ratio gives investors a clear view of how efficiently the bank is being run – the lower it is, the more profitable the bank will be. The Cost Income ratio of conventional banks rose from 28 percent to 42 percent during 2007 to 2008. It then fell to 34 percent in 2009. This sudden change in the ratio highlights potential problems. If the ratio rises from one period to



the next, it means that the costs are rising at a higher rate than income, which suggests that the conventional banks lost significant business during the crisis period and were struggling hard to meet their operating costs with their reduced income. The Cost income ratio of Islamic banks was relatively stable during the crisis at 28 percent which shows that they were in a better position to handle any crisis and hence more reliable.

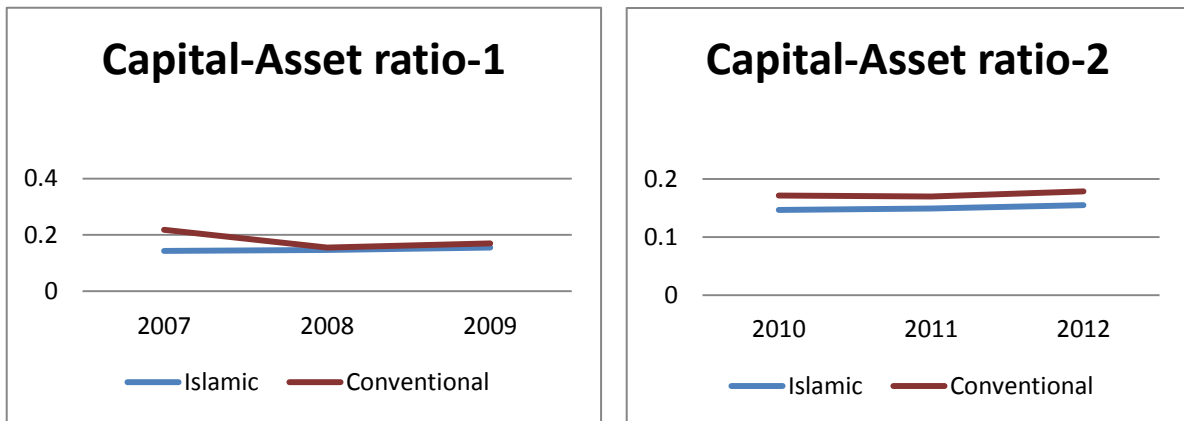


Figure 3. This graph shows the variation of Capital-Asset Ratio with the red line depicting Conventional Banks and the blue line depicting Islamic Banks.

Capital Asset ratio is a measure of bank's capital against its risk-weighted assets. A robust capital position promotes financial stability by providing individual banks and the industry with an adequate buffer against unexpected losses that may arise during time of crisis. The Capital Asset ratio was maintained at 15 percent throughout all the six years for Islamic banks in UAE without any fluctuation even during the financial crisis period whereas for Conventional Banks it was at 22 percent in the year 2007, before crisis period but fell to 15 percent during crisis and maintained at 18 percent post crisis. The

stability in the Capital Asset ratio for Islamic banks shows their high asset quality. The high Capital Asset ratio indicates less money left for investments or expansions and low Capital Asset ratio indicates lesser buffers to handle crisis and hence higher risk thus maintaining an optimum index is important to balance risk with profitability. The Capital Asset ratio of Islamic banks is about 15 percent which is an optimum index as it is much higher than the 8 percent global benchmark of Bank of International Settlements.

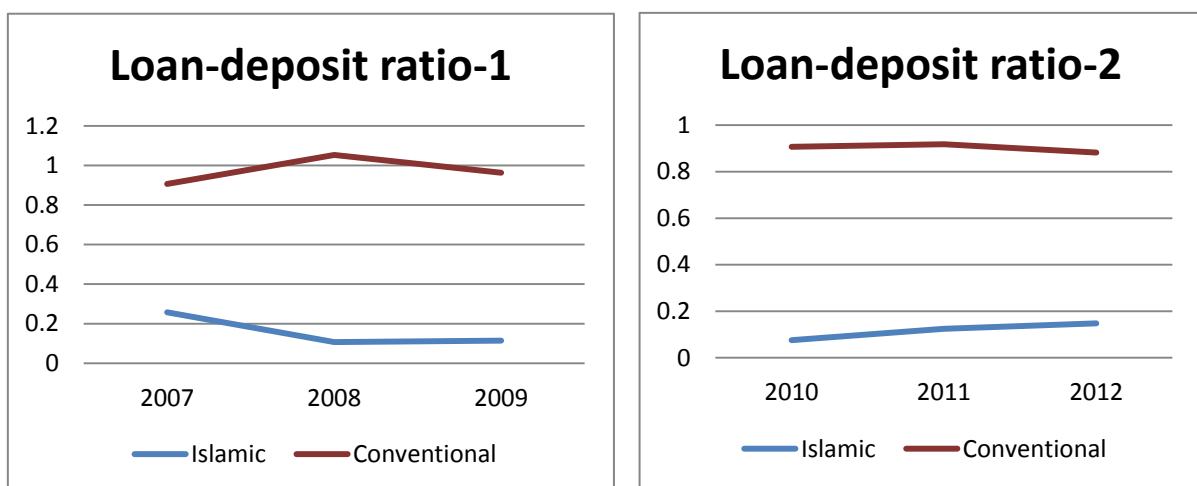


Figure 4. This graph shows the variation of Loan-Deposit Ratio with the red line depicting Conventional Banks and the blue line depicting Islamic Banks.

The Loan Deposit ratio is a statistical measure of banks liquidity. The graph shows that the Islamic banks have a lower LDR as compared

to Conventional banks. LDR for Islamic banks fell from 25 percent to 11 percent during the crisis however it rose to 15 percent after crisis.

LDR for Conventional banks was as high as 96 percent during the crisis period, which later stabilized at 88 percent. The high LDR indicates low liquidity of Conventional banks to cover any unforeseen circumstances due to which they were hit hard during the financial

crisis. Islamic banks on the other hand have a much lower LDR which indicates that they have high liquidity and are at a much safer position to handle any unforeseen crisis however it also indicates that these banks might not be earning as much as they could be.

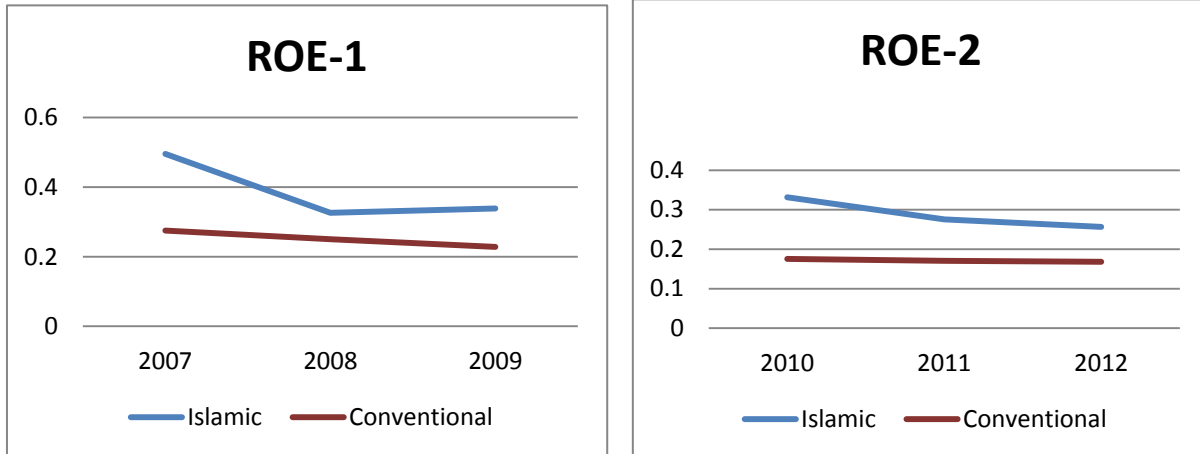


Figure 5. This graph shows the variation of Return on Equity with the red line depicting Conventional Banks and the blue line depicting Islamic Banks.

Return on Equity is one of the most important profitability metrics. It shows how much profit a company earned in comparison to the total amount of shareholder equity found on the balance sheet. ROE is an important performance measurement tool. This is a measure of how well the bank is investing the money invested in it. A high return on equity indicates that the bank is spending wisely and is likely profitable; a low return on equity indicates the opposite. As a result, high returns on equity lead to improved investor confidence. Return on equity is the single most important indicator of publicly-traded banks health. The graph shows that ROE for Islamic banks fell from 0.49 to 0.33 during the crisis and stabilized at 0.25 after crisis. However for Conventional banks ROE fell from 0.27 to 0.23 during the crisis and stabilized at 0.17 after crisis. Overall the ROE of Islamic banks has been higher than Conventional banks which indicates that the Islamic banks are in a better position and will be able to raise money more easily for their growth.

CONCLUSION

The global financial crisis had a significant impact on the UAE's economy. Several financial institutions were affected and their profitability declined and also many companies merged to remain operational. However in the banking sector it was found that Islamic banks performed much better than their Conventional counterparts. They were found to be stable, secure and had higher liquidity. Their decreased profitability during crisis is attributed to slower growth and reduced margins. But the study shows that as an emerging economy UAE has performed much better during the crisis as compared to other countries in the Middle East region due to their diversified economy with revenue from other sector such as tourism, trade, construction etc. and not just relying on oil. Also from the analysis we find that UAE is ready to be the global financial hub for Islamic banking, fulfilling the dream of the Vice President of UAE and ruler of Dubai, H.H. Shaikh Mohammad Bin Rashid Al Maktoum.

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APPENDIX

List of banks studied in the current research.

Abu Dhabi Islamic Bank

Dubai Islamic Bank

Emirates Islamic Bank

Sharjah Islamic Bank

Emirates Investment Bank

National Bank of Umm Al Qaiwain

Union National Bank

Emirates NBD

National bank of Abu Dhabi

Commercial bank of Dubai

First Gulf Bank

Commercial Bank International

[10]

A TRANSLOG ANALYSIS OF INSURANCE

ECONOMIES IN NIGERIA

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ABSTRACT

Recapitalization process that has recently become an imperative process in the Nigerian Financial industry has implications for the survival of insurance sector, especially on their service delivery efficiency. This study therefore seeks to investigate the problem of inefficiency in the Nigerian Insurance market from the perspective of their cost structures. The study takes advantage of secondary data of financial reports of thirty randomly selected insurance firms which span over a period of ten years and applied transcendental logarithm model to evaluate their performance from the cost structures strategy. The results indicate that only large scale firms enjoy cost saving advantages. Twenty percent firms sampled belong to this category. The result suggests that premium income would contribute to insurance firm's performance, only when a sound investment decisions are made.

Key words: *Transcedental Logarithm, Cost Structures, Insurance firms and Efficiency.*

BACKGROUND TO THE STUDY

Insurance companies as a service firm, attract a different class of policies from the economy, pool the premium together to help bear risk whenever the holder of an insurance policy suffers genuine loss. The roles of insurance company as risk taker, saving mobilizer and financial intermediary of sorts affects not only the pace but also the pattern of economic activity particularly in developing countries. The way and manner in which a financial system functions determine to a large extent the capital shortage problems often experienced in the less developed countries (Soyode, 1983). This is because entrepreneurship in the business activity of any economy can be enhanced better when insurance companies help bear losses that are often more severe, where both internal and external business environments are hostile to

the extent, that it stifles rather than encourage business enterprises. Consequent upon restructuring, especially deregulation of interest rates in the finance sectors of the Nigeria economy, most financial institutions have had to operate in an increasingly competitive environment.

Insurance companies, like banks, also operate in a competitive environment where issue of cost has become a critical element of survival. Cost efficiency estimates how production costs of an individual company differs from the production costs of a best-practiced company under the same condition and producing same outputs. Efficiency of production is measured with regards to cost function that is normally constructed from the observation of all companies considered within the sample set. Cost functions are derived from the production function which describes the best available efficient methods of production at any point in

time. Total cost is a multivariable function as it is determined by many factors. Such factors might include the quantities and qualities of factor inputs, the efficiency of the entrepreneur as regards the optimum choice and combination of both technical and economic inputs to produce the maximum output (Kwan, 2001).

STATEMENT OF THE PROBLEMS

Insurance companies engage in the production of various classes of services and hardly have there been any particular service where they have performed optimally, as there are inadequacies in the production cost of insurance services of some companies which in any case affects proper insurance practice (NAICOM, 2004). Insurance companies much like banks are supposed to mobilize funds through pooled premiums in order to be able to indemnify their policy holders who might have suffered genuine losses. The other crucial financial intermediation role is when insurance companies reinvest pooled premiums into investment in reinsurance or other sectors of the economy. The inability of many insurance firms arising from poor performance to indemnify their suffered clients has also discouraged prompt payment of premiums on the part of existing clients and lack of interests for insurance policies on the new and would-be clients (Chukwulozie, 2007). The implication of this problem is that premium mobilization which is the backbone of an insurance business has suffered a great deal. This problem is coupled with high cost of operation arising from large number of branches, overhead cost among other costs (Bouno and Eakin, 1990). High cost of producing insurance services and low premium rates have both tampered with operational efficiency and business performances of Nigerian insurance sector, as many of them find it difficult to take high risk businesses in the economy. The public attitude towards insurance policy and other services in Nigeria is generally not encouraging. The aggregate view centers on the observed

inadequacy in the payment of compensation indemnity to the holders when they have suffered losses.

JUSTIFICATION FOR THE STUDY

The general disenchantment and disregard for insurance services among insuring public in Nigeria, arising from inefficient firms requires a closer examination and proactive measures in order to ensure the continued usefulness of the industry as conduit for economic stabilization which this study intends to examine.

The ability of the government to implement consistent policy that will lead to realization of net economic benefits could only be assisted by empirical studies of this nature. This study attempts to predict the quantitative effects of cost, scale and scope on performance that may possibly arise from structural and behavioural changes induced by the regulatory agency. In a situation where the empirical evidence reported for the banks production characteristics is to be taken for cost estimation in the finance industry as a whole, proper attention will have to be directed at devising relevant concepts in the factor input cost analysis for the insurance industry, as it has not attracted much attention in Nigeria. Afolabi and Osota (2001) has made use of translog model to analyze production characteristics in the banking industry. This effort is therefore an attempt to employ the translog models to evaluate performances in the Nigerian Insurance sector.

To the insurance business, it enables it to carry out comparative analysis of performance among competitors, operating within the same market environment, especially as firms use differently entrepreneurial efforts as a key for marketing insurance policies. This evaluation could be done in terms of aggregate results and in terms of the major indices of performance evaluation. It helps insurance business in planning both the technical and economic allocation of resources as a basis for

required adjustment over immediate and future periods.

OBJECTIVES OF THE STUDY

The broad objective of this study is to examine cost efficiency of the insurance industry in Nigeria.

The specific objectives are to:

- I. Examine cost efficiency characteristics across various sizes of insurance companies vis-à-vis large, medium and small sizes.
- II. Investigate optimal production scale in the Nigeria Insurance Industry

LITERATURE REVIEW

In order to make an assessment of the effects that cost structures are likely to have on efficiency, there is a need to define a framework over which costs can be analyzed. Economists generally assume that firm minimizes the cost of producing every level of output, based on the prices paid for factors of production and the technology available to the firm, (Bitzan, 2000). Although Cobb-Douglas production function has been widely used for many empirical studies, especially as it is well behaved in terms of monotonicity and convexity. This function has been tactically criticized on two grounds. The first criticism borders on the assumptions of additivity and homogeneity, suggesting that factor shares are constant. The second criticism has to do with the elasticity of substitution and the cross-partial elasticity of substitution being limited to unity. In a bid to find a leeway and create flexibility so as to take care of the difficult restrictions imposed by the Cobb-Douglas production function; (Christensen, Jorgenson and Lau 1975) came up with an alternative representation of the production possibility frontier, called transcendental logarithms, (Translog function).

Rosko, Proenea and Zinn (2002), examined the relationship between membership in different types of systems and hospital cost inefficiency. They made use of stochastic frontier analysis to measure hospital efficiency vis-à-vis different systems. The study reported that a decreased inefficiency was associated with centralized and decentralized systems whereas an independent system was associated with increased inefficiency. One particular issue of interest was the fact that cost structure, employing capital was used to determine operational efficiency in a hospital system. In the contention of these researchers, there was an argument to suggest that a system may be in position to achieve greater efficiency because of multi product nature of services being provided in the hospital which allows the employment of a more richly specialized group of personnel in big organization than in a small one (Conrad and Shortfell, 1996); (Carey, 2003) and (Bazzoli, Shortfell and Baunno, 2000). This is in line also with the views of (Ermman and Gabel 1985) on the cost saving advantage of marketing and business advertisement cost of large organizations. The difference in system characteristics is important as different system stands to have different impact on business performance. This position however was a clear contrast from the work of Becker and Sloan (1985), which reported less than significant result ($p < 0.05$) on the study that related systems to performance.

Almost similar to the above studies on hospital efficiency, Evans (1999) examined the significance of quality in the specification of hospital cost function, scale economies effect on hospital cost efficiency and reported that cost increases with the desires for quality. Like many previous studies on hospital efficiency and much like Evans, Bays (1980) work addressed the need to introduce physician variable in order to measure size. Bays in his work estimated two regressions on cost functions: one with physician service as one of the inputs and another without physician

service as one of the inputs. Bays findings however suggested a decrease in average cost for a medium sized hospital but that average cost will start to increase as the size of the hospital becomes larger. Not only this, although there was a difficulty in obtaining physician input data, Bays work concluded that managing physician inputs might become unmanageable as the size of the hospital grows larger. Because insurance firm is also a multiproduct in production of services, much like hospital, similar approach can be used to study it.

In addition to the conventional inputs such as capital, labour and intermediate input, the financial intermediation activity of insurance carriers use an extra input, premium reserve which needs to be accounted for in the production function. The output of this activity, measured by the investment is derived in a large part from the premium reserve. These are in effect lent to the company by policyholders and for which they do not receive any explicit interest revenue (Harchaous 2005). To achieve earlier stated objectives therefore, this study, therefore adopts the unrestricted, functional translog form which has been typically used for several studies on production.

RESEARCH METHODOLOGY:

Sources of Data for the Study

The insurance financial data were obtained from Annual Reports and Accounts of each of the sampled Nigeria insurance companies. The Annual Reports and Accounts of each of the insurance company comprises sufficient data that measure all the variables of the cost, economies of scale and economies of scope that are necessary for this study.

The specific data for this study were assembled from the followings:

- I. Returns of Assets and liabilities
- II. Returns of current year's profit and loss account

- III. Annual analysis of policy and provisions for indemnities.

The above data and information sourced from insurance companies; regulatory authority and the Central Bank yearly bulletin are adjudged, in the literature, to be sufficient enough to elicit necessary data and information needed to estimate the production in the financial industry variables (Afolabi and Osota,2001).

SAMPLE SIZE

NAICOM (2003), reported that apart from about thirty (30) insurance companies whose operations were partial, insurance companies in Nigeria could be segmented into three major sizes; twenty (20) belong to large size firms, twenty nine (29) to the medium size firms, while forty-six (46) belongs to the small size category. This study therefore randomly selected one-third of each of this categories such that six (6) was chosen for the large size firms, nine (9) for the medium size and fifteen (15) for the small size firm

ANALYTICAL TECHNIQUES

The cost and production functions can be specified by estimating a stochastic cost frontier (Leigh, 2001). It allows modeling of a multi-input, multi-output production process. For translog flexible functional form, Young's theorem requires that the second order parameters of the cost function must be symmetric.

Translog cost function is a logarithmic regression model a seemingly unrelated system of equations that is effective to determine coefficients. Many of the standard regression techniques were used to determine the fit of the model. F-tests and t-tests were used to determine the significance of the model and coefficients. The r-squared value will describe how well the model explains the true cost function. Also Durbin Watson statistic was used to explain if the model has a problem with serial correlation. These tests and values verified the effectiveness of the model and the model's ability to explain cost

structure in the insurance industry. This study therefore attempts to study Nigerian insurance firms using stochastic cost frontier analysis of a translog model.

MODEL SPECIFICATION:

Translog is a local, second-order approximation to an arbitrary cost function. It places no *a priori* restriction on the elasticities of substitution and allows the economies of

scale estimate to vary with the output level. For the approximation of the underlying cost function to be made at local point, this study normalize all independent variables at their median point.

The translog function could be specified as follows:

$$\begin{aligned} \ln C = & a_0 + \sum \alpha_r C_n \ln \gamma_r + \frac{1}{2} \sum j \sum i \alpha_{ri} \ln \gamma_r \ln \gamma_i + \ln W + \frac{1}{2} \sum i \beta_i \ln W_i \ln W_j + \delta_z \ln Z \\ & + \frac{1}{2} \sum \sum \delta_z \ln Z_i \ln Z_j + \delta_{ms} \ln Ms + \frac{1}{2} \sum \sum \delta_{ms} \ln Msi \ln Msj + \sum i \sum r \delta_{ri} \ln \gamma_r \ln W_i \\ & + \sum r \sum i \delta_{ri} \ln \gamma_r \ln Z_i + \sum r \sum ms \delta_{rms} \ln \gamma_r \ln Ms + \sum j \sum ir \delta_{iz} \ln W_i \ln Z_{iz} \\ & + \sum i \sum ms \delta_{ims} \ln W_i \ln M_s + \sum \sum \delta_{zms} \ln Z \ln Ms + \psi C_n + \sum n \end{aligned}$$

Where \ln – logarithm; C – Total cost, Output are indexed by = total indemnities (CL) and Investment (I) and inputs are indexed by W, j = capital input price (Kp), Labour Input price (Lp) and Entrepreneurial price (Ep). The following parameters α, β, δ and ψ are expected to be estimated. The subscript depicts coefficient of the variable to be estimated δMs for instance, is the coefficient estimated for Market share variable and δ_z is the coefficient estimated for the size variable. Where there are two letters in the subscript, it implies measurement of cross-product relationship such as δ_{zms} is the coefficient of the cross product of size and the market share. In which case, the cross elasticities are easier to compute from Translog regression results. For instance, the cost elasticity of output can be represented as $\sum_{cn} \delta \ln / \delta \ln Y_r$ (Greene, 1993) (Evans, 1999).

EMPIRICAL RESULTS ANALYSIS:

The quadratic terms generated which are specified with the cross products and squares allows for elasticity of factor substitution to be unrestricted (Green, 1993). The basic translog

model works well or even better than Cobb-Douglas in terms of describing Nigerian Insurance cost function in a manner that produce the cost structures in the Nigerian Insurance Industry (Usman, 2007). To confirm this, insurance firm is conceived to maximize profit and increase efficiency by selecting an optimal mix of production technologies such as capital, labour, entrepreneurial skills, premium income and market share that minimizes production cost of indemnity and investment services. The result of this study has shown that output/input price combination in this study is capable of reducing costs by 0.2%. So also the interaction between firms' size and market share is capable of reducing total cost by approximately 0.3%. However, a 1 percent increase in the output will on the average increase the total cost by 0.13 percent.

The cost elasticities under translog estimation, total output, premium income, have positive results of 0.134232 and 0.253644 respectively which denotes that holding other factors constant, a 1 percent increase in the total output leads on the average to about 0.1 increases in the total cost and 0.3 increases in the total cost for premium income. However, both factor input price and market share have negative signs meaning that

a 1 percent increase in the use of these inputs reduces total cost of production of insurance services by 0.1 percent for market share and 0.5 percent for factor input prices. By this result, market share reduces total cost in both models. The square input prices contribute to total cost by 0.3 percent. Looking at Table A which reports Translog model result for the entire sample, it can be noted that variables such as output, square of output, square of input prices and firm size all have positive signs except for market share and square of market share which have negative signs. While the former (variables with positive signs) have a strong corollary in the Varian conditions for cost estimation, the latter (variables with negative signs) have failed to meet up with our *a priori* expectations in this study. The own price elasticity is even inelastic. By this result, a 1 percent increase in the market share on the

average reduces total cost of operating an insurance branch in Nigeria by 11 percent. Interactions between output/firm size and output market share are all cross substitutes but the figures are very small when compared with the theoretical limit of infinity for perfect substitution. On the other hand, the cross interaction between output and input prices; input prices and firm size; firm size and market share are all complements. If the price of the substitutable product increases, then there is a proportionally higher fall in the quantity demanded as consumers shift to the nearer available substitutes. The same result is reported for input price and firm size and firm size and market share. The adjusted R^2 is indicative of the magnitude of usefulness of the explanatory variables to explain changes in total cost variable

Table A: Translog function result for the entire firms

DEPENDENT VARIABLE	VARIABLE	PARAMETER	CO-EFFICIENT	t-STATISTICS
Total Cost TC	Constant	C(1)	10.73992 (5.368676)	2.000478**
	Output	LN _Y	0.134232 (0.066783)	2.009974**
	Square Output	5*(LN _Y) ²	0.209768 (0.028690)	7.311585**
	Input price	LN _W	-0.464710 (0.522953)	-0.888627
	Square of Input price	5*(LN _W) ²	0.267907 (0.037819)	7.083971**
	Firm size	LN _Z	0.253644 (0.317417)	0.799088

	Square of Firm size	$5*(LNZ)^2$	-0.007736 (0.0119288)	-0.401072
	Market share	LNМ	-1.110858 (2.187336)	-0.507859
	Square of market share	$5*(LNМ)^2$	-0.560056 (0.470132)	-1.191275
	Cross elasticities of output and input prices	LNУ*LNW	-0.240280 (0.021215)	-11.3617**
	Cross elasticities of output and firm size	LNУ*LNZ	0.040801 (0.009804)	4.161795**
	Cross elasticities of output and market share	LNУ*LNМ	0.215863 (0.090790)	2.377594**
	Cross elasticities of input price and firm size	LNW*LNZ	-0.016105 (0.011901)	-1.353178
	Cross elasticities of input price and market share	LNW*LNМ	0.267354 (0.091880)	2.909827**
	Cross firm size and market share	LNZ*LNМ	-0.286334 (0.075687)	-3.783116**
	Pre and post consolidation	CN	-2.455003 (1.119750)	-0.192456
	R- square	R²	0.817914	
	Adjusted R-square		0.807910	
	Durbin-Watson		0.682227	

** and * significant at 1%, 5% and 10% respectively

Factor input prices has statistically negative relationship with medium and small firms. A one percent increase in the cost of factor inputs reduces total cost for medium firm by 7.06 percent and small firm by 3.58 percent.

Market share reduces total cost by 22.38% for large firm, by 9.60% for medium firm and by 10.5% for small firms. In Table B below, firm size measured by the premium income does not have significant contribution to total cost.

However, interactions between output and input prices are negative and significant only for small size firms but positive for medium size firms. Interaction between output and firm sizes is positive for all categories and significant only for medium and small size firms. While the interaction between output and market share shows a negative relationship with total cost and significant only for the medium size firms. Input prices/firms size is not significant for all categories. Input prices and market share is positively significant only for medium size firm. Firms size/market share is significant for small category of firms. Result of R² coefficient of determination obtained for large firms is significant at 96% confidence level whereas the R² determination for medium firms is 97% and 85% for small firms. These results have shown that explanatory variables employed in

this model have been able to account for changes in total cost of providing insurance services in Nigeria at very high percentage. Similar result has been obtained for the adjusted R².

Durbin Watson result has indicated a minimum serial correlation among variables employed in this analysis. However, it is pertinent to note here that out of the three categories of insurance firms in this work, the result obtained for medium is best behaved both in terms of economic and statistical criteria of the analysis. Cost efficiency gains have been indicated for medium size firms especially in factor combination of output and market share. This result suggests that insurance companies could save costs by 1.9% if their business expansion strategies could be pursued side by side with opening of more branches.

TABLE B: Translog Model results for Large, Medium and Small Firms

Dependent Variable	Independent Variable	Parameter	Large firm		Medium firm				Small firm
			Co-Efficient	T-Statistics	Co-Efficient.	T-statistics	Prob.	Coefficient	T-statistics
Total Cost Tc	Constant	C(1)	428.7688 (266.1137)	1.611216*	137.6461 (54.74269)	2.514419**	0.0139	-124.2944 (35.71281)	-3.480388**
	Output	LNY	-10.17656 (9.302529)	-1.093956	5.227706 (1.629782)	3.207611**	0.0019	3.8424471 (1.788550)	2.148373**
	Squared Output	5*(LNY) ²	0.634473 (0.528838)	-1.199749	0.095776 (0.048969)	1.955858**	0.0538	-0.205672 (0.064852)	-3.171380**
	Input price	LNN	3.462090 (5.825450)	0.594304	-7.065864 (1.349885)	-5.234421**	0.0000	-3.587788 (1.556265)	-2.305384**
	Squared of Input price	5*(LNN) ²	-0.097096 (0.465272)	-0.208685	0.148045 (0.053879)	2.747718**	0.0074	0.323499 (0.063804)	0.507218

)))	
	Firm size	LNZ	1.077517 (8.976571)	0.120037	1.290537 (1.195277)	1.079697	0.2834	3.346507 (1.557607)	2.148492**
	Squared of Firm size	$5*(LNZ)^2$	-236.3053 (138.4283)	-0.894571	-0.076865 (0.030834)	-2.492844**	0.0147	-0.087400 (0.041848)	-2.088494**
	Market share	LNM	-223.8151 (138.4283)	-1.616831*	-96.08422 (42.44795)	-2.263577**	0.0262	10.56499 (22.27637)	4.742691**
	Squared of premium income	$5*(LNM)^2$	49.11057 (33.51489)	1.465336	33..37694 (16.83590)	1.982486**	0.0507	-48.70695 (7.442249)	-6.544654**
	Cross elasticities of output and input prices	LNy*LNW	0.481371 (0.519404)	0.926777	0.136315 (0.051797)	-2.631712**	0.0101	-0.103506 (0.027849)	-3.716735**
	Cross elasticities of output and firm size	LNy*LNZ	0.346052 (0.423929)	0.816297	137.6461 (54.74269)	1.726276*	0.0880	0.072997 (0.024858)	2.936551**
	Cross elasticities of output and market share	LNy*LNM	2.601419 (3.191857)	0.015017	-1.940962 (0.645027)	-3.009118**	0.0035	0.291463 (0.741091)	0.393289
	Cross elasticities of input price and firm size	LNW*LNZ	-0.418519 (0.281254)	-1.488012	0.009050 (0.018212)	0.496890	0.6206	0.019120 (0.019827)	-0.964328
	Cross elasticities of input price and market share	LNW*LNM	-0.944089 (1.875659)	-0.503337	2.940124 (0.536907)	2.940124**	0.0000	0.560146 (0.586245)	0.955481
	Firm size and market share	LNZ*LNM	1.799462 (2.602822)	0.691350	-0.468867 (0.500211)	0.937338	0.3513	-1.466101 (0.533556)	-2.747791**
	Pre and post consolidation	CN	0.105347 (0.413979)	0.254475	-0.299697 (0.148422)	-2.019217	0.0469	-0.273399 (0.320729)	-0.852429
	R- square	R²	0.964032		0.973936			0.857331	

	Adjusted R-square		0.947683		0.969226			0.839933	
	Durbin-Watson		-51.77957		1.404951			0.840977	

** and * significant at 1%, 5% and 10% respectively

Output elasticity with respect to total cost is positive and implies that a 1% increase in the production of total output (indemnity and investment) *ceteris paribus*, will on the average increase the total cost by approximately 0.4%. This result indicates the presence of operational functions derived from managing multiple outputs. The cost elasticity of investment is highly significant and it is almost perfectly elastic. However cost elasticity of indemnity is inelastic but significant. The implication of this result is that investment product has a very high significant relationship with total cost of producing insurance services in Nigeria.

However, the outcome of this result follows Caves (1984); Filippini and Luchsinga (2005) which reported economies of scale as a proportional increase in total cost brought about by a proportional increase in output holding all other factors constant. Both cost elasticity of total output and cost elasticity of indemnity indicates increasing return to scale whereas cost elasticity of investment indicates constant return to scale. Increasing returns to scale is when a larger quantity of the firms' output is produced at a lower average cost than are smaller quantity of the output. The implication of this result is that insurance firms in Nigeria enjoy economies of scale in the production of the output and more importantly in the provision of indemnity product.

Table C: Calculation of elasticities and scale economies (SCE) from Translog regressions

Elasticities	Elasticities Value	SCE
Cost Elasticity of output	0.36	$1 - 0.36 = 0.64$
Cost Elasticity of Investment	0.99	$1 - 0.99 = 0.01$
Cost Elasticity of Indemnity	- 0.83	$1 + 0.83 = 1.83$

Further, firms in the large category performed best in terms of efficiency and results generated from Translog indicates that well over 90 percent changes in the cost have been explained by the specified explanatory variables.

The translog model results for the three categories have similar and dissimilar results. For instance in table B, in the case of large firm, the coefficient result is -10.1766 which implies own-price inelastic and that holding all other factors constant, a 1 percent increase in

the total output, would on the average reduces the total cost by 10 percent which is cost efficiency gains. Similar result was reported by (Wuyts and Cayseele, 2004) on cost efficiency in the European security settlement and safekeeping industry. Although, this result must be interpreted with caution as it does not conform to Varian Cost conditions (which expects cost function to be linearly homogenous, increase in output and price but concave in all input prices). But in another case, the economies of scale suggest a cost saving advantage as the production goes into large scale. It can on the strength of this result posit that there exist economies of scale for

large scale insurance firms in Nigeria. The R^2 is significant at 96 percent confidence level, implying that the explanatory variables used in this model are almost perfect. When viewed, the result with medium and small scale, which reported 5.223 and 3.8425 respectively, one can simply conclude and in line with economic theory that economies of scale could only be enjoyed by large scale producing firm. Also in the medium and small firms both the input prices and market share own prices elasticities are inelastic. However, in all the three categories, the results have shown, *ceterisparibus*, that market share reduces total cost. This might be true as more branches create opportunity for more businesses and capacity to mobilize larger premium income which on the long run reduces cost of operation.

CONCLUSION:

The strict analysis of cost structures in Nigerian insurance industry suggest that factor input prices contributed mostly to total cost. Over the period of study it is evident that Nigerian Insurance sector was characterized by increasing returns to scale, hence insurance market stands to reduce cost of production when it is well recapitalized.

Based on the results of the estimated model, it could be reported that most Nigerian insurance firms operations are still cost inefficient. Of all the three categories, the coefficients results obtained for large firm in the model reported high significances. The implication of this is that economies of scale is achievable by larger insurance firms, hence performance can be enhanced through cost minimization advantages associative of large scale business. It is also pertinent to conclude that there is a need to retain the best suitable experts/personnel in insurance industry through attractive remuneration packages that is comparable with bank workers, since both operate in the same finance industry. This issue becomes more pertinent in the light of universal banking system which tries to create

a level playing ground for all financial products in the financial supermarkets.

The study also concluded that mobilization of premium income is not enough to enhance insurance performance what is much more important is the ability to reinvest pooled premium income into high yielding investments, such that the rate of returns obtainable supersedes the level of risks associative of such mobilized premium income. This firm size represented by premium income would contribute to firm's performance only when a sound and suitable investment decision are made.

The result also implied that optimal production scale from production of insurance services in Nigeria is attainable when they grow into larger scale firm. As it is presently constituted, more than 80 percent of Nigerian insurance firms are either in medium or small scale

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BANK COMPETITION ENHANCES EFFICIENCY. ARE THERE ANY EXCEPTIONS? - A CRITICAL REVIEW OF RECENT THEORETICAL AND EMPIRICAL FINDINGS.

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ABSTRACT

Much of the recent debate seems to assume that perfect competition in the banking sector is ideal. The common wisdom would hold that restraining competitive forces should unequivocally produce welfare losses. Substantial convergence of recent research interest witnesses an opening debate which challenges the traditional theories highlighting the positive role of bank competition. The role of information in credit markets, concern on stability in the financial markets, less common but multiple effects of bank competition on economies and dynamics in economic environments of countries are some of the exceptions to competition-efficiency wisdom. The main conclusion that seems to emerge from the review of the current literature is that the market structure of the banking industry and the related conduct of banking firms affect the economy in a much more complicated way than through the simple association explained in conventional theories. Further, whether bank competition enhances efficiency or not might vary for markets of different sizes and across different institutional environments and ownership structures of the banking systems.

Key words: *Bank competition, traditional theories, enhance efficiency, financial stability*

INTRODUCTION

Bank competition is a key indication of the financial sector development of a country. Competition in the financial sector also matters for a number of reasons. As in other industries, the degree of competition in the banking sector can matter for the efficiency of the production of financial services, the quality of financial products and the degree of innovation in the sector (Claessens & Laeven, 2003). Traditional Industrial Organization models such as Klein (1971), predict that restraining competitive forces should unequivocally produce welfare losses. Therefore increased competition in the financial sector can matter for the access of firms and households to financial services and external financing, in turn affecting overall economic growth.

Competition is good for many sectors, as it increases efficiency, lowers prices, and enhances choice and innovation. However, one cannot have too much of competition. Because, according to the economic theory competition is a dynamic process where number of players need to be at the equilibrium to attain efficiency and required levels of return on the investment. Therefore, though competition is generally good, there is a trade-off between competition and financial market stability when it comes to banking. This is because of the unique features of banking such as increasing returns to scale, asymmetric information, liquidity, and complexity etc. These reasons have led recent empirical findings to reveal contradictory conclusions. Hence, issues such as in what ways the emerging competition affect the

economy and does competition necessarily enhance efficiency need to be addressed empirically. The current financial and economic crisis has highlighted the crucial of such analyses and help further reforms in economies together with new insights of investigations. The objective of this paper is to review some of the arguments that have recently emerged against this wisdom and to suggest some new lines of investigation. Therefore the methodology adopted in this study is critical analysis of the empirical literature.

EFFICIENCY IN BANK COMPETITION

Much of the recent debate seems to assume that perfect competition in the banking sector is ideal. As in other industries, competition in banking system is also needed for efficiency and maximization of social welfare. Banks as a service industry contribute to economic development by providing financial mean need to other industries to produce goods and services. Competition in general is desirable for maximization of social welfare and existence of Pareto efficiency. In other words, in a competitive market setting, there is allocative and productive efficiency as well as dynamic efficiency. The validity of this perception will be examined in the following section as a review of the theoretical and empirical literature on the effects of bank competition on each of these efficiency concepts.

As financial intermediaries bank maximize allocative efficiency with both the quantity of credit supply as well as their efficient allocation. Traditional Industrial Organization theory depicts that a competitive industry is characterized by a large number of small banks and the potential benefits are similar to those of competition in other industries. Subsequent empirical studies after Klein (1971) confirm the positive effect of bank competition (Guzman 2000, Beck et al, 2003, Demetriades et al, 2008). Guzman (2000) compares two identical economies, one with a monopolistic bank and the other with a

competitive banking sector, shows that a banking monopoly is more likely to result in credit rationing than a competitive banking market and leads to a lower capital accumulation rate. In particular, Beck et al (2003) document that credit rationing occurs more often in concentrated banking systems.

In terms of productive efficiency (cost efficiency) in bank competition, traditional industrial organization approach posits that productive efficiency is obtained in perfect competition since outputs are produced at minimum cost. This will happen only if there are no economies of scale in banking sector. Hannan (1991) argues that borrowers in markets with higher concentration ratios pay higher interest rates for loans. Moreover, borrowers may also experience more difficulty obtaining access to credit. Loan and deposit rates in a banking market are studied by Besanko and Thakor (1992) and found that loan rates decrease and deposit rates increase as more banks are added to the market.

Dynamic efficiency refers to efficiency over time. It is therefore necessary for firms to constantly introduce new technology, processors and products and reduce costs over time to be dynamically efficient. According to the competition literature it is assumed that producers constantly innovate and develop new products in perfect competitive markets. This is the result of the rivalry between firms to increase market shares. Thus, competition may have the desirable effect of stimulating technological research and development. The competition in the market forces the producers to innovate constantly to produce higher quality products and decrease costs to maintain or increase their market shares and make more profits. With regard to this Cetorelli and Gambera (2001) use industry-level data for 41 countries and find that while bank concentration imposes a deadweight loss on the overall economy.

All these finding show that competitiveness in the banking sector enhances social welfare

through improved allocative, productive and dynamic efficiency. To sum-up the efficiency argument on bank competition, it says that competition in the banking sector maximizes the social welfare by ensuring that markets are competitive and allocative and productive efficiencies as well as dynamic efficiency are achieved. In other words, competition policy aims to create and maintain an efficient market structure.

**DOES BANK COMPETITION
NECESSARILY ENHANCE
EFFICIENCY?**

For many sectors competition is good, as it increases efficiency, lowers prices, and enhances choice and innovation. However, one cannot have too much of competition. Because, according to the economic theory competition is a dynamic process and hence all the players need to be at the equilibrium to gain efficiency and required levels of return on the investment. Though competition is generally good, there is a trade-off between competition and financial market stability when it comes to banking. The current section discusses on the matter why competition in the banking sector not necessarily enhancing efficiency, following with established theoretical and empirical literature.

**When information asymmetries exist
between the bank and the
borrowers.....**

The conventional theories supports competition in the banking sector enhances allocative, productive and dynamic efficiencies. First, allocative efficiency of bank competition is reached depend on the extent to which the supply of credit is provided to the most productive projects first. Banks engage in both transactional and relationship lending. The banks with more market power willing to engage in relationship lending. As Petersen and Rajan (1995) explain relationship lending is more advantageous to younger firms who have little credit history or collateral. Thus the

monopoly bank has a pool of risky borrowers. However in a competitive banking environment they can charge a higher interest rate from these borrowers. But this attracts a riskier pool of applicants (adverse selection) and borrowers have an incentive to take on riskier projects (moral hazard). In addition, in a new strand of literature called “information sharing” says that information sharing weakens the positive link between bank concentration and firm`s financing constraints. Pagano and Jappelli (1993) show that information sharing mechanisms reduce adverse selection by improving the pool of borrowers, the knowledge of applicants` characteristics and therefore improve bank efficiency in the allocation of credit. Therefore, as the number of banks decreases, that is when the banking industry is less competitive there is a trade-off between the quantity of credit offered and the quality of borrowers. Therefore studies based on asymmetric information say that there is a tradeoff between the degree of competition and the efficiency of capital allocation. Recent studies based on information asymmetries also argue that the operational efficiency of bank competition depends on the degree of information asymmetries exists between the bank and borrowers. For example, Petersen and Rajan (1995) suggest that for financially distressed firms it is cheaper and easier to borrow from banks in a less competitive credit market. Because in a less competitive market banks can break even intertemporally, so they are able to charge lower rates up-front, anticipating higher returns in the future when information asymmetry dissolves. However, market competition forces banks to break even in every period and, as a result, relationship banking becomes less feasible, leading to high interest rates and limited access to credit for financially distressed (young and low quality) firms (Bonfim and Dai, 2009). More recently, Marquez (2002) presents a model in which greater bank competition leads to more dispersion of information about borrowers and

higher equilibrium lending interest rates. Thus bank competition produce cost or productive efficiency would determine by the intensity of information asymmetries exist between the banks and the borrowers.

Most of the arguments favor to bank competition has been criticized in the asymmetric information literature as the information problem is less satisfactorily addressed in the industrial organization based theories. Leland and Pyle (1977) and Stiglitz and Weiss (1981) argue in their papers that banks are exposed to problems of information asymmetry (adverse selection and moral hazard), which can prevent the efficient allocation of credit. Therefore this group theories argue that when the allocative and operating efficiencies are depend on the information asymmetry between borrowers and the bank, then the banks are more exposed to risk under the competition. Therefore, according to the asymmetric information based theories there is a question about the dynamic efficiency and overall the welfare improvement in a competitive banking market.

Competition and financial sector stability

The controversial question in the efficiency stability debate is whether financial stability enhanced or weakened by bank competition. Banks are potentially more vulnerable to instability. Also instability in the banking system can have more debilitating effects than instability in other industries. Under competition fragility view competition is considered as undesirable as far as stability in the banking sector is concerned. This view states that as banking system becomes more competitive and less concentrated, it becomes more fragile and less stable. Increased competition would erode the quasi-monopoly rents granted by their government and the value of the charters, which would likely lead to greater bank risk-taking and greater financial instability (Jimenez *et al*, 2007). Accordingly more bank competition erodes

market power, decreases profit margins, and results in reduced franchise value. As a result the bank is encouraged to take on more risk to increase returns (Marcus 1984, Keeley 1990). The dominant view here is that franchise value plays a key role in limiting the riskiness of individual banks and hence of banking systems more broadly. They limit or reduce their risk-taking and become relatively conservative in order to protect their franchise values. Thus, these banks tend to behave more prudently by holding more equity capital or less risky portfolios which in turn contribute to the stability of the whole banking system (Keeley, 1990, Jemenez *et al*, 2007). Further, findings of Beck (2008) reveal that when the number of banks in the industry is smaller it is easier for authorities to closely supervise the banks and are able to prevent banks from excessive risky activities. In addition, according to Allen and Gale (2000), when the competition among banks increases, bank has a minimum incentive to properly screen their borrowers as the bank earn only fewer informational rent from the relationship with their borrowers. This again increases the risk of fragility.

All these findings supports that increased competition threaten the stability in the financial sector, thus question about the improved welfare of bank competitiveness.

Evidence on multiple effects of bank competition

The effects that restrain the welfare enhancing capacity of bank competition need to be analyzed by reviewing the new strand of banking literature. Most of the empirical studies on the effects of bank competition focus on a group of countries and if not a specific country, mostly the developed countries. Cetorelli and Gambera (2001) use industry-level data for 41 countries and find that while bank concentration imposes a deadweight loss on the overall economy, it fosters the growth of industries whose younger firms depend heavily on external finance. However, this positive effect is offset in

banking systems that are heavily dominated by government-owned banks. Further, Using a unique database for 74 countries and for firms of small, medium, and large size Beck et al (2003) find that bank concentration increases obstacles to obtaining finance, but only in countries with low levels of economic and institutional development. The study of Jayaratne and Strahan (1996) also provides evidence supporting the finance growth nexus by studying the relaxation of bank branch restrictions in the United States. They also argue that "...the observed changes in growth are the result of changes in the banking system. Improvements in the quality of bank lending, not increased volume of bank lending, appear to be responsible for faster growth" (p.1, 1996).

In another study Cetorelli (2001) provides evidence that bank concentration leads to larger average firm size in non-financial sectors. Cetorelli and Strahan (2003) show that the effect is not only limited to an impact on the first moment of the size distribution but that higher bank concentration and market power have an impact on the entire distribution of firm size. Cetorelli (2004) studied manufacturing industries in 29 countries and explores changes in bank competition have in fact played a role on the market structure of non-financial industries. The evidence suggests that the overall process of enhanced competition in banking markets has lead to markets in non-financial sectors characterized by lower average firm size. Moreover, Using various measures of banking market structure, (Pang and Wu, 2008) find that industries with high liquidity needs tend to have more stable growth rates in countries with more concentrated banking sectors, and countries with less regulatory restrictions on competition and entry. Their results suggest that regulatory restriction have adverse effects on industrial stability, while more concentrated banking sectors stabilize industrial sectors. In addition to that Patti and Ariccia (2003) investigate the effects of competition in the banking sector on the

creation of firms in the non-financial sector. They find evidence of a bell shaped relationship between bank competition and firm creation. These findings together confirm the existence of multiple effects of banking market structure.

Bank competition and its implications in developing countries

There is a concern that the state-dominated, inefficient, and fragile banking systems in many low-income countries, especially in sub-Saharan Africa, are a major hindrance to economic growth. However, since the seminal work of Mackinnon - Shaw a number of under developed countries in South America, Africa and Asia that were regarded as repressed economies in terms of financial policies, undertook financial liberalization measures.

The study done by Banergee et al (2005) on bank competition in India concludes that the expansion of private banks in India after 1991 has lead to an improvement in credit access for some, but they tend to be bigger firms in larger credit markets. They also document that it probably has also had an effect on the behavior of public banks in these markets, but once again the effects, while positive are not overwhelmingly strong. Hauner and Peiris (2005) study the Ugandan banking system and reveal that Ugandan banking system has become more competitive and efficient as a result of the far-reaching reforms embarked in recent past. However their study also reveal that the Ugandan banking system is still characterized by a monopolistic market structure (as are most other banking systems) that may impede financial intermediation, with room for further enhancement of competitive pressures, especially in the fee-based services that may be shielded due to the nontransparent fee structure of banks in Uganda.

Perera et al (2007) investigated whether there are significant deviations in South Asian banks' interest margins which can be

attributed to market concentration after controlling for other bank specific factors and exogenous environmental influences. Their findings suggest that even though high market concentration itself does not guarantee wider interest margins, the dominant South Asian banks (with larger market shares in loan and deposit market segments) do seem able to extract higher interest margins. This view is plausible to the extent these dominant South Asian banks offer differentiated loan and deposit products, designed to deliver unique utility to targeted market segments (thereby extracting wider interest margins).

Bank competition and multifaceted relationship

The traditional view predicts a negative relationship between the level of competition and the financial sector stability. Contrary, competition-stability argument held the view that the financial sector is more stable in a competitive banking market. The contemporary view however predicts neither direct positive nor a direct negative effect of bank competition on the financial sector stability.

According to Matutes and Vives (1996) competition per se does not need to create instability. They argue that bank vulnerability to runs can emerge independently of competition in any market structure. The probability of bank failure is endogenously determined due to many reasons such as self fulfillment expectations and coordination problems among depositors etc. Allen and Gale (2000, 2004) show that different models can provide different results regarding the trade-off between banking competition and stability. Because of the differences in the measurements and assumption made by these models contradictory relationship between competition and stability has been found. Further some models have focused only one aspect of risk and have made conclusions. For example, though the findings of Jimenez, Lopez and Saurina (2007) study support the

franchise value paradigm and do not provide evidence for the risk shifting paradigm, their study only considers loan portfolio risk and does not examine the risk of the bank; as a result, it does not provide evidence on overall bank risk or financial fragility.

Therefore, the proponents of this view show the relationship between competition and stability is not straight forward as explain in both competition-fragility and competition stability views. Recently an interesting model presented by Martinez-Miera and Repullo (MMR 2007). They identify in a lower competition environment a risk-shifting effect accounting for more defaults when interest rates increase but realize that, at the same time, there is a margin effect that generates more revenue for the bank coming from those non defaulted borrowers that pay a higher interest rate. Therefore in their model, the relation between competition and stability can be U-shaped; that is, as the number of banks increases, the probability of bank default first declines but increases beyond a certain point (MMR 2007).

DISCUSSION AND CONCLUSION

For many sectors competition is good, as it increases efficiency, lowers prices, and enhances choice and innovation and ultimately enhances welfare. Though competition is generally good, there is a trade-off between competition and financial market stability when it comes to banking. This is because of the unique features of banking such as increasing returns to scale, asymmetric information, liquidity, and complexity etc. Usually, banks have to reach a critical mass or increase in scale to be profitable. That is increasing their market power. This is the reason for the view that some level of concentration is important for a bank to be more economically efficient. And, if we take the problem of information asymmetries between the bank and the borrowers, in one side, certain degree of competition is

necessary. However in the process of all the banks are competing to increase their market share, adverse selection and moral hazard problems increases the stability in the financial system. The liquidity and the complexity of the banks assets and liability structure are also depicting the uniqueness of the banking industry.

As far as financial stability is concerned the traditional view predicts a negative relationship between the level of competition and the financial sector stability. Contrary, competition-stability argument held the view that the financial sector is more stable in a competitive banking market. The contemporary view however predicts neither direct positive nor a direct negative effect of bank competition on the financial sector stability.

Most empirical studies have focused on more developed countries or comparing several economies to see the implications of banking sector competitiveness implicitly assuming that the effects are homogeneous across borrowers. Though the competitiveness in the banking sector enhances efficiency or not, bank competition will not affect all economies or all borrowers uniformly. A critical review of the current literature provide evidence to support the **notion** that the competitiveness in the banking industry and the related conduct of banking firms affect the economy in a much more complicated way than its simple association explained in traditional theories. Further, these relations might vary for markets of different sizes, across different institutional environments, regulatory settings and ownership structures of the banking systems. The current consensus in the literature is that financial liberalization related conduct in bank competition will only promote economic development and economic welfare if numerous prerequisite conditions have first been satisfied. In conclusion, critical analysis of the recent literature supports the conclusion that bank competition does not necessarily efficiency enhancing. And there are some

exceptions they would restrain the positive effects of bank competition.

These considerations point to novel directions of analysis of the impact of banking market structure on various segments of the economy like monetary policy, house holds, inflation and overall social welfare.

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IMPACT OF OWNERSHIP ON COMMERCIAL BANKS PROFITABILITY

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ABSTRACT

Banking sectors plays a dominant role in Sri Lankan financial system and profitability of banks is an important consideration for the development of financial system. Return on Assets (ROA) is a key measure used to evaluate profitability of banks. The aim of this study is to examine the effect of ownership on banks profitability. In the Sri Lankan commercial banking sector, banks could mainly classify as state-owned, private-owned and foreign-owned banks based on the ownership type. The selected sample consists of fourteen commercial banks and study covers sample period from 2001 to 2011. Panel data regression method was applied to estimate the effect of ownership. The estimation results revealed that determinants of ROA change with the ownership category and state-owned banks have a significant power to explain the variations of ROA compared to other two ownership categories. Micro level factors strongly influence on ROA of state-owned banks during the selected time period. However, the influence of micro level factors is minimal on foreign-owned banks.

Keywords: *commercial banks, profitability, Return on Assets, ownership*

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THE EFFECT OF MACROECONOMIC VARIABLES ON STOCK RETURNS WITH SPECIAL REFERENCE TO COLOMBO STOCK EXCHANGE – SRI LANKA

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ABSTRACT

The objective of the study was to examine the effect of macroeconomic variables on stock return with special reference to Colombo Stock Exchange in Sri Lanka. This study uses both macro-economic variables and market index data for the period from 2005:1 to 2012:09. The Stock return is regressed against the six independent variables namely Money Supply, Interest rate, Inflation, Trade Balance, Wage rate and Exchange Rate. To achieve this objective, a sample of 27 companies listed in Colombo Stock Exchange was selected for a period of eight years with ninety three observations. The Log values of stock prices for the 08-year period to represent aggregate stock returns of the manufacturing industry. The information on the macro-economic variables was also obtained from the monthly reviews of the Central Bank of Sri Lanka: To achieve research objectives, six hypotheses were developed and tested. Since all variables were in non-stationary in Level (I_0) except stock returns, the researcher has taken the 1st difference in order to get them in to a unique platform. To test the hypotheses, Panel Least Square (PLS) test has been performed. The Vector Auto Regression (VAR) was not performed due to non – satisfaction of performing conditions among dependent and independent variables. However, the Granger Causality Test has been performed in order to test the short term relation among variables. The PLS analysis implies that there is a significant impact from interest rate and inflation while other regresses have no significant impact on the stock returns.

Key words: Stock return, Macroeconomic variables, Money Supply, Interest rate, exchange rate, Inflation, trade balance and wage rate.

INTRODUCTION

Numerous empirical studies conducted in developed markets provide significant evidence in support of the argument that share returns fluctuate with changes in macro-economic variables. It is often believed that the stock return is determined by a number of fundamental macroeconomic variables such as interest rate, GDP, exchange rate and inflation rate (Chen et al, 1986; Mukherjee and Naka, 1995; Mayasmi and Koh, 2000; Kown and Shin, 1999; Cheung and Ng, 1998; Gjerde and Saettem, 1999). Existing theories offer

different models that make available framework for examining the relationship between stock return and macroeconomic variables. The common approach of examining impact of macroeconomic variables on stock return is through arbitrage pricing theory (APT) developed by Ross (1976) where multiple risk factor can describe stock return. Chen et al., (1986) used some macroeconomic variables to explain stock return in the US stock market and found industrial production, changes in risk premium and changes in term

structure were positively related with the expected stock return.

Mukherjee and Naka (1995) used Johansen co-integration test in the Vector Error Correction Model and found Japanese stock market to be co-integrated with six macroeconomic variables such as exchange rate, money supply, inflation rate, industrial production, long term government bond rate and the short term call money rate. The findings of the long term coefficients of the macroeconomic variables are consistent with the hypothesized equilibrium relationships. Besides, Mayasmai and Koh (2000) used Johansen co-integration test in the Vector Error Correction Model and found Singapore stock market to be co-integrated with five macroeconomic variables. The aim of this paper is to examine if the time series analysis of stock market indices of Colombo stock exchange is explained by corresponding macroeconomic variables of interest rate, GDP, Exchange rate, wage rate, trade balance and inflation.

LITERATURE REVIEW

The financial and economic experts have examined the impact of macroeconomic variables on stock returns in various ways for different countries for different time periods. One of the earliest studies to provide an assessment of stock market behavior and various multiple macroeconomic variables is from asset pricing approach which uses the Arbitrage Pricing Theory to address the question of whether risk associated with particular macroeconomic variable is reflected in expected asset return. Chen et al., (1986) implied that economic variables have a systematic consequence on stock market returns because economic forces affect the discount rates, the ability of firms to generate cash flows and future dividend payments. They tested using the APT the sensitivity of macroeconomic variables to stock returns and found a strong relationship between stock returns and macroeconomic variables of short term and long term interest rates, expected and unexpected inflation rate and industrial

production growth. Hamoa (1988) examined if found relationship between macroeconomic variables and stock return are still applicable in Japanese market but his findings are consistent with Chen et al., (1986) apart from industrial production appearing insignificant. Poon and Taylor (1991) implied that macroeconomic variables do not appear to affect share returns in the United Kingdom as they do in the US. They suggest that either different macroeconomic factor has an influence on share returns in the United Kingdom or the methodology employed by Chen, Roll and Ross is inefficient. The authors used ARIMA model and reemphasized the importance of representing only the unexpected component of share returns and macroeconomic variables in the model and argue that Chen et al., (1986) outcome may be an example of a spurious regression.

Muradoglu et al., (2000) investigated possible causality between 19 emerging market returns and exchange rates, interest rates, inflation, and industrial production from 1976 to 1997. Their results revealed that the relationship between stock returns and macroeconomic variables were mainly due to the relative size of the respective stock market and their integration with world markets. Recently empirical models without any specific theoretical structure were used in a more pragmatic way to the two way relationship between share prices and macroeconomic variables (Groenwold, 2004). Particularly one of the popular models in this area is the Vector Autocorrelation (VAR) model. Lee (1992) is the pioneer of the VAR model to the relationship between macroeconomic variables and stock returns. In this line the more recent example is found in Cheung and Ng (1998) and Gjerde and Sættem (1999). Hondroyannis and Papapetrou (2001) examined whether the movements in the indicator of the economic activity affected the stock return for Greece. The study performed a VAR analysis to study the dynamic interaction among indicators of economic activity using the monthly data for the period 1984-1999 for

Greece. The major findings of the research is that the domestic market economic activity affects the performance of the domestic stock market and all macroeconomic activity taken into consideration are important in explaining stock price movements. Wongbangpo and Sharma (2002) tested the relationship between the stock returns for the ASEAN-5 countries of Indonesia, Malaysia, the Philippines, Singapore and Thailand and five macroeconomic variables. By observing both short and long run relationship between respective stock indices and macroeconomic variables of gross national product, the consumer price index, the money supply, the interest rate, the exchange rate they found that in the long-run all five stock price indices were positively related to growth in output and negatively related to the aggregate price level. But a long term negative relationship between stock prices and interest rates was observed for the Philippines, Singapore and Thailand and was found positive for Indonesia and Malaysia.

More recently, Wang (2011) investigates the time-series relationship between stock market volatility and macroeconomic variable volatility for China using E-GARCH and lag-augmented VAR models. He found evidence on the existence of a bilateral relationship between inflation and stock prices, and an unidirectional relationship between the interest rate and stock prices. His study also found that the relationship between stock prices and real GDP is not significant. Oseni and Nwosa (2011) used the same methodology as Wang (2011), investigated the relationship between stock market volatility and macroeconomic variables volatility in Nigeria. They found a bi-causal relationship between market volatility and real GDP. However, they did not find evidences on the causal relationship between stock market volatility and the volatility in interest rate and inflation rate. Chinzara (2011) studied on the relationship between macroeconomic uncertainty and stock market volatility for South Africa and found

that stock market volatility is significantly affected by macroeconomic uncertainty. The findings show that financial crisis raise stock market volatility, and the volatilities in exchange rates and short-term interest rates are the most influential variables in affecting stock market volatility, while volatilities in oil prices, gold prices and inflation play minor roles in affecting stock market volatility.

RESEARCH METHODOLOGY

The principal method employed to analyze the time series behavior of the data involves co-integration and the estimation of a Vector Auto Regression Model (VAR), Granger Causality Test and panel least square method. PLS has become a well-established methodology when testing the relationships among variables; therefore, the methodological aspects directly relevant to this study are only briefly explained and interested readers are referred to the relevant literature for a detailed explanation of the approach. The first step of this process involved a test for stationary; the order of integration of the variables is estimated. For this purpose, the researcher has employed the Im, Pesaran and Shin tests for unit roots. Before performing the Unit Root, Trend and intercept of each variable have been tested and it implies that all variables have trends except the stock return. Since all variables were in no stationary in Level except stock return, the researcher has taken the 1st difference in order to get them in to a unique platform. Since the correlation analysis represented a high correlation (0.9) among Money Supply and inflation, the Money Supply has been removed from the analysis based on the literature review.

DATA COLLECTION

The empirical question in this study is to find out the relationship between the explained variable (stock returns) and exploratory variables (Money Supply, Interest rate, Inflation, Trade Balance, Wage rate, and Exchange Rate). Given monthly data for six

important macroeconomic variables of stock return, for the time period to which have provided 93 observations per variable have been used in the present analysis.

This study uses both macro-economic variables and market index data for the period from 2005:1 to 2012:09. The year 2005 was selected as the start of the sampling period based on the data availability. LN values of stock prices for the 08-year period to represent aggregate stock returns of the manufacturing industry. The information on the following macro-economic variables was also obtained from the monthly reviews of the Central Bank of Sri Lanka: (1) MS1 representing the money supply (2) the three-month treasury bill rate (*TBR*) representing the interest rate, (3) the consumer price index (*CPI*) representing the rate of inflation and (4) the exchange rate between US dollar and Sri Lankan rupee (*EXR*) representing the foreign exchange rate. These variables represent only a subset of economic variables used in previous studies. But, these were the only variables with sufficient observations available to the authors for the time period under study. For example, even though the researcher wanted to include variables such as industrial production and GNP, the non-availability of these data on a monthly basis prevented researcher from bringing them into the analyses. 27 Cross Sections have been considered for the analysis in the panel data set.

ANALYSIS AND PRESENTATION OF FINDINGS

In conducting the Panel Least Squares test (PLS), it was found that the adjusted R^2 is 0.299. By taking the auto regressive procedure – ar (1) in to consideration, it has been increased to 0.35; so it implies that the 35% of the stock return variation could be explained through the model. As a result of auto regressive procedure the Durbin-Watson stat also decreased to closure to 2 and resultant that the errors are uncorrelated. The PLS shows that p values of inflation and interest

rate are lesser than 0.05 while other explanatory variable p- values are higher than 0.05. The coefficient value shows that the interest rate has the highest significant impact on the dependent variable (Stock Return). In addition to that the researcher has been performed the Chow Forecast test in order to check the structural break point of 2009 (Impact of elimination of the terrorism in SL). Since the p value is greater than 0.05, the researcher failed to reject null hypothesis of no structural breaks.

Since the dependent variable is in stationary in level, the researcher was failed to perform the co-integration test in order to check the long term equilibrium relationships among effect variable and causal variables. All the regresses was in non stationary in level and stationary in 1st difference, so the Trace test (Unrestricted Co-integration Rank Test) has been performed to measure the long run equilibrium relationship only between explanatory variables. Under the linear deterministic trend assumption and lag level of 1-2, the Trace test indicates two co integrating eqn (s) at the 0.05 level. According to the VAR model estimated in the study, Trace test shows that there are strong equilibrium long term relationships among explanatory variables and table 1.0 indicates the same.

Since all variables are in stationary in 1st difference under the assumption of error terms are uncorrelated, the researcher has been performed the Granger Causality Tests in order to measure the short term relationships between regressed and regresses. Presentation of the results shows that there is a feedback exists between Stock return and Nominal wage rate in lag 3 and lag 4 while unidirectional causality exists from stocks to wage rate in lag 1 and 2. In addition to that the unidirectional causality exists from Stock returns to Inflation in lag 3 while feedback exists between them in lag 4. Besides a unidirectional causality exists from Interest rate to Stock returns in lag 2, 3 and 4. Table 2.0 (appendix -2) shows the all said granger causes in lag 1 to lag4.

SUMMARY AND CONCLUSION

The PLS shows that p values of inflation and interest rate is lesser than 0.05 while other explanatory variable values are higher than 0.05. So it implies that there is a significant impact from inflation and interest rate on the stock returns. The coefficient value shows that, the interest rate has the highest significant impact on the dependent variable (Stock Return) than the other variables while inflation is taking the second highest significant impact. In addition to that the researcher has been performed the Chow Forecast test in order to check the structural break point of 2009 (Impact of elimination of the terrorism in SL). Since the p value is greater than 0.05, the researcher failed to reject null hypothesis of no structural breaks.

By employing Granger Causality tests on monthly panel data, this study examined the dynamic short term relationships between macro-economic variables and the stock return with special reference to the manufacturing industry in Colombo Stock Exchange in Sri Lanka. The main findings revealed that there was a feedback exists between the stock return and Nominal wage rate in lag 3 and lag 4. According to the VAR model estimated in the study, there are some strong equilibrium long term relationships among explanatory variables and table 1.0 indicates the same. Finally, the researcher notes some areas for future research. In the present paper, it is primarily concerned with testing for effects of some macroeconomic variables on stock returns in the manufacturing industry in eight years of span. It would be interesting in future research to test for effects of stock returns using all possible macro variables in a large span by selecting a larger sample.

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ANNEXURE

Table 1.0 – Trace Test Results between explanatory variables

Causal variables	No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**
Exchange Rate and Trade Balance	None *	0.049348	135.0141	15.49471	0.0001
	At most 1 *	0.004942	12.03813	3.841466	0.0005
Exchange Rate and Interest rate	None *	0.110949	408.4043	15.49471	0.0001
	At most 1 *	0.049215	122.635	3.841466	0.0001
Exchange Rate and Inflation	None *	0.039617	101.5878	15.49471	0.0001
	At most 1	0.001382	3.359622	3.841466	0.0668
Trade Balance and Money Supply	None *	0.268671	899.8836	15.49471	0.0001
	At most 1 *	0.055812	139.5559	3.841466	0
Money Supply and Interest Rate	None *	0.302237	934.5934	15.49471	0.0001
	At most 1 *	0.024428	60.09682	3.841466	0
Money Supply and Inflation	None *	0.255636	757.617	15.49471	0.0001
	At most 1 *	0.016415	40.21965	3.841466	0
Money Supply and Exchange rate	None *	0.274824	838.9023	15.49471	0.0001
	At most 1 *	0.023603	58.04309	3.841466	0
Inflation and Interest rate	None *	0.038926	103.5898	15.49471	0.0001
	At most 1 *	0.002921	7.109436	3.841466	0.0077
Inflation and Trade Balance	None *	0.042945	109.6411	15.49471	0.0001
	At most 1	0.001224	2.977124	3.841466	0.0044
Interest Rate and Trade Balance	None *	0.051224	210.6403	15.49471	0.0001
	At most 1 *	0.033526	82.86516	3.841466	0

Table 2.0 – Granger Causality Results

Null Hypothesis	1 Lag		2 Lag		3 Lag		4 Lag	
	F Statistic	P value	F Statistic	P value	F Statistic	P value	F Statistic	P value
Interest does not granger cause stock	3.01	0.08	7.82	0.0004	6.03472	0.0004	11.9373	0.00001
Stock does not granger cause Interest	0.15	0.69	0.12	0.8863	1.24341	0.2924	1.7997	0.1861
Exchange rate does not granger cause stock	1.8909	0.1692	4.838	0.678	7.5847	0.698	6.4	0.765
Stock does not granger cause Exchange rate	0.2329	0.6294	3.89	0.02	2.68	0.023	2.68	0.04
Inflation does not granger cause stock	1.832	0.176	0.3726	0.68	1.62	0.18	2.07	0.08
Stock does not granger cause Inflation	3.802	0.0513	2.41	0.087	5.47	0.001	3.4	0.008
Wage Rate does not granger cause stock	2.534	0.111	0.987	0.372	4	0.007	3.7	0.004
Stock does not granger cause wage Rate	6.972	0.008	3.54	0.02	3.49	0.01	2.6	0.03

(Ash color contained p values will reject the null hypothesis, so it has a granger cause between two variables)

[14]

THE IMPACT ON MACRO-ECONOMIC VARIABLES ON STOCK MARKET EQUITY VALUES IN SRI LANKA

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ABSTRACT

This study examines the impact on macro-economic variables on stock market equity values in Sri Lanka. We use the Colombo all share price index to represent the stock market and (i) the money supply, (ii) the Treasury bill rate (as a measure of interest rates), (iii) Inflation rate and (iv) The exchange rate as macro-economic variables. Researcher Bilson, Brailsford, and Hooper (1999) aimed to address the question of whether macroeconomic variables may proxy for local risk sources. Emerging stock markets have been identified as being at least partially segmented from global capital markets. As secondary data use, publish data at June 1st 2009 to 2010 may 31st in CSE (Colombo stock exchange). The empirical analysis is carried out by using monthly data and the study was carried out by using 53 monthly observations. The main findings revealed that there was a long run equilibrium relationship between the stock prices and some macro-economic variables. Study found that Exchange Rate (Us\$), the money supply and the Treasury bill rate were significantly Influence on the stock market index. There are significant relationships between All Share Price Index, Treasury Bill Rate and Money Supply to statistical factors. Finally, in this research can be say Consumer price index is not significant factor of that affect the all share price index and other variables. The money supply and the Treasury bill rate were significantly Influence on the stock market index.

Keyword: *macro-economic variables, stock market equity, Colombo stock exchange*

INTRODUCTION

Background of Study

This study examines the impact on macro-economic variables on stock market equity values in Sri Lanka. We use the Colombo all share price index to represent the stock market and (i) the money supply, (ii) the Treasury bill rate (as a measure of interest rates), (iii) Inflation rate and (iv) the exchange rate as macro-economic variables. These tests examine both long-run and short-run relationships between the stock market index and the economic variables. The money supply and the Treasury bill rate have a significant influence on the stock market. The Treasury bill rate demonstrates the strongest influence on share price changes compared to other

variables. However, the share price index does not have any influence on macro-economic variables except for the Treasury bill rate. Many studies have documented the relationship between macroeconomic variables and stock returns. Some of these studies have examined this relationship for developed markets such as USA, Japan and Europe (Chen, Roll and Ross (1986), Chen (1991), Clare and Thomas (1994), Mukherjee and Naka (1995), Gjerde and Sættem (1999), Flannery and Protopapadakis (2002)). On the other hand, some other studies investigated the situation for developing markets, particularly in the East Asia (Bailey and Chung (1996), Mookerjee and Yu (1997), Kwon and Shin (1999), Ibrahim and Aziz (2003). There are also studies that compare the phenomenon for

group of countries (Cheung and Ng (1998), Bilson, Brailsford and Hooper (2001), Wongbangpo and Sharma (2002)). These studies have provided different results. The results have changed according to the macroeconomic factors used, the research methodology employed and the countries examined. However, the studies concerning the developing markets mostly focus on the East Asian countries. Numerous empirical studies conducted in developed markets provide substantial evidence in support of the argument that share returns fluctuate with changes in macro-economic variables. Accordingly, aggregate equity prices are expected to have a strong relationship with macroeconomic variables. The argument suggests that the intrinsic value of equity shares depends on the present value of dividends which is distributed out of company earnings; these profits are influenced by real economic activities and therefore there should be a relationship between economic fundamentals and share prices. Shiller (1981) and Leroy and Porter (1981) demonstrate that the macro-economic variables may affect the discount rate and the ability of the firm to generate cash flows – two fundamental variables which determine the intrinsic value of equities in discounted cash flow (DCF) models. Flannery and Protopapadakis (2002) believe that macroeconomic variables are excellent candidates for determining returns, because changes in these measures will affect firms' cash flows and influence the risk-adjusted discount rate. Ultimately, it is argued that returns on shares reflect underlying real economic activity; therefore, in the long run one would expect to observe a relationship between macroeconomic activity and equity returns (Patro et al., 2002). As for the effect of macroeconomic variables such as money supply and interest rate on stock prices, the efficient market hypothesis suggests that competition among the profit-maximizing investors in an efficient market will ensure that all the relevant information currently known about changes in macroeconomic variables are

fully reflected in current stock prices, so that investors will not be able to earn abnormal profit through prediction of the future stock market movements (Chong and Koh 2003). An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security. What this means, in simple terms, is that no investor should be able to employ readily available information in order to predict stock price movements quickly enough so as to make a profit through trading shares. The behavior of market prices in these countries may not be tied to economic fundamentals; rather the stock prices may be driven by the speculative activities of irrational investors. Gunasekarage and Power (2001) provide convincing evidence that such investors in South Asian capital markets can earn excess returns by employing technical trading rules; the study reveals that the fixed length moving average rule generates excess returns of 4.70 per cent for Sri Lankan investors, 9.81 per cent for Bangladesh investors and 8.60 per cent for Pakistan investors. The objective of this study is to investigate the relationship between macroeconomic variables and the stock prices in Sri Lanka. Since adopting an open economic policy in 1977, the government of Sri Lanka has taken a number of steps to liberalize and develop the financial sector in an attempt to maximize its contribution towards the economic development of the country. Share trading in Sri Lanka commenced in the 19th century, when British Planters needed funds to set up Tea Plantations in Sri Lanka. The Colombo Share Brokers Association commenced trading of shares in limited liability companies in 1896, involved in setting up plantations in the country. The Colombo Share Market continued operations for almost a century, experiencing several vicissitudes due to political and economic factors during the period. A landmark event in the history of share trading in Sri Lanka was the formalization of the market with the

establishment of the "Colombo Securities Exchange (GTE) Limited" in 1985, which took over the operations of stock market from the Colombo Share Brokers' Association. It was renamed 'Colombo Stock Exchange' (CSE) in 1990. The CSE is a company limited by guarantee, established under the Companies Act No. 17 of 1982 and is licensed by the Securities & Exchange Commission of Sri Lanka (SEC). The CSE is a mutual exchange and has 15 full members, 6 Trading Members licensed to trade both equity and debt securities. All members are licensed by the SEC to operate as stockbrokers. All members are corporate entities and some are subsidiaries of large financial institutions. The policy making body of the CSE is the Board of Directors composed of nine members. Five directors are elected by the 15 member firms while the Minister of Finance nominates four. The CSE Board has four sub committees appointed to administer the operations of the CSE. The Exchange Secretariat, headed by the Chief Executive Officer is responsible for the operations of the Exchange, and is accountable to the Board of Directors.

Objectives of the report,

- To investigate how Treasury bill rate affect the performance in Colombo Stock Exchange?
- To investigate Inflation affects the performance in Colombo Stock Exchange?
- To investigate the exchange rate as macro-economic variables affect the performance in Colombo Stock Exchange?
- To investigate the money supply affects the performance in Colombo Stock Exchange?

Research Problem Statement

“Impact on Macro-economic Variables on the performance in Colombo Stock Exchange”

Research Questions

1. Is the Inflation rate negatively affect on the performance in CSE?
2. Are the Money Supply positively affect on the performance in CSE?
3. Are the Exchange rate positively affect on the performance in CSE?
4. Is the Treasury bill rate negatively affect on the performance in CSE?

Hypothesis,

H 1; There is a negative relationship between All Share Price Index and Inflation?

H 2; There is a positive relationship between All Share Price Index and Money Supply?

H 3; There is a positive relationship between All Share Price Index and Exchange Rate?

H 4; There is a negative relationship between All Share Price Index and Treasure Bill Rate?

LITERATURE REVIEW

The objective of this study is to investigate the relationship between macro-economic variables and the stock prices in Sri Lanka. According to that researcher Bilson, Brailsford, and Hooper (1999) aimed to address the question of whether macroeconomic variables may proxy for local risk sources. Emerging stock markets have been identified as being at least partially segmented from global capital markets. As a consequence, it has been argued that local risk factors rather than world risk factors are the primary source of equity return variation in these markets. Accordingly, they found moderate evidence to support this hypothesis. At the regional level, however, considerable commonality was shown to exist. Another researcher called Maysami and Sims (2002, 2001a, 2001b) employed the Error-Correction Modeling technique to examine the

relationship between macroeconomic variables and stock returns in Hong Kong and Singapore (Maysami and Sim, 2002b), Malaysia and Thailand (Maysami and Sim 2001a), and Japan and Korea (Maysami and Sim 2001b). That result also can use to evaluate Colombo stock exchange. Through the employment of Hendry's approach which allows making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium, they analyzed the influence of interest rate, inflation, money supply, exchange rate and real activity, along with a dummy variable to capture the impact of the 1997 Asian financial crisis. The results confirmed the influence of macroeconomic variables on the stock market indices in each of the six countries under study, though the type and magnitude of the associations differed depending on the country's financial structure.[Hendry (1986)]. Another researcher replicated the above studies to examine the short-run dynamic adjustment and the long-run equilibrium relationships between four macroeconomic variables (interest rate, inflation rate, exchange rate, and the industrial productivity) and the Kuala Lumpur Stock Exchange (KLSE) Composite Index. His conclusions were similar: there existed statistically significant short-run (dynamic) and long-run (equilibrium) relationships among the macroeconomic variables and the KLSE stock returns.[Islam (2003)]. Also investigated the dynamic interaction between the KLSE Composite Index, and seven macroeconomic variables (industrial production index, money supply M1 and M2, consumer price index, foreign reserves, credit aggregates and exchange rate). Observing that macroeconomic variables led the Malaysian stock indices, he concluded that Malaysian stock market was informational inefficient.[Ibrahim (1999)]. Same result found another similar research. They showed that stock prices, economic activities, real interest rates and real money balances in Malaysia were linked in the long run both in the pre-

and post capital control sub periods.[Chong and Koh's (2003)]. Mukherjee and Naka applied Johansen's (1998) VECM to analyze the relationship between the Japanese Stock Market and exchange rate, inflation, money supply, real economic activity, long-term government bond rate, and call money rate. They concluded that a co integrating relation indeed existed and that stock prices contributed to this relation.[Mukherjee and Naka (1995)]. Maysami and Koh examined such relationships in Singapore. They found that inflation, money supply growth, changes in short- and long-term interest rate and variations in exchange rate formed a cointegrating relation with changes in Singapore's stock market levels.[Maysami and Koh (2000)]. Islam and Watanapalachaikul showed a strong, significant long-run relationship between stock prices and macroeconomic factors (interest rate, bonds price, foreign exchange rate, price-earning ratio, market capitalization, and consumer price index) during 1992-2001 in Thailand.[Islam and Watanapalachaikul(2003)]. The analysis of weekly price indices in Kuwait, Bahrain, and Oman stock markets showed that: (1) share prices were cointegrated with one cointegrating vector and two common stochastic trends driving the series, which indicates the existence of a stable, long-term equilibrium relationship between them; and (2) prices were not affected by short-term changes but were moving along the trend values of each other. Therefore, information on the price levels would be helpful for predicting their changes. [Hassan (2003)]. Omran focused on examining the impact of real interest rates as a key factor in the performance of the Egyptian stock market, both in terms of market activity and liquidity. The cointegration analysis through error correction mechanisms (ECM) indicated significant long-run and short-run relationships between the variables, implying that real interest rates had an impact upon stock market performance.[Omran (2003)]. Indian researcher investigated the

cointegrating relationship and the causality between the financial and the real sectors of the Indian economy using monthly observations from 1992 through December 2002. The financial variables used were interest rates, inflation rate, exchange rate; stock return, multivariate cointegration test supported the long-run equilibrium relationship between the financial sector and the real sector, and the Granger test showed unidirectional Granger causality between the financial sector and real sector of the economy.[Vuyyuri (2005)].Gunasekarage, Pisedtasalasai and Power examined the influence of macroeconomic variables on stock market equity values in Sri Lanka, using the Colombo All Share price index to represent the stock market and (1) the money supply, (2) the treasury bill rate (as a measure of interest rates), (3) the consumer price index (as a measure of inflation), and (4) the exchange rate as macroeconomic variables. With monthly data for the 17-year period from January 1985 to December 2001 and employing the usual battery of tests, which included unit roots, cointegration, and VECM, they examined both long-run and short-run relationships between the stock market index and the economic variables. The VECM analysis provided support for the argument that the lagged values of macroeconomic variables such as the consumer price index, the money supply and the Treasury bill rate have a significant influence on the stock market.[Gunasekarage, Pisedtasalasai and Power (2004)].The literature examining the relation of macroeconomic variables on individual stock market indices is scarce. as intermittent illustration, assessed the existence of long-run cointegrating relationship among stocks listed dually in the US and Singapore stock markets. In addition, they used Johansen's (1988) VECM, to examine the comovement between sectoral stock indices of the U.S. and Singapore, through examining whether the S&P 500 Electronics (Semiconductor) Price Index leads Stock Exchange of Singapore's Electronics Price

Index. While their results confirmed the long-term cointegrating sectoral relationships, there was evidence pointing to a short-term disequilibrium in the prices of dually listed stocks, leading to the conclusion that short-run arbitrage opportunities may exist.[Maysami et al. (2005)].

INFLATION

Perhaps the most irregular of stock return-inflation relations is the negative relation between expected real stock returns and the level of expected inflation. Since the level of expected inflation is a gamble variable, regressions of realized stock returns on expected inflation estimate the relation between the ex ante expected component of stock returns and gamble expected inflation. The results of studies by Fama and Schwert, Chen, Roll and Ross, Nelson and Jaffe and Mandelker pointed to a negative relation between inflation and stock prices. They hypothesize similarly: an increase in the rate of inflation is likely to lead to economic tightening policies, which in turn increases the nominal risk-free rate and hence raises the discount rate in the valuation model .The effect of a higher discount rate would not necessarily be neutralized by an increase in cash flows resulting from inflation, primarily because cash flows do not generally grow at the same rate as inflation. [Fama and Schwert (1977), Chen, Roll and Ross (1986), Nelson (1976) and Jaffe and Mandelker (1976)]. DeFina attributes this to nominal contracts that disallow the immediate adjustment of the firm's revenues and costs. Cash flows would probably decrease initially if the cost of inputs adjusts faster to rising inflation than output prices.[DeFina (1991)].

EXCHANGE RATES

Singapore researchers identified there is a positive relation between the exchange rate and stock prices. A depreciation of the Singapore dollar will lead to an increase in demand for Singapore's exports and thereby

increasing cash flows to the country, assuming that the demand for exports is sufficiently elastic. Alternatively, if the Singapore dollar is expected to appreciate, the market will attract investments. This rise in demand will push up the stock market level, suggesting that stock market returns will be positively correlated to the changes in the exchange rates (Mukherjee and Naka 1995). The impact of exchange rate changes on the economy will depend to a large extent on the level of international trade and the trade balance. Hence the impact will be determined by the relative dominance of import and export sectors of the economy.

MONEY SUPPLY

The money supply is determined exogenously, independent of the level of real activity. However, a complete model of the monetary sector should also take into account the response of the monetary authorities, i.e., the money supply process. In the sense of post war argument, consider one type of monetary response which reinforces Fama's prediction of a negative relation between inflation and realactivity in the post-war period. They argue that the central bank follows a (deficit-induced) counter-cyclical monetary policy which leads to negative relations between unexpected stock returns and changes in expected inflation. [Geske and Roll (1983)]. The relationship between money supply and stock returns by simply hypothesizing that the growth rate of money supply would affect the aggregate economy and hence the expected stock returns. An increase in M2 growth would indicate excess liquidity available for buying securities, resulting in higher security prices. [Friedman and Schwartz (1963)]. Empirically, Hamburger and Kochin (1972) and Kraft and Kraft (1977) found a strong linkage between the two variables, while Cooper (1974) and Nozar and Taylor (1988) found no relation. In the opinion of Mukherjee and Naka (1995), the effect of money supply on stock prices is an empirical question. An increase in money supply would lead to

inflation, and may increase discount rate and reduce stock prices [(Fama, 1981)]. The negative effects might be countered by the economic stimulus provided by money growth, also known as the corporate earnings effect, which may increase future cash flows and stock prices. Maysami and Koh (2000), who found a positive relationship between money supply changes and stock returns in Singapore, further support this hypothesis. After 1986, the relationship between macroeconomic factors and stock returns is extensively investigated. A brief overview of the studies using macroeconomic factor models is presented in this section.

TREASURY BILL RATE

There is a negative relationship between the Treasury bill rate and the all share price index. Because when Treasury bill rate high investors going to invest in Treasury bill due to risk free invest. They can earn higher gain under lower risk than invest in share market. As a result decreased the demand for shares and decreased the all shares price index. On the other hand when Treasury bill rate come down investors going to invest more and more in share market and it affect to increase the all share price index. Treasury bond returns have been more responsive than equity returns to macro announcements. Balduzzi demonstrate that treasury notes and bonds returns respond significantly to more than a dozen macro announcements during the period 1991-1995. These findings are noteworthy, yet the indicated time period is restively short and the author's contend that such pervasive effect can be identified only in transactions data. [Balduzzi (1997)] The economic rationale for such negative relations is based on a reverse causality effect. Geske and Roll contend that movements in stock prices cause (in an econometric sense) changes in inflationary expectations. An unanticipated drop in stock prices is a signal for a drop in anticipated economic activity and, therefore, in government revenues. Given largely fixed

government expenditures (called entitlements) this leads to the expectation that the government will run a deficit and, to the extent that deficits are monetized, there will be a consequent increase in expected inflation. Thus, conclude that 'stock price changes, which are caused by changes in anticipated economic conditions, will be negatively correlated with changes in expected inflation'. The findings of the literature suggest that there is a significant linkage between macroeconomic factors and stock return in the countries examined. The first group of the studies covers developed countries.[Geske and Roll(1983, p. 6)].Researcher test the multifactor model in the USA by employing seven macroeconomic variables. They find that consumption, oil prices and the market index are not priced by the financial market. However, industrial production, changes in risk premium and twists in the yield curve are found to be significant in explaining stock returns.[Chen, Roll and Ross (1986)]. Chen performed the second study covering the USA. Findings suggest that future market stock returns could be forecasted by interpreting some macroeconomic variables such as default spread, term spread, one-month t-bill rate, industrial production growth rate, and the dividend - price ratio.[Chen (1991)]. Clare and Thomas (1994) investigate the effect of 18 macroeconomic factors on stock returns in the UK. They find oil prices, retail price index, bank lending and corporate default risk to be important risk factors for the UK stock returns. Mukherjee and Naka (1995) use vector error correction approach to model the relationship between Japanese stock returns and macroeconomic variables. Cointegration relation is detected among stock prices and the six macroeconomic variables, namely exchange rate, inflation rate, money supply, real economic activity, long-term government bond rate and call money rate. Gjerde and Saettem (1999) examine the causal relation between stock returns and macroeconomic variables in Norway. Results show a positive linkage between oil price and stock returns as

well as real economic activity and stock returns. The study, however, fails to show a significant relation between stock returns and inflation. A recent study reevaluates the effect of some macro announcement series on US stock returns. Among these series, six macro variables, namely, balance of trade, housing starts, employment, consumer price index, M1, and producer price index seem to affect stock returns. On the other hand, two popular measures of aggregate economic activity (real GNP and industrial production) do not appear to be related with stock returns. Second group of studies investigate the relationship between stock returns macroeconomic variables for some developing countries in Eastern Asia.[Flannery and Protopapadakis (2002)].The impact of macroeconomic risks on the equity market of the Philippines, Findings of the study show that, financial fluctuations, exchange rate movements and political changes on owners of Philippine equities cannot explain Philippine stock returns.[Bailey and Chung (1996)]. Mookerjee and Yu investigate the effect of macroeconomic variables on Singapore stock market. Results suggest that stock prices are cointegrated with both measures of the money supply (M1 and M2) and aggregate foreign exchange reserves. However stock prices and exchange rates do not have a long-term relationship.[Mookerjee and Yu (1997)].The role of macroeconomic variables in estimating Korean stock prices. Stock indices seem to be cointegrated with the combination of the four macroeconomic variables namely, trade balance, foreign exchange rate, industrial production and money supply.[Kwon and Shin (1999)].The relationship between stock prices and industrial production, money supply, consumer price index, exchange rate in Malaysia. Stock prices are found to share positive long-run relationships with industrial production and CPI. On the contrary, stock prices have a negative association with money supply and Ringgit exchange rate.[Ibrahim and Aziz (2003)]. There is another group of studies that examines the situation for more than one

country. Researcher investigate the relationship between stock prices and some macroeconomic factors namely, real oil price, total personal consumption, money supply (M1) and GNP in Canada, Germany, Italy, Japan and the USA. There appears a long-run co movement between the selected macroeconomic variables and real stock market prices.[Cheung and Ng (1998)]. Bilson, Brailsford and Hooper use value weighted world market index and some macroeconomic variables for explaining stock returns in selected emerging markets. Findings suggest that goods prices and real activity have limited ability to explain the variation in returns. Money supply has greater importance, while the most significant variables are the exchange rate and the world market return.[Bilson, Brailsford and Hooper(2001)].Asian researcher found that relationship between stock prices and some macroeconomic factors in five ASEAN countries (Indonesia, Malaysia, Philippines, Singapore and Thailand). Results suggest that, in the long-run, stock prices are positively related to growth in output. In the short-run, stock prices are found to be functions of past and current values of macroeconomic variables. Although evidence that stock market returns tend to lead measures of real economic activity efforts to relate the values of specific macro variables to equity returns have generally failed to identify strong effects.[Wongbangpo and Sharma (2002)].

METHODOLOGY / RESEARCH DESIGN

This chapter gives a clear picture on the methodology used in the study specifically the sample selection and data collection. To get secondary data use following method, According to the published data at June 1st 2009 to 2010 may 31st in CSE (Colombo stock exchange). The empirical analysis is carried out by using monthly data and the study was carried out by using 53 monthly observations. The study uses stock prices which were collected from the Colombo Stock Exchange.

Statistics disseminated by the Central Bank in its publications may be accessed in PDF format from the Publications web page. In addition, regular updates for different sectors of the economy are disseminated through the Monthly Economic Indicators under Current Economic Indicators on the Home page. (<http://www.cbsl.gov.lk>)

DATA COLLECTION METHOD

Data collected from Colombo Stock Exchange (CSE) as secondary data.

June 1st 2009 to 2010 May 31st (monthly and weekly)

- Inflation (Consumer price index)
- Money Supply
- Exchange Rate
- Treasure Bill Rate

Performance Indicator [2009 June to 2010 May (monthly)]

- All Share Price Index

Above data will be collected through last twelve months including 2009 June to 2010 May. The data used in the study may be divided into two sub-groups. First data set consist of stock data. Second data set consist of macroeconomic factors. To examine the Impact on Macro-economic Variables on the Colombo Stock Exchange, explanatory study will be carried out. For the analysis all the companies listed in CSE is taken into consider. All the data collect from central bank of Sri Lanka Selected weekly economic indicators and Colombo Stock Exchange.

DATA PRESENTATION

Basically data will be presented using tables' figures and charts.

DATA ANALYSIS

Four macroeconomic variables were selected. These variables are exchange rate, Consumer Price Index (inflation rate), money supply, and interest rate (Treasury bill rate). In a number of emerging market studies the above macroeconomic variables have been used to explain the variation in all share price index. The data will be analyzed by using the SPSS (Statistic Package for Social Sciences) as well as Microsoft Excel. The principal method employed to analyze behavior of the data involves Mean, Standard deviation, exact linear relation and the ANOVAs test (95% confidence level) also calculate the correlation. This has become a well-established methodology when testing the long run relationships among variables; therefore, the methodological aspects directly relevant to this study are only briefly explained and interested readers are referred to the relevant literature. The first step of this process involves a test for stationary; the order of integration of the variables is estimated.

MODULE

$$Y = \beta_0 - \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 - \beta_4 x_4$$

Y= Performance in CSE

X1= inflation

X2= Money Supply

X3= Exchange Rate

X4= Treasure Bill Rate

- ✓ Money supply positive co-relation all share price index

Increase money supply → increase investment → increased demand for share → increase share price → all share prices increased.

An increase in the rate of inflation money supply is likely to lead to increase investment, which in turn increased demand for share and hence raises share price in finally all share prices increased in the valuation model. Money supply represented by M2 provides a

measure of liquidity in the economy and any change in money supply should therefore have an impact on the investment decisions of the individual investors. [Abeyratna Gunasekaragea, Anirut Pisedtasalasaib and David M Power (2003)].

- ✓ Inflation negative correlation with all share price index

Increase the inflation rate → decreased purchasing power decreased investment → decreased demand for share → decreased share price → decreased all share price index

An increase in the rate of inflation is likely to lead to decreased purchasing power decreased investment, which in turn decreased demand for share and hence raises decreased share price in the valuation model. The rise (fall) in inflation reduces (increases) the purchasing power of investors and thus should have an impact on equity investment decisions of local investors. [Abeyratna Gunasekaragea, Anirut Pisedtasalasaib and David M Power (2003)].

- ✓ Exchange rate positive correlation with all share price index

Increased the exchange rate (Depreciate side of Sri Lanka) → increased foreign investment → increased demand for share → increased share price → increased all share price index

An increase in the rate of exchange rate (Depreciate side of Sri Lanka) is likely to lead to increased foreign investment, which in turn increased demand for share and hence raises share price in finally all share prices index increased in the valuation model. the rise (fall) in exchange rate makes Sri Lankan equity cheaper (expensive) for foreign investors and therefore, fluctuations in exchange rate should have an impact on equity investment decisions of foreign investors. [Abeyratna Gunasekaragea, Anirut Pisedtasalasaib and David M Power (2003)].

- ✓ Treasury bill rate negative correlation with all share price index

Increased Treasury bill rate → increased investment in Treasury bill (risk free investment) → decreased investment in share market → decreased demand for share → decreased share price → decreased all share price index

An increase in the rate of Treasury bill rate is likely to lead to increased in Treasury bill (risk free investment), which in turn decreased investment in share market and decreased demand for share also decreased share price and finally hence raises to decreased all share price index in the valuation model. The Treasury bill rate acts as the rate of return offered by the risk-free asset and the shifting of funds between risky equity and risk-free assets by portfolio managers is significantly influenced by the movements of this rate. [Abeyratna Gunasekaragea, Anirut Pisedtasalasaib and David M Power (2003)].

HYPOTHESIS

This research observes the effects of macroeconomic variables on stock prices in the emerging Sri Lankan Stock Market.

H 1; There is a negative relationship between All Share Price Index and Inflation?

H 2; There is a positive relationship between All Share Price Index and Money Supply?

H 3; There is a positive relationship between All Share Price Index and Exchange Rate?

H 4; There is a negative relationship between All Share Price Index and Treasure Bill Rate?

SAMPLE

Further, since the study is engaged with the return of market index, it is needed to identify the suitable market index, which is matching with the sample. The CSE calculates the All Share Price Index (ASPI), Inflation (consumer price index), Money Supply, Exchange Rate and Treasure Bill Rate for weekly basis. Under ASPI, all the listed companies are considered and it deals with market capitalization of each

security calculated based on the market price and number of trades. The Inflation (consumer price index) is also calculating as the Average Wholesale prices of consumer goods, Inflation is measured by changes in the Colombo Consumer Price Index (CCPI) which was collected from Annual Reports of the Central Bank of Sri Lanka, Money Supply indicate an increase in M2 growth excess liquidity available for buying securities, resulting in higher security prices, The money supply data consists of broad money supply (M2). In this empirical study the researcher used broad money supply, Exchange Rate calculates Commercial Bank Average Middle Rate (prevailing at 9.30a.m.) Central Bank purchases and sales of foreign exchange from commercial banks at market rates, the researcher used the nominal exchange rate as a measure of exchange rate variable. The nominal exchange rate is defined as domestic currency units (Rs.) per unit of US dollar. And Treasure Bill Rate calculates from Treasury Bill Yield - 91 days Central Bank indicative rate in weekly average based on actual transactions. The study uses three month primary market Treasury Bill Yield Rate as a measure of nominal interest rate.

LIMITATIONS

- This study has taken only one year period at June 1st 2009 to 2010 may 31st in CSE is not sufficient enough to consideration.
- The limited time available due to fulfill academic is also imposed restriction of the study.

RESULTS

Chapter Introduction

The Analysis is a very much important chapter in any study, because it is discussed how the raw data are processed based on the research methodology and the way of organizing that data to achieve research objective. As mentioned in Chapter 03, the all data are gathered to this study is primary data and all of

them are quantified data. To make the analysis is easy, and to reduce data entering errors, each and every company is given a numerical code. In name P1 is called All Share Price Index; others are P2, P3, P4 and P5. Those are Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasure Bill Rate respectively. As mentioned in the Chapter 03, the market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006.

Table define

Table 01 Descriptive Analysis of Data

e	Mean	Std. Deviation	Variance
All Share Price Index	2.572	586.608	3.441
Consumer price index	1.812	28.901	835.3
Money Supply	1.170	2.2515	5.070
Exchange Rate(Us\$)	1.097	4.2543	18.099
Treasury Bill Rate	13.658	3.874	15.011

This table shows the summary of main micro economic factors that influence the Colombo Stock Exchange. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarize one table as mean, Std. deviation and variance. Below table mean represent the average number of all data, which mean how sample period research factors are averagely distributed. Std. deviation represents the measure of how spread out numbers of below data. Simply say, how much mean can be varied. The Variance means which is the square of the standard deviation or average of the squared differences from the Mean. Variance use the more simplify the mean and Std. deviation.

Table 02 How other micro economic factors affect the all share price index

Dependent variables are Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasure Bill Rate and independent variable is All share price index. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarizing one table. Below table mean represent the average number of all data,

which mean how sample period research factors are averagely distributed. "Significant" means probably true (not due to chance). This table shows you "95%" or ".95" to indicate this level. Instead of it show you ".05," meaning that the finding has a five percent (.05) chance of not being true, which is the converse of a 95% chance of being true.

	Mean	Sig.
Consumer price index	858.84	0.333

Money Supply	5.38	0
Exchange Rate(Us\$)	19.20	0
Treasury Bill Rate	15.91	0.004

Table 03 Other variable affect the Consumer price index

Dependent variables are All share price index, Money Supply, Exchange Rate (Us\$) and Treasure Bill Rate and independent variable is Consumer price index. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarizing one table. Below table mean represent the average number of all data,

which mean how sample period research factors are averagely distributed. "Significant" means probably true (not due to chance). This table shows you "95%" or ".95" to indicate this level. Instead of it show you ".05," meaning that the finding has a five percent (.05) chance of not being true, which is the converse of a 95% chance of being true.

	Mean	Sig.
All Share Price Index	350830.513	0.049
Money Supply	5.17	0.036
Exchange Rate(Us\$)	18.452	0.064
Treasury Bill Rate	15.305	0.001

Table 04 Other variable affect the Money Supply

Dependent variables are All share price index, Consumer price index, Exchange Rate (Us\$) and Treasure Bill Rate and independent variable is Money Supply. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarizing one table. Below table mean represent the average number of all data,

which mean how sample period research factors are averagely distributed. "Significant" means probably true (not due to chance). This table shows you "95%" or ".95" to indicate this level. Instead of it show you ".05," meaning that the finding has a five percent (.05) chance of not being true, which is the converse of a 95% chance of being true.

	Mean	Sig.
All Share Price Index	356778.904	0.074
Exchange Rate(Us\$)	18.823	0
Treasury Bill Rate	15.604	0.012

Consumer price index	841.784	0.545
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Table 05 Other variable affect the Exchange Rate (Us\$)

Dependent variables are All share price index, Consumer price index, Money Supply and Treasure Bill Rate and independent variable is Exchange Rate (Us\$). Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarizing one table. Below table mean represent the average number of all data,

which mean how sample period research factors are averagely distributed. "Significant" means probably true (not due to chance). This table shows you "95%" or ".95" to indicate this level. Instead of it show you ".05," meaning that the finding has a five percent (.05) chance of not being true, which is the converse of a 95% chance of being true.

	Mean	Sig.
All Share Price Index	350856.718	.
Treasury Bill Rate	15.305	.
Consumer price index	825.281	0.793
Money Supply	5.17	.

Table 06 Other variable affect the Treasure Bill Rate

Dependent variables are All share price index, Consumer price index, Money Supply and Exchange Rate (Us\$) and independent variable is Treasure Bill Rate. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are summarizing one table. Below table mean represent the average number of all data,

which mean how sample period research factors are averagely distributed. "Significant" means probably true (not due to chance). This table shows you "95%" or ".95" to indicate this level. Instead of it show you ".05," meaning that the finding has a five percent (.05) chance of not being true, which is the converse of a 95% chance of being true.

	Mean	Sig.
All Share Price Index	366011.464	0.138
Consumer price index	862.425	0.354
Money Supply	5.52	0.023
Exchange Rate(Us\$)	19.73	0.018

Table 07 Correlations

Dependent variables are All share price index, Consumer price index, Money Supply and Exchange Rate (Us\$) and independent variable is Treasure Bill Rate. Those data are representing the opening from 01st January 2006 to 31st June 2010. That 53 month data are

summarizing one table. The correlation measures the direction and strength of the linear relationship. Correlation explains -1 to +1 range. -1 mean strong negative correlation and +1 mean strong positive correlation.

All Share Price Index	Consumer price index	Money Supply	Exchange Rate(Us\$)	Treasure Bill Rate
1	0.26	.458**	.306*	-.437**

Table 08 Regression

Regression is used to examine the relationship between one dependent and one independent variable. Below table shows, how all the data are in scatter diagram in distributed? Dependent variable is All share price index,

and others are independent Consumer price index, Money Supply and Exchange Rate (Us\$) and independent variable is Treasure Bill Rate.

Model	R	R Square	Model Summary	
			Adjusted R Square	Std. Error of the Estimate
1	0.615773	0.379177	0.327442	481.0756
a. Predictors: (Constant), Treasure Bill Rate, Consumer price index, Exchange Rate(Us\$), Money Supply				

Table 08.01

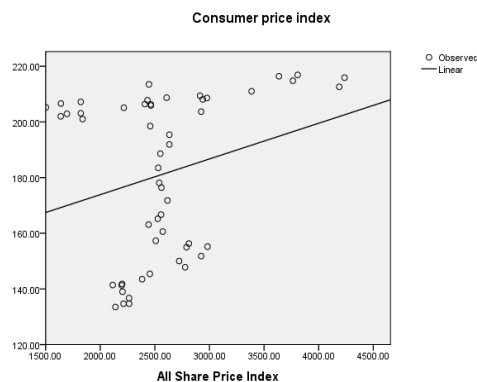


Table 08.02

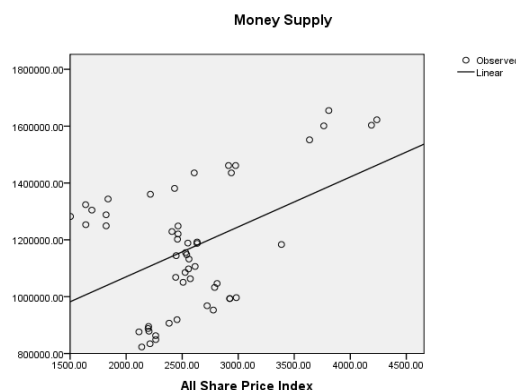


Table 08.03

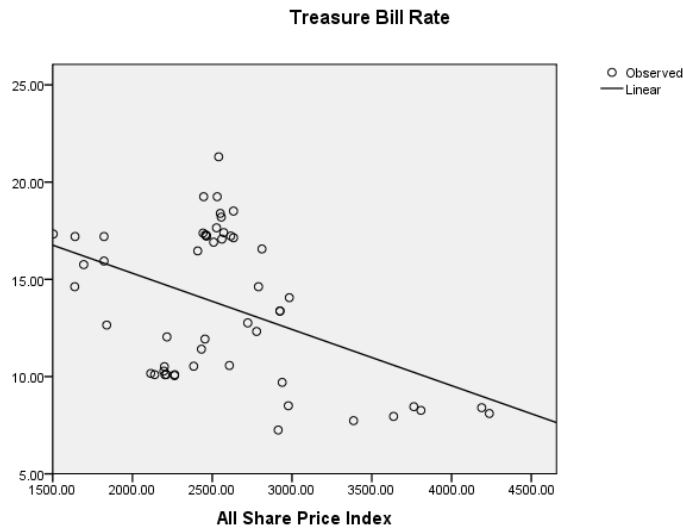
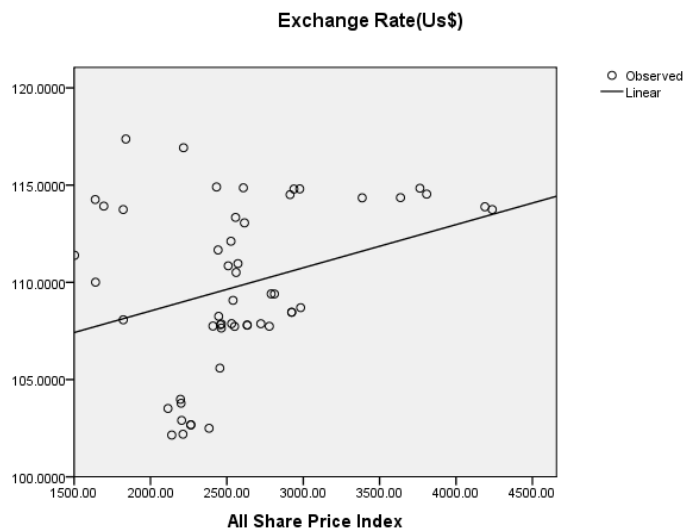


Table 08.04



DISCUSSION

This chapter provides a detailed description of the data analysis and discussion of research findings as a result of various statistical tests. The Analysis is a very much important chapter in any study, because it is discussed how the raw data are processed based on the research methodology and the way of organizing that data to achieve research objective. Data were collected via Central Bank of Sri Lanka for

selected economic indicators (Website: <http://www.cbsl.gov.lk>). The data file was the data enter to the Statistical Packages for Social Sciences' (SPSS) software for analysis. As mentioned in Chapter 03, the all data are gathered to this study is secondary data and all of them are quantified data. The plan for analysis is as follows. First, descriptive statistics, Std. Deviation, Variance, Anova test, significance and mean tables will be generated by SPSS analysis. As mentioned in

the Chapter 03, the market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006. Table 01 shows the summary of main micro economic factors that influence the Colombo Stock Exchange. This table represents the 53 months data, it include all the main factors Colombo stock exchange. All Share Price Index, Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate respectively include mean, Std. Deviation and Variance. This shows the basic description of Colombo stock exchange, and also represent how those factors are affected the CSE.

Table 02 show how other micro economic factors affect the all share price index, Based on these results, we keep the first four factors from the Maximum Explanatory Component Analysis as the statistical factors driving Colombo stock exchange. The first factor explains 2.572, 1.812, 1.170, 1.097 & 13.658 mean value respectively, while all the micro economic factors affect the all share price index. Determine the risk on these four factors for each month of our test period (2006-2010). Consumer price index mean is 858.84; it shows 0.33 significance level that mean, consumer price index is not affecting the all share price index. Money Supply and Exchange Rate (Us\$) has strong relationship to all share price index. It consists of zero significance level and mean 5.38, 19.20 respectively. Treasury Bill Rate has 0.004 significance level, and means value is 15.91. As far as the factor risk is concerned, we note that two of them are statistically significant at the 5% level. The fact that only one factor is significant could be due to there being positive and negative occurrences of the risk with their average being not significantly different from zero. This is confirmed by the results obtained with multi-factor setting. Also find that all pairs of positive and negative risk is not significantly different from one another in absolute value. These results are a clear indication that a four-factor structure is

required to characterize. There are significant relationships between all share price index and Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. Table 02 shows statistical model explains the cross-sectional analysis well as the average value. Through the employment of Hendry's (1986) approach which allows making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium, they analyzed the influence of interest rate, Consumer price index, money supply, exchange rate and real activity, along with a dummy variable. The market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006. According to the Consumer price index the most irregular of stock return-inflation relations is the negative relation between expected real stock returns and level of expected inflation (Consumer price index). Since the level of expected inflation is a gamble variable, regressions of realized stock returns on expected inflation estimate the relation between the ex ante expected component of stock returns and gamble expected inflation. The results of studies by Fama and Schwert (1977), Chen, Roll and Ross (1986), Nelson (1976) and Jaffe and Mandelker (1976) pointed to a negative relation between inflation and stock prices.

Table 03 show how other variable affect the Consumer price index, Based on these results, we keep the first four factors from the Maximum Explanatory Component Analysis as the statistical factors driving Colombo stock exchange. The first factor explains 350830.513, 5.17, 18.452 and 15.305 mean value respectively, while all the micro economic factors affect the Consumer price index. Determine the risk on these four factors

for each month of our test period (2006-2010). Exchange Rate (Us\$) mean is 18.452; it shows 0.064 significance level that mean, Exchange Rate (Us\$) is not affecting the Consumer price index. Money Supply and Exchange Rate (Us\$) and all share price index has strong relationship to Consumer price index. It consists of 0.049, 0.036, 0.001 significance level and mean 350830.513, 5.17 and 15.305 respectively. As far as the factor risk is concerned, we note that two of them are statistically significant at the 5% level. The fact that only one factor is significant could be due to there being positive and negative occurrences of the risk with their average being not significantly different from zero. This is confirmed by the results obtained with multi-factor setting. Also find that all pairs of positive and negative risk are not significantly different from one another in absolute value. These results are a clear indication that a four-factor structure is required to characterize. There are significant relationships between all share price index and Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. Table 03 shows statistical model explains the cross-sectional analysis well as the average value. According to the Consumer price index the most irregular of stock return-inflation relations is the negative relation between expected real stock returns and level of expected inflation (Consumer price index). Since the level of expected inflation is a gamble variable, regressions of realized stock returns on expected inflation estimate the relation between the ex ante expected component of stock returns and gamble expected inflation. Maghyereh (2002) investigated the long-run relationship between the Jordanian stock prices and selected macroeconomic variables, again by using Johansen's (1988) cointegration analysis and monthly time series data for the period from January 1987 to December 2000. The study

showed that macroeconomic variables were reflected in stock prices in the Jordanian capital market. Gunasekarage, Pisedtasalasai and Power (2004) examined the influence of macroeconomic variables on stock market equity values in Sri Lanka, using the Colombo All Share price index to represent the stock market and (1) the money supply, (2) the treasury bill rate (as a measure of interest rates), (3) the consumer price index (as a measure of inflation), and (4) the exchange rate as macroeconomic variables. They examined both long-run and short-run relationships between the stock market index and the economic variables the market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006.

Table 04 show how Other variable affect the Money Supply, Based on these results, we keep the first four factors from the Maximum Explanatory Component Analysis as the statistical factors driving Colombo stock exchange. The first factor explains 356778.904, 18.823, 15.604 and 841.784 mean value respectively, while all the micro economic factors affect the Money Supply. Determine the risk on these four factors for each month of our test period (2006-2010). Consumer price index mean is 841.784; it show 0.545 significance level that mean, Consumer price index is not affecting the Money Supply. Treasury Bill Rate and Exchange Rate (Us\$) and all share price index has strong relationship to Money Supply. It consists of 0.012, 0, 0.074 significance level and mean 15.604, 18.823 and 356778.904 respectively. As far as the factor risk is concerned, we note that two of them are statistically significant at the 5% level. The fact that only one factor is significant could be due to there being positive and negative occurrences of the risk with their average being not significantly different from zero. This is confirmed by the results obtained with multi-factor setting. Also find that all pairs of

positive and negative risk are not significantly different from one another in absolute value. These results are a clear indication that a four-factor structure is required to characterize. There are significant relationships between all share price index and Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. Table 04 shows statistical model explains the cross-sectional analysis well as the average value. According to the Consumer price index the most irregular of stock return-inflation relations is the negative relation between expected real stock returns and level of expected inflation (Consumer price index). They examined both long-run and short-run relationships between the stock market index and the economic variables the market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006. Friedman and Schwartz (1963) explained the relationship between money supply and stock returns by simply hypothesizing that the growth rate of money supply would affect the aggregate economy and hence the expected stock returns. An increase in M2 growth would indicate excess liquidity available for buying securities, resulting in higher security prices. The negative effects might be countered by the economic stimulus provided by money growth, also known as the corporate earnings effect, which may increase future cash flows and stock prices.

Table 05 show how other variable affect the Exchange Rate (Us\$), Based on these results, we keep the first four factors from the Maximum Explanatory Component Analysis as the statistical factors driving Colombo stock exchange. The first factor explains 2350856.718, 15.305, 825.281 and 5.17 mean value respectively, while other micro economic factors affect the Exchange Rate.

Determine the risk on these four factors for each month of our test period (2006-2010). Consumer price index mean is 825.281; it shows 0.793 significance level that mean, consumer price index is not affecting the Exchange Rate. All Share Price Index, Treasury Bill Rate and Money Supply have strong relationship to all share price in Exchange Rate. Those consist of zero significance level and mean 350856.718, 15.305 and 5.17 respectively. We note that two of them are statistically significant at the 5% level. The fact that only one factor is significant could be due to there being positive and negative occurrences of the risk with their average being not significantly different from zero. This is confirmed by the results obtained with multi-factor setting. Also find that all pairs of positive and negative risk is not significantly different from one another in absolute value. These results are a clear indication that a four-factor structure is required to characterize. There are significant relationships between All Share Price Index, Treasury Bill Rate and Money Supply to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. According to Maysami and Koh (2000), identified there is a positive relation between the exchange rate and stock prices. A depreciation of the Singapore dollar will lead to an increase in demand for Singapore's exports and thereby increasing cash flows to the country, assuming that the demand for exports is sufficiently elastic. Alternatively, if the Singapore dollar is expected to appreciate, the market will attract investments. This rise in demand will push up the stock market level, suggesting that stock market returns will be positively correlated to the changes in the exchange rates (Mukherjee and Naka 1995). The impact of exchange rate changes on the economy will depend to a large extent on the level of international trade and the trade balance. Hence the impact will be determined by the relative dominance of import and export sectors of the economy. The

market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006. Table 05 shows statistical model explains the cross-sectional analysis well as the average value. Through the employment of Hendry's (1986) approach which allows making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium, they analyzed the influence of interest rate, Consumer price index, money supply, exchange rate and real activity, along with a dummy variable.

Table 06 show how other variable affect the Treasure Bill Rate, Based on these results, we keep the first four factors from the Maximum Explanatory Component Analysis as the statistical factors driving Colombo stock exchange. The first factor explains 366011.464, 862.425, 5.52 and 19.73 mean value respectively, while other micro economic factors affect the Treasure Bill Rate. Determine the risk on these four factors for each month of our test period (2006-2010). All Share Price Index and Consumer price index mean is 366011.464,862.425; it shows 0.138, 0.354 significance level, that mean, consumer price index is not affecting the Treasure Bill Rate. Money Supply and Exchange Rate (Us\$) have strong relationship to Treasure Bill Rate. Those consist of 0.023 and 0.018 significance level and mean 5.52 and 19.73 respectively. We note that two of them are statistically significant at the 5% level. The fact that only one factor is significant could be due to there being positive and negative occurrences of the risk with their average being not significantly different from zero. This is confirmed by the results obtained with multi-factor setting. Also find that all pairs of positive and negative risk is not significantly different from one another in absolute value. These results are a clear indication that a four-factor structure is required to characterize. There are significant relationships between

Money Supply and Exchange Rate (Us\$) to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. The market data of individual factor, which come under the selected sample, are collected at the end of the each month beginning from 31st June 2010 and opening from 01st January 2006. Table 05 shows statistical model explains the cross-sectional analysis well as the average value. Through the employment of Hendry's (1986) approach which allows making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium, they analyzed the influence of interest rate, Consumer price index, money supply, exchange rate and real activity, along with a dummy variable. There is a negative relationship between the Treasury bill rate and the all share price index. Because when Treasury bill rate high investors going to invest in Treasury bill due to risk free invest. They can earn higher gain under lower risk than invest in share market. As a result decreased the demand for shares and decreased the all shares price index. On the other hand when Treasury bill rate come down investors going to invest more and more in share market and it affect to increase the all share price index. The economic rationale for such negative relations is based on a reverse causality effect. According to Geske and Roll contend that movements in stock prices cause (in an econometric sense) changes in inflationary expectations. An unanticipated drop in stock prices is a signal for a drop in anticipated economic activity and, therefore, in government revenues. Given largely fixed government expenditures (called entitlements) this leads to the expectation that the government will run a deficit and, to the extent that deficits are monetized, there will be a consequent increase in expected inflation.

Table 07 shows the correlation among variables. Dependent variable is all share price

index, others are independent. That table shows the, Consumer price index, Money Supply and Exchange Rate(Us\$) has moderate positive Correlation, respectively 0.26, 0.458, 0.306. That shows these variables can be affect the all share price index. But Treasure Bill Rate has moderate negative Correlation,-0.437.it says, Treasure Bill Rate and all share price index has negative relationship.

Table 08, shows the regression analysis of all the data. Those tables show Consumer price index, Money Supply and Exchange Rate(Us\$) are distributed in positively, but Treasure Bill Rate is negative slope. According to regression definition, after performing an analysis, the regression statistics can be used to predict the dependent variable when the independent variable is known. As a whole regression is 0.615773.

CONCLUSION

This study examined the dynamic interrelations between macro-economic variables and the stock market index in Sri Lanka. Variables such as the All Share Price Index, Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate were used to represent economic forces while the all share price index was used to represent the stock market. The main findings revealed that there was a long run equilibrium relationship between the stock prices and some macro-economic variables. Study found that Exchange Rate (Us\$), the money supply and the Treasury bill rate were significantly Influence on the stock market index. There are significant relationships between All Share Price Index, Treasury Bill Rate and Money Supply to statistical factors. Those findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. This rise in demand will push up the stock market level, suggesting that stock market returns will be positively correlated to the changes in the exchange rates. There is a negative relationship between the Treasury bill

rate and the all share price index. Because when Treasury bill rate high investors going to invest in Treasury bill due to risk free invest. They can earn higher gain under lower risk than invest in share market. As a result decreased the demand for shares and decreased the all shares price index. On the other hand when Treasury bill rate come down investors going to invest more and more in share market and it affect to increase the all share price index. The economic rationale for such negative relations is based on a reverse causality effect. This may be because the macro-economic variables used in this study represent only a subset of variables available in studies of developed markets. Future studies may benefit by integrating other variables such as industrial production, a broader measure of money supply and a long-term interest rate into their analyses. The results of the previous studies have changed according to the macroeconomic factors used; some other macroeconomic variables would provide more information about the stock return - economic activity relationship. Findings emphasize the importance of assessing separately the significance of the risk for positive and negative occurrences of the factors. Which allows making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium; they analyzed the influence of interest rate, money supply, exchange rate and real activity, along with a dummy variable. According to the Consumer price index the most irregular of stock return-inflation relations is the negative relation between expected real stock returns and level of expected inflation (Consumer price index). Stock return and Consumer price index relation as a consequence of pro-cyclical movements in money, prices, and stock returns. Specifically, stock returns either have no relation or are positively related to the inflation variables. In theory stocks should be inflation neutral, with only unanticipated inflation negatively impacting stock prices. However, for stocks to be inflation neutral,

companies must be able to pass on cost increases, and future nominal free cash flows must be equal to real cash flows multiplied by the inflation rate. As well, investors must discount those cash flows at the same real interest rate used before the onset of inflation. An understanding of how inflation affects equity prices both in theory and in practice may assist investors in thinking about their strategic and tactical asset allocations. In theory stocks should be inflation neutral, and rising inflation should have no impact on stock valuations. This belief is based on two core assumptions as outlined in Giammarino (1999): 1) that companies can pass on one-for-one costs; and 2) that the real interest rate that investors use to discount real cash flows does not rise when inflation rises. It also assumes that inflation has no long-term negative impact on growth. There are several theories as to why inflation negatively impacts equity prices and the precise dynamic remains a matter of considerable debate. A building block for the analysis is the Fisher effect. As Irving Fisher (1930) noted, nominal interest rates may be decomposed into an expected real rate and an expected inflation component. An understanding of how inflation impacts equity prices may assist investors in their asset allocation decisions. Above studies to examine the short-run dynamic adjustment and the long-run equilibrium relationships between five macroeconomic variables (All Share Price Index, Consumer price index, Money Supply, Exchange Rate (Us\$) and Treasury Bill Rate) Interest rates (Consumer price index) can influence the level of corporate profits which in turn influence the price that investors are willing to pay for the stock through expectations of higher future dividends payment. The effect of a higher discount rate would not necessarily be neutralized by an increase in cash flows resulting from Consumer price index. Finally, in this research can be say Consumer price index is not significant factor of that affect the all share price index and other variables. The money supply and the Treasury bill rate were

significantly Influence on the stock market index.

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**AN ANALYSIS OF THE DETERMINANTS THAT AFFECT THE CAPITAL
STRUCTURE OF FIRMS: AN EMPIRICAL STUDY OF FIRMS LISTED ON THE
COLOMBO STOCK EXCHANGE**

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ABSTRACT

The capital market is an environment where enterprises raise funds in order to meet their short term and long term objectives. The decision makers of the firm are aware of the possible changes in firm value and thereby try to select an optimum financing structure where the firm value is maximized. Since the seminal work of Modigliani and Miller (1958), much subsequent research has been devoted to the task of finding a coherent explanation for what influences the choice of capital structure. All 288 listed firms on the Colombo Stock Exchange were initially considered for the study but further analysis led to the exclusion of firms in the Financial Sector (Banking, Finance and Insurance), Investment Trusts and Closed-Ended Funds. The reason for their exclusion is the existence of a different set of determinants that impact the leverage decision due to their different business model. As the data analysed will be cross-sectional time series, pooled cross-sectional time series analysis will be conducted to avoid the problems of using cross sectional proxies for time sequenced variables (Gul 1999). The data variable model used by Kayhan and Titman (2007) will be applied to the data variables extracted from financials of firms listed on the Colombo Stock Exchange. The following variables were analyzed in relation to the capital structure of firms: Profitability, Size of the firm, Assets of the firm, Growth of the firm, Tax, Age, Industry type, and Ownership. Pilot analysis has revealed a mean D/E ratio of 0.39-0.44x across all industries which may indicate mean reverting tendencies to firms, which lending institutions and investment banks could capitalize on, in order to identify potential issuers of debt or equity.

Keywords: *Capital Markets, Capital Structures, Financing, Corporate Finance, Equity, Debt, Firm Value*

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VAT: PRACTICE, MYTHS AND REALITIES

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ABSTRACT

Value Added Tax (VAT) is a tax on consumer expenditure. It represents a major part of the indirect tax income of the government. Theoretically VAT is charged on the value added by the seller on business transactions. Value Added Tax (VAT) is introduced by the Act No.14 of 2002 and is in force from 1st August, 2002. Since the introduction, the main act of VAT has been amended several times. Different forms of VAT introduced, amendments made and the financial reporting regulatory requirements mainly through accounting standards has brought the VAT law and its application a complex scenario. Therefore, this study attempts to summarize and the present a simplified form of different VAT schemes available, their application to the general businesses and myths and realities behind the VAT. Further, the study has identified the advantages of the compliance to VAT to business entities. The writer will not try to generalize the findings as the study try to understand VAT practice based on the data gathered through a convenient sampling. But, the paper will be useful to any party who is keen on gaining a reasonable knowledge of VAT and its application.

Key words: VAT, Indirect tax, Amendments, Financial reporting, Accounting Standards

INTRODUCTION

Imposition of tax has a long history. The tax systems prevailed in the ancient times has been evolved in to different forms and changed to the tax system that we experience at present. The reason behind the imposition of tax by the government has also changed to that extent. For, example the main objective of imposition of tax in the ancient kingdom was to maintain the castle and the forces, among others. In addition to these two main objectives, there are other objectives behind the imposition of tax by any government of any country. Among these, the main objectives are to collect revenue to meet the government expenditure such as development, defense, health and education etc. The government also attempts to manage the income distribution between poor and rich, to manage the demand for desired products and services and to manage the administration system of the

country. Exemption from tax has been used to encourage savings, promote production, favour industries, subsidize housing, diversify exports, attract foreign investments, reward public servants etc.

There are two main tax revenue sources. They are 'direct tax' and 'indirect tax. The direct tax is imposed on 'a person' (Sec. 78 of Inland Revenue Act (IRA)) and that person has to pay taxes on his income sources. (Sec. 78 of IRA). But indirect tax (Value Added Tax (VAT), Nation Building Tax (NBT), Economic service charges (ESC), Stamp duty etc.) is imposed on registered suppliers and the tax is paid by the final consumers of the products or services. The author intends to discuss VAT as the main source of indirect tax in this research paper.

VAT is a tax on consumer expenditure. Theoretically, VAT is charged on the value added by the seller on business transactions.

(But, as per section 83 of the VAT act, import of good is also considered as a VAT chargeable activity). The goods and services supplied within the territorial limits of Sri Lanka are the subject matter of this tax. The parties to the transactions act as agents of the government, collects the tax on behalf of the Government and remits it to the Inland Revenue Department (IRD) on due dates.

VAT is introduced by the Act No.14 of 2002 and is in force from 1st August, 2002. VAT Act replaced the Goods and Services Tax (GST) which was almost a similar tax on the consumption of goods and services. VAT is not charged on certain imports and on retail and wholesale supply of goods. There are certain supplies of goods and services, which are exempt from VAT. Since the introduction, the main act of VAT has been amended nine times (the act will be amended in the future as well). In addition to the said amendments, many changes have introduced to the VAT Act through gazette notifications.

Brief Introduction of Existing VAT System in Sri Lanka

Before proceeding further, the readers should be aware of the basics in VAT law. The section below attempts to summarize such knowledge to readers with any background to facilitate the understanding of the paper.

VAT has been imposed on every taxable **supply of goods and services**, by a **registered person** in the course of carrying on or carrying out a taxable activity, by such person in Sri Lanka and on the **importation of Goods** into Sri Lanka by any person.

The bolded terms have been explained further as follows.

Supply of goods and services

The passing of exclusive ownership to another person is considered as the supply of goods. This includes; general sales, sale of goods under public auctions, the transfer of goods under hire- purchase agreement etc. The passing of exclusive ownership may take place

in transferring both the titles and possessions. Any supply which is not a supply of goods is a supply of service.

Registered person

As per the VAT act, persons selling goods or providing services become liable to be registered with the IRD as a registered person. These registered person should collect VAT and remit them to the IRD in respect of goods and services supplied. Every person carrying on a taxable activity is registered for VAT if (1) the value of supply exceeds Rs.650,000 at the end of 3 months period or is likely to exceed Rs.650,000 in the succeeding taxable period or (2) exceeds Rs.2,500,000 in the preceding twelve month period or is likely to exceed Rs.2,500,000 in the succeeding twelve month. There are other forms of registrations such as forced registration and voluntary registration.

Importation of Goods

Casual importers who are not registered persons are also required to be obliged with the registration requirements of the IRD in order to clear the goods from the customs.

Rates of Taxes

Following tax rates exists on or after 01.01.2011.

- Zero rate 0%
- On direct exports or services.
- Standard rate 12%
- On goods or services other than exempt and zero rated
- Optional VAT rates 2%, 4%, 8% and 12%

RESEARCH PROBLEM

The amendments of VAT Act over many numbers of occasions have brought the VAT concept a complex scenario for the relevant tax payers and the related stakeholders. The existence of different VAT schemes is not

known to many related stakeholders. Further, due to its frequent changes, many stakeholders are not aware of the correct practice. Simultaneously, the business entities have to meet the reporting requirements, ensuring the compliance with the Sri Lanka Accounting Standards. Reporting method is also different depending on the nature of the business with respect to VAT. (i.e. the exempt undertakings and other registered persons will have to record the VAT related transactions in different ways).

OBJECTIVES OF THE STUDY

Therefore, this study attempts to achieve following objectives.

1. To summarize and the present a simplified form of different VAT schemes available in Sri Lanka, such as Simplified (Suspended) VAT scheme and optional VAT etc.
2. To present the practice of VAT in different scenarios by fulfilling the requirement of the Sri Lanka Accounting Standards (SLASs) depending the position of VAT registration or not.
3. To identify the level of difficulty of VAT and its compliance to practitioners.
4. To list the advantages and disadvantages of VAT to business organizations.

METHODOLOGY

The writer will peruse the VAT Act, the subsequent amendments to the Act and the gazette notifications published by the government to summarize the existing VAT law in relation to standard VAT, simplified (suspended) VAT and optional VAT schemes. The writer has also interviewed a sample of practitioners of firms of chartered accountants and organizational managers to achieve the aforesaid objectives. The sample is a

convenient sample selected from the writers personal contacts. The writer has also collected the data through questionnaires to obtain an understanding of the VAT practice, the level of understanding / difficulty of VAT Law.

LITERATURE REVIEW

The writer has reviewed and summarized the VAT law in the introduction section. In addition, the writer will also like to draw attention for the following literature summarized from different sources.

Sri Lankan government first introduced indirect tax known as Business Turnover Tax (BTT) by Finance Act No 11 of 1963. It was replaced by Turnover Tax Act No 69 of 1981. These taxes were subject to heavy criticism due to cascading effect. In order to resolve this issue, the government introduced new concept of VAT/GST (Goods and Services Tax) giving input tax credit for registered manufactures. GST was introduced in 1998 with a single rate of 12.5%. VAT was introduced with basically two rates of 10% & 20% abolishing GST & National Security Levy (NSL) in 2002.

VAT has not brought the revenue generated as BTT and GST did when they were in existence. VAT has brought 33% of tax revenue and is about 5.5% of the Gross Domestic Production (GDP). BTT and GST brought a 6.5% and 6% of GDP respectively. VAT has not been able to achieve this target after operating the system since 2002, more than 10 years. This is also evidenced by the low revenue productivity of the VAT. Sri Lanka's VAT Revenue Productivity is low in relation to developed and developing countries. A score of 1.0 indicates a perfect VAT revenue productivity. Sri Lanka has a score of 0.315, whereas in Vietnam it is 0.562, Thailand 0.560, Nepal 0.398, Indonesia 0.353 and Singapore 0.415.

Sri Lanka is still learning with respect to VAT which is evidenced by eight amendments introduced since the introduction of the first

VAT act. This could be one reason for low VAT revenue.

(Revenue Productivity = Total VAT Revenue as percentage of GDP (or consumption), divided by the VAT standard rate. In other words, what every 1% of VAT rate raises in terms of VAT revenue share of GDP).

VAT operating mechanism heavily relies on the input-output system which has to be interlinked among all the registered persons and IRD. However, due to limitations in the existing database system, this input-output checking mechanism is not complete.

Despite this database system, the VAT branch of IRD has allegedly made unlawful refunds to non-existing companies amounting to Rs.3.5 billion. In addition, another large scale VAT fraud, amounting to Rs.180 million has come to light and the fraud has begun in 2010 as pointed by a commissioner of IRD. Despite these frauds, tax amnesty was given for VAT by the government in 2004 which is highly unethical since they have used the tax collected input VAT.

The other concern addressed in this paper is the VAT practice. How the VAT components are recorded by different persons in their books of accounts by complying with the requirements in the accounting standards. Without duplicating the SLASs requirements the writer has discussed the practice by taking different scenarios.

LIMITATIONS OF THE STUDY

Whilst the study is going on, the government may introduce further amendments to the existing VAT Act. In such case the study may not be able to capture them fully. Available literature with respect to VAT is very rare in Sri Lanka context. Therefore, the Act, subsequent amendments and gazette notifications will be the main reference document available to the writer.

VAT: PRACTICE

Practice of Standard VAT

It should be clear now that, there are registered organization for VAT, and organization which are not registered for VAT. If an organization is registered for VAT, it has to collect tax on sales and has to pay tax on purchases and expenses. The difference between the sales VAT (output VAT) and purchases and expenses VAT (input VAT) has to be paid to the IRD.

If the organization has not registered for VAT, these organization are not required to collect the VAT on sales. The VAT paid by them when acquiring goods and services cannot be charged from anyone else. Hence, it will be a part of the cost of such goods and services purchased.

Costs of Goods and Services and VAT

If the output VAT paid can be collected from others (from organization and individuals consumers), such VAT will not be a part of the revenue of the organization. At the same time, the input VAT paid by such organization will not be a part of the cost of such goods and services.

To understand this situation clearly refers to the following scenario.

Scenario 01

Background information

A Ltd is a VAT registered supplier and B Ltd is not registered for VAT.

Transaction taken place is as follows.

A Ltd purchased 1000 units of material X at Rs.10 per unit.

B Ltd purchased 1000 units of material X at Rs.10 per unit.

Both companies purchased this material from a supplier S Ltd. (S Ltd is a VAT registered person and charged a VAT at 12% when they supply goods).

The cost of purchase to A Ltd and B Ltd is as follows.

	A Ltd	B Ltd
	Rs.	Rs.
Purchased price	10,000	10,000
VAT paid added to the cost	- *	1,200
Cost of the goods	10,000	11,200

* A Ltd really incurs Rs.1,200 and pays Rs.11,200 to S Ltd (i.e. Rs.10,000 + Rs.1,200). But since, the VAT paid can be recovered, it will not be a cost of the goods purchased. But B Ltd cannot charge the VAT paid by them from this customers (since they are not registered for VAT), they add the input VAT paid to the purchase cost. This is in compliance with the SLFRS No. XX (see Para No. XX)

Scenario 02.

Background information

Assume that there are four organization and their position with respect to VAT and sales information are as follows.

Company	VAT position	Sales	VAT rate applicable
P Ltd.	Registered	Only exports	0%
Q Ltd.	Registered	Local sales	12%
R Ltd.	Not Registered	Local sales	-
Z Ltd.	Exempt	Local sales	-

Assume all companies bought 100 units of material 'M' from supplier S Ltd at Rs.10 per unit. (S Ltd is a VAT registered person and charged a VAT at 12% when they supply goods). The selling price of a unit will be

Rs.20 without VAT. All the units were sold by all the companies.

Respective outcome of this transaction to each company is as follows.

No.	Description	Company			
		P Ltd.	Q Ltd.	R Ltd.	Z Ltd.
1	Purchases	1,000	1,000	1,000	1,000
2	+ VAT paid on purchases	120	120	120	120
3	Cost to the organization	1,000 *	1,000*	1,120	1,120
4	Sales without VAT	2,000	2,000	2,000	2,000
5	+ VAT charged on sales	0	240	-	-
6	Sales value	2,000	2,240	2,000	2,000

7	(5-6) VAT payable to IRD	-	120	-	-
	(Refunds by IRD)	(120)	-	-	-

* P Ltd and Q Ltd will not add the VAT paid to cost of material as they can recover input VAT from the output VAT.

*In a competitive market R Ltd and Z Ltd will also sell the goods at a selling price of Rs.2,240. If not Q Ltd will have to sell goods at a price of Rs.2,000. In that case the output VAT will be Rs.214 and amount payable to the IRD will be Rs.214 – Rs.120, Rs.94. In practice, this is not an issue as the organizations exempt from VAT is operated in same markets.

P Ltd:

In order to promote the export revenue of the government, export sales are charged at 0% VAT rate. Therefore, all the input paid can be get refunded to P Ltd. (Now this refunds are not made by IRD and simplified VAT system (SVAT) has been introduced by the IRD to avoid refund payment. (Please refer to the SVAT practice of this paper to understand the SVAT system).

Q Ltd:

Q Ltd will claim Rs.120 from IRD, i.e. the difference between output & input VAT.

R Ltd:

Since R Ltd is not registered for VAT, the VAT paid by it has to be absorbed into the cost of the goods. The purchase price with the VAT is charged to the income stamen of the company.

Z Ltd:

Since it is a VAT exempt company, it has to absorb the VAT paid into the cost of goods. The purchase price with the VAT is charged to the income stament of the company.

Therefore, what is the difference between R Ltd, and Z. If R Ltd exceeds the VAT registration threshold, they can get registered themselves for VAT. If they registered their VAT operation position will be exactly equal to Q Ltd.

The ‘Z’ Ltd is unable to get themselves registered for VAT even if they exceed the registration threshold of VAT. The reason is

that they have been identified as a VAT exempt undertaking by the VAT Act.

Non-current asset and VAT.

On the acquisition of non-current assets, the acquiree may pay for VAT in addition to the purchase price of the assets. The accounting treatment for this VAT component is exactly similar to that of purchasing material by a company. If the purchasing company is a VAT registered company, the VAT component of the assets should not be recorded with cost of the VAT but be recorded within the claimable input tax of the organization.

If the acquiree is a person not registered for VAT or a VAT exempt organization, the VAT component available in the purchase price should be capitalized with the purchase price. After capitalization, the total cost of the assets qualifies to claim capital allowances

Practice of SVAT (Suspended VAT) / (Simplified Value Added Tax (SVAT)

SVAT is introduced by the government to stop making refunds to the zero rated registered person engaged in export oriented businesses. With the introduction of this SVAT, the registered person engaged in exports need not pay input VAT when they purchase goods or services. Since they do not pay input VAT there will be no refunds to be made even if they are zero rated.

The following persons are eligible to be registered under SVAT scheme.

- Exporters
- Registered persons engaged in any specific project referred (sub paragraph (ii) of paragraph (f) of part II of the first schedule of the ACT.
- Persons registered under section 22 (7) of the ACT
- Manufactures supplying goods to the persons engaged in exports
- Suppliers making supplies to the persons engaged in exports

(Persons who are already registered under Exports Development Board (EDB) and Textiles Quota Board (TQB) should also be registered under the SVAT scheme operated by the IRD).

Registered Identified Purchaser (RIP)

Every VAT registered exporter when making purchases are required register under SVAT scheme and they is referred as a RIP. But, to get the RIP status, the zero rated exports of such person should be more than 50% of their total supplies.

Registered Identified Supplier (RIS)

Any VAT registered person when making supplies to a zero rated exporter, they are required to register under SVAT and is referred as a RIS.

A zero rated exporter can obtain both these status (RIP and RIS) provided they fulfill the requirements of the ACT.

Practice of SVAT

How this SVAT is operating in practice is discussed below in generally under three different scenarios. (without referring to specific details and the NBT).

Scenario – 01

P Ltd (RIP) is an exporter (Zero rated VAT registered person). They have purchased goods from N Ltd (RIS) at Rs.112,000. (Rs.100,000 + Rs.12,000 VAT). As P Ltd is a RIP they are

not liable to pay Rs.12,000 (the input VAT component) to N Ltd. What will happen to this transaction in the hands of N Ltd? As N Ltd is a RIS, they will issue a SVAT invoice to P Ltd. In the SVAT invoice VAT component is shown separately by N Ltd. SVAT invoice is issued in three copies. The original is given to the purchaser. One copy is sent to IRD and one is retained by the supplier (RIS).

On receipt of SVAT invoice, P Ltd will issue a credit voucher to N Ltd (vouchers given to each RIP by the IRD). In the voucher, the invoice value and the SVAT value has to be indicated separately. The voucher should be signed by the two authorized persons of the RIP. The voucher has three copies. The original is given to the supplier. One copy is sent to IRD and one is retained by the purchaser.

Scenario – 02

S Ltd is a supplier of goods to the local market and an exporter as well. S Ltd has registered for SVAT as well. S Ltd bought goods from Q Ltd for Rs. 100,000. Q Ltd is a VAT registered person but not a SVAT registered supplier.

As S Ltd has to pay VAT of Rs.12,000 on their purchases and they can claim that input VAT amount from the local output tax as S Ltd is liable to pay VAT on local sales. If S Ltd uses these supplies for exports completely, they are not in a position to get the input VAT refunded. On a portion of these goods is sold in the local market, the input VAT proportion relevant to that can be claimed.

Scenario – 3

C Ltd is a RIP, registered for SVAT, engaged in exporting garments. The Company do not sell locally. C Ltd has bought some raw materials worth of Rs. 100,000 (the VAT is Rs.12, 000) from a VAT registered supplier G Ltd (G Ltd is not registered for SVAT).

As C Ltd is unable to claim input taxes (input VAT) they have to bear the input VAT paid as an expense.

Advantages and Disadvantages of SVAT

RIP need not pay input VAT. Therefore, they can use this money for other purposes. Prior to this SVAT scheme, they had to wait a longer time period to get the input VAT paid refunded.

Time consuming for documentation and for recording is an additional burden for both RIP and RIS. Many companies have allocated a separate person for operating the SVAT scheme.

MYTHS AND REALITIES

The data collected from audit managers and managers in other organization through the

Table 1.1

Level of understanding of VAT law

Description	Audit Managers		Organizational Managers		Total	
	Frequency	%	Frequency	%	Frequency	%
Not possible to understand	3	10.0	1	3.33	4	6.67
Possess a reasonable knowledge	25	83.3	10	33.33	35	58.33
Possess a sound knowledge	2	6.7	19	63.33	21	35
Total	30	100	30	100	60	100

Increased amendments to VAT law and its complexity

The VAT act has been amended nine times over last twelve years. Due to these increased number of amendments, the VAT law has become a complex scenario to tax practicenors both organizational managers and to the audit managers. The government’s intention is to

questionnaires are analyzed using SPSS package and summarized below.

Level of understanding of VAT law

When the question of ‘ the understandability of VAT law’ is raised from audit managers and organizational managers, the responses given by them is going in the same direction. Please refer the table 1.1 below. The law is reasonably or very well understood by 93.33% (58.33% + 35%) as per their experience. Therefore, it is reasonable to conclude that ‘the VAT law is complex’ is a myth. The law is clear to the higher majority.

make the law as simple as possible. This has not been achieved by the government as per the responses given by the participants as indicated in table 1.2 (88% is of the view that the law has become much more complex with the amendments).

Table 1.2
Complexity with the increased number of amendments

Description	Audit Managers		Organizational Managers		Total	
	Frequency	%	Frequency	%	Frequency	%
Complexity has increased with amendments	16	84	27	90	43	88
Complexity has not increased with amendments	3	16	3	10	6	12
Total	19	100	30	100	49	100

If the responses indicated by table 1.1 and 1.2 are reviewed closely, the results look contradictory. The same issue was raised by the author from the respondents after summarizing the responses. With the support of the IRD, they have been able to understand the amendments which would otherwise been not possible.

Other concerns of the respondents

Amendments to the existing VAT law

Respondents of both categories have concerns in relation to the amendments introduced. Many managers of both categories are not satisfied with the higher number of amendments. They suggest to use the existing law for a considerable period. They agree that the end consumers' inability to understand the VAT law. But, at the same time they emphasize that the frequent amendments are not required if the law is principle based that is to be going together with the macro economic policies in the country. The participants raised the ethical concerns when giving tax amnesties on VAT

Simplify the Law

In addition to above concerns, many of the respondents suggest to introduce combining rate incorporating VAT and NBT. Some of the

organizations have even hired a dedicated staff for attending VAT of the organization. This indicates the issue faced by the relevant organization.

Benefits available to VAT registered organizations

In addition to comply with the law of the country, and claim input VAT, the banks and other lending institutions take the VAT registration as a positive factor in granting loans. Further, these organizations can get special benefits form the government, such as duty concessions in importing vehicles. PI refers the advantages of SVAT also.

CONCLUSION

The practice of different VAT scheme available has been discussed by the writer which may helpful to any interested party. In addition, how the VAT components are recorded in the books of accounts under different scenarios will help the staff involved in the companies to adopt the same for their work life.

Based on the responses given by the participants of the research, it is reasonable to conclude that 'the VAT law is complex' is a myth. At the same time, the VAT law has made complex by the authorities as a result of

the frequent amendments. It is the responsibility of the authorities to restrict new amendments as far as possible. The principal based law rather than the transaction based law will definitely mitigate the requirements for frequent amendments.

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BASEL III VS ACCOUNTING STANDARDS IN THE LIQUIDITY REPORTING

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ABSTRACT

Recent crisis has shown the failure of capital markets in satisfying the liquidity needs of agents. As a consequence, the Basel Committee on Banking Supervision is now paying attention to the matter of Liquidity Risk introducing provisions banks must comply with, in order to promote short-term and long-term resilience. At the same time, the IASB amended IAS 39 by introducing IFRS 9, which regulates the accounting treatment of financial instruments. Nevertheless the intent of the BCBS to discipline the Liquidity Risk and the effort of the IASB to introduce provisions designated to give relevant and useful information on the entity's future cash flows, there are some critical points associated with those requirements and coming from the combined observations of both disciplines. The problems that will highlight derive from the different objectives of the regulatory and the accounting frameworks. The first one is to serve the safety and soundness of banks and the other is to serve the public interest in terms of transparency. For this reason the IASB should think about the chance to issue a standard specific for the banking sector. Indeed, the management of financial instruments while represents the core business in the latter, has just a secondary role in non-financial entities, so it is desirable to have a differential treatment. Moreover, as the dual reporting deriving from the differences in both disciplines may generate political costs, it could be useful to recompose the different perspectives providing a supplementary disclosure to justify the two special purposes.

Keywords: *Liquidity Risk, Reporting, IASB, Value, Business Model, Bank, Basel*

INTRODUCTION

Market participants used to neglect the Liquidity Risk: they were sure that intermediaries could easily handle liquidity needs recurring to well-developed capital markets. This widespread idea did not supported Regulators to provide a common framework for Liquidity Risk; it was not even taken into consideration in the Basel II Framework. Nor surprisingly, the Liquidity Risk is often labeled as the “Forgotten Risk”. Recent crisis has shown the deficiencies of that approach and effects the Liquidity Risk can produce on the stability of banks and of the system. Recent market tensions have progressively revealed the need to manage,

unlike in the past, the Liquidity Risk by establishing innovative operational approaches shared at the supranational level. Liquidity management is becoming essential for preserving the trustworthiness of individual institutions and the stability of the entire financial system. The evolution of the banking business (from an Originate To Hold model – OTH, to an Originate To Distribute model - OTD) influenced the nature of the exposure to Liquidity Risk, which is becoming more complex and which is not matched by an adequate evolution of the banks’ organization structure and of their management tools. Because of the crisis, the Liquidity Risk turned from an “elementary operational feature”,

confined within the Treasury Function, to a sophisticated cross and shared characteristic, to be managed within the whole organizational structure (Addezio, 2013). In this new scenario, an effective and efficient management of Liquidity results in a significant competitive advantage for each intermediary. Indeed, the Liquidity issue affects both: the management perspective, related to the information the bank itself needs in order to appreciate, deal with, monitor its liquidity profile;

the financial reporting perspective, associated to data used by investors (whose goal is to understand the liquidity profile of the bank to make their own judgments) and Regulators (interested in monitoring the stability of the financial system).

In both cases, the provisions coming from International Authorities shape the information produced by banks. This is the reason why the attention of this research is focused, especially, on Liquidity Risk as regulated by Basel III and on IASB standards. Regarding the latter point, as there is not any specific discipline concerning Liquidity Risk in IAS/IFRS (apart from some requirements concerning the disclosure of this risk, contained in IFRS 7), the interest of the study is narrowed on IFRS 9 – Financial Instruments. Indeed, nevertheless the awareness that the bank liquidity is influenced even by non-core activities, the main impact depends on its core business, made especially by financial instruments. Moreover, as the regulation of the Liquidity Risk issue is an ongoing process, instead of studying IAS 39, the attention of the research has been focused on IFRS 9 (1) and Basel III, which will come into force in next year's.

¹ It should be underlined that the IASB wishes to replace IAS 39. The main steps of this project are:

- Phase 1: Classification and measurement (under discussion);
- Phase 2: Impairment methodology (ongoing);

LIQUIDITY AND LIQUIDITY RISK

Liquidity is not an easy notion to define and does not have a univocal meaning: both a stock dimension, interpreted as the availability of cash or equivalents, as well as a dynamic one can be referred to. According to the latter “Liquidity represents the capacity to fulfill all payment obligations as and when they fall due – to their full extent and in the currency required. Since it is done in cash, liquidity relates to flows of cash only. (Duttweiler, 2009:2)”. Or, in a broader way, the concept may also embrace the company growth process that is the ability to fund new business transactions; in this case “Liquidity can be viewed as the essential resource that permits a company to replace its liabilities, meet contractual obligations, and fund growth, all at reasonable price, as and where needed (Banks, 2014:7)”.

As a complex item (Matz, 2011:4), Liquidity can be investigated through its components (Banks, 2014):

Funding Liquidity: liabilities (both short and long term) from which cash can be drawn;

Asset Liquidity: availability of assets which can be sold or pledged in order to obtain cash;

Liquidity Contingencies: future events that can impact on cash flows.

In theory, if a firm owns assets and liabilities well matched (in terms of duration) and if it can hold them until their maturity, assuming the absence of new transactions, it faces no Liquidity Risk: at these conditions, maturing assets will provide the funds needed to repay liabilities as they come due. Such a model, however, is just an ideal and static (it is true only neglecting Liquidity Contingencies and impacts of future scenarios) one. Entities, especially financial institutions that operate the maturity transformation, cannot satisfy the above-mentioned conditions; moreover, they

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- Phase 3: Hedge accounting (ongoing).

serve the accounting estimates and must deal with unexpected events. As a consequence, Liquidity Risk is an exposure that every firm must consider and manage. To this end, it is useful to clarify that Liquidity Risk consists of many components (Banks, 2014):

Asset Liquidity Risk: coming from the inability to convert assets into cash at the expected value;

Funding Liquidity Risk: arising from an inability to access unsecured funding sources at an economically reasonable cost in order to meet obligations;

Liquidity Mismatches Risk: arises when maturities of assets and liabilities do not match, leading to divergent cash inflows and outflows over time and consequential losses;

Liquidity Contingencies Risk: refers to losses resulting from unexpected future events that may absorb Liquidity flows.

Some of them are influenced by accounting rules, in terms of recognition, measurement and disclosure. In particular, the Asset Liquidity Risk is the most influenced by accounting rules: values assigned to assets should be predictive of their potential cash flows, while disclosure should provide useful information to investigate their timing. Connections between the Funding Liquidity Risk and accounting rules depend on how the former is interpreted. If it is considered as previously defined (inability to access unsecured funding sources at economically reasonable costs in order to meet obligations), accounting rules do not exert a direct influence on it. On the other hand, if it is understood as the possibility that the entity will become unable to settle obligations with immediacy, amounts (measurement rules) attributed to liabilities become important, as well as their timing (disclosure rules). Regarding the Liquidity Mismatches Risk, as financial instruments could be managed on a portfolio view, it is desirable that accounting rules take

into account the specific business model adopted. Finally, financial reporting should provide evidence of Liquidity Contingencies Risk, if not through recognition, when there are no conditions for admittance of future/potential events in financial statements, at least by adequate disclosure. Hence, the next section will be devoted to investigate to what extent the IASB accounting rules on measurement capture these connections.

BASEL III VS IFRS 9

For reasons mentioned above, International Authorities are now paying new attention to the matter of Liquidity Risk in banks. They are now introducing provisions of harmonized standards on this point. According to Basel III provisions, banks will be obliged to manage the profile of their investments observing two rules, that have been developed to achieve two separate but complementary objectives:

The first one is to promote short-term resilience of a bank's Liquidity Risk profile through the Liquidity Coverage Ratio (LCR).

The LCR by means of a buffer (that should cover part of the difference between a banks' financial inflows and outflows in times of stress), is intended to ensure that banks hold liquid assets of high quality (HQLA) in order to withstand stressful situations for a time horizon of thirty days. Assets are considered to be HQLA if they can be easily and immediately converted into cash at little or no loss of value (2). According to the Basel III requirements, HQLA should be at least equal to the total net liquidity outflows over a 30-day time period;

the second one is to promote resilience over a longer time horizon, by creating additional incentives for banks to fund their activities

²For the purpose of calculating the LCR, assets in the stock of HQLA should be measured at an amount no greater than their *current market value* (for some less liquid assets, a haircut is applied).

with more stable sources. To this end, banks have to comply with the Net Stable Funding Ratio (NSFR).

The NSFR aims to achieve, for the medium-term (over one year), a structural balance of bank's financial statements and to promote the use of stable sources of funding. The objective is to limit over-reliance on short-term wholesale funding during times of buoyant market liquidity and encourage better assessment of Liquidity Risk across all on- and off-balance sheet items. In addition, the NSFR approach offsets incentives for institutions to fund their stock of liquid assets with short-term funds that mature just outside the 30-day horizon for that standard. According to Basel III requirements, the NSFR is defined as the available amount of stable funding (3) to the required stable funding. This ratio must be greater than 100%.

The new framework will probably modify the income patterns of banks as money is a scarce and expensive resource, but it will facilitate the stabilization of the whole banking system by means of an adequate management and reporting of the assumed risks.

Nevertheless, it is possible to highlight some critical points of the new discipline:

There is no consideration of profitability and growth aspects connected to the Liquidity, which is a multidimensional concept;

There is no consideration of liquidity equilibrium during the intermediate period, from one month to one year;

Regarding the LCR, the denominator could be manipulated by banks according to their

³ For the purpose of calculating the NSFR, liabilities and equity should be measured at their *carrying value*, then the amount assigned to each category is to be multiplied by an ASF (*Available Stable Funding*) factor and the total ASF is the sum of the weighted amounts.

objective to increase/decrease the contractual cash outflows/inflows during next 30 days, modifying their funding and investment decisions;

rules concerning the frequency of disclosure to Regulators and the connected costs of non-compliance should be carefully detailed in order to avoid possible accounting policies such as window dressing.

More than provisions introduced by Basel III, banks must also comply with those coming from the IASB; in particular, we are referring to requirements diffused through the IFRS 9 – *Financial Instruments*. According to the latter, the purpose of the standard is to give “relevant and useful information to users of financial statements for their assessment of the amounts, timing and uncertainty of the entity’s future cash flows”. To this end the standard introduces different rules of classification and measurement for financial assets (FA) (depending on the entity’s business model for managing the FA and on the contractual cash flow characteristics of the FA) and for financial liabilities (FL).

When an entity first recognises a FA, it can measure it at *amortised cost* (AC) if:

the FA is held within a business model whose objective is to hold the FA to collect the contractual cash flows (rather than to sell the instrument prior to its contractual maturity to realise its fair value changes) *and*

if its contractual terms give rise, on specified dates, to cash flows that are solely payments of principal and interest on the principal outstanding.

Even if the FA meets last two requirements, the entity can measure it at *fair value through profit and loss* (FVTPL) if doing so eliminates or significantly reduces a measurement or recognition inconsistency (*fair value option*).

All other FA must be measured at FVTPL.

Moreover, the IASB is judging to introduce a third category of FA to be measured at *fair value through other comprehensive income* (FVTOCI) for instruments that are held both in order to collect contractual cash flows and for sale and whose contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding. Concerning the FL, those held for trading are to be measured at FVTPL; others at AC, unless the *fair value option* is applied.

Nevertheless the effort of the International Board to introduce provisions designated to give *relevant and useful information of the entity's future cash flows*, there are some critical points associated with those requirements both from a *general* and from a *banking* point of view. First of all, is missing an explicit reference to *Liquidity* and to *Liquidity Risk* concepts; even the definition of *interest* in IFRS 9 (which is described as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time) does not include the *liquidity risk' component* in the risk premium. As a consequence, it is important to understand how useful could be the information, provided in line with requirements of IFRS 9, to acquire consciousness of the liquidity profile of a company, especially a bank. This facet is important especially if an evaluation criterion is considered more appropriate than another for the purpose of assessing the liquidity profile of a company; it's also important to say that the fair value approach can have some influences on the pro-cyclicality. Moreover, a weak point of the discipline lies in the lack of clarity concerning the classification - and therefore the measurement - of FA, leaving space for possible accounting policies. On the other hand, another goal of this research is to compare rules concerning *Liquidity Risk* issued by the Basel Committee with the principles issued by the IASB in relation to the recognition and valuation of financial assets

and liabilities, in order to highlight possible joint points as well as critical implications. In fact, there could be competing needs for financial reporting information between:

Investors, who require unbiased and relevant information, according to the business model of banks, and

Prudential regulators, whose aversion to the volatility of earnings and bank net assets could influence their financial reporting requirements and whose main objective is the stability of the whole financial system.

In such a *scenario*, new liquidity-related ratios are likely to influence accounting choices of banks. The computation of *liquidity ratios* requires additional reporting on items, which are already recognized and measured in financial statements (according to IFRS' provisions) (EBA, 2012). For example, in the case of the *LCR* the proposed *CRR* (*Capital Requirements Regulation*) (European Parliament, 2013) establishes that the value of a liquid asset to be reported shall be its market value. While, according to IFRS 9, as mentioned before, two valuation criteria are allowed after the initial recognition, namely AC and FV; however, to some extent, judgement could be exercised in deciding which valuation option is going to be used, for example to reduce an accounting mismatch. The critical aspect is related to differences between market value and fair value. The latter often is not a market value and can be determined using valuation techniques, implying various judgments by the accountant. This could give rise to a "*dual reporting*", as for the same asset banks could use different valuation bases according to the diverse purpose (EBA, 2012). For *NSFR*, the *CRR* makes no specific reference to the valuation criteria of items considered for the computation of such ratio⁽⁴⁾. So, even in this case there could be a certain degree of accounting flexibility in deciding which is the

⁴See footnote number 3.

best way to value financial instruments, trying to minimise the value of assets and increasing the value of liabilities. The previous *scenario* could give rise to a *window dressing*, one for the calculation of liquidity ratios and the other for drafting annual accounts, inducing some stakeholders to conclude that the accounting information provided by the bank is not fully reliable. Banks perceived as less reliable could face higher political costs and an increased cost of capital, compromising their profitability. All these aspects highlight the lack of orderliness in the accounting perspective of *Liquidity Risk*. In this context, a crucial role will be played by *disclosure* in notes to financial statements, which will be devoted to the illustration of the risk faced by the bank and different methods, if so, used to value financial assets and liabilities in liquidity reporting.

CONCLUSION

The objective of this study has been to evaluate if the financial reporting correctly reflects the risk exposure of banks. Indeed, nevertheless Liquidity is an important issue to be dealt with, it has been just recently addressed by the IASB and by the Basel Committee. Problems above highlighted derive from different objectives of the regulatory framework and the accounting one. The first one is to serve the safety and soundness of banks and the other is to serve the public interest in terms of transparency and picturing economic transactions. For this reason: the IASB should think about the chance to issue a standard specific for the banking sector: indeed the management of financial instruments while represents the core business in the banking sector, has just a secondary role in non financial entities, so it is desirable to have a differential treatment;

as the dual reporting may generate political costs, it could be useful to recompose different perspectives providing a supplementary disclosure to justify the two special purposes.

As the process of implementation of the rules concerning the Liquidity Risk in banks will be developed in a very long period, this study represents an excellent preliminary for future empirical research, to be conducted starting from next years. Indeed, information about the behaviour of a sample of banking groups will be collected, in order to test their accounting choices for liquidity reporting in a spatial and temporal context.

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MISSING REQUIREMENTS ON DISCLOSURE DISCIPLINE CONCERNING LIQUIDITY

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Accounting standards can have a significant impact on the Liquidity of an entity: both management decisions and the control exercised by supervisory Authorities are influenced by accounting information. Nevertheless the objective of the IASB is to provide users of financial statements with “relevant and useful information [...] for their assessment of the amounts, timing and uncertainty of the entity’s future cash flows” there are some critical points associated with those requirements. Indeed, it lacks to define the concept of Liquidity and to pay attention to the economic maturity of certain items, which is important as well as their amounts. Moreover, given that the information contained in the Balance Sheet and the Cash Flow Statement serve some limitations for the assessment of the Liquidity profile of an entity (differences between carrying value and liquidity value; timing and expected maturity of certain items; unrecognized and unrecognizable items, such as reputation), it is expected that these gaps are filled by the disclosure. Nevertheless even IFRS 7 presents some deficiencies, as it does not require adequate and timely information about the differences, if so, between carrying and liquidity values and about the economic maturity or expected time of settlement, sale or transfer of accounting items. It is believed that current requirements could be profitably complemented. Moreover, as Liquidity is not a static concept and information contained in Financial Statements may not be enough for investors to ascertain it, an integrated set of documents linked by cross-references could be used.

Keywords: *Liquidity, Risk, Disclosure, Maturity, Cash Flow, Value, IASB, Bank*

INTRODUCTION

Disclosure is useful in order to provide information to different stakeholders, so that they can satisfy their information needs according to decisions they will assume. As is known, a distinction can be drawn between financial and economic decisions on one side and stewardship assessments on the other side (EFRAG, 2013 ;). In the former case information is used in order to assume valuation decisions and, typically, a future-oriented or forward-looking information is required (so, an *ex-ante* role). In the latter it is used to monitor the management’s use of capital after its investment in the entity (an *ex-post* role of information). As evidenced in the literature, the two roles are not always aligned (Lambert, 2001; 2010). In the case of information concerning the management of

Liquidity Risk, both of them could be useful, even if the valuation role seems of primary importance assuming that it is necessary to evaluate either the company’s potential risks and rewards or its future expected outcomes (CFA, 2007:49). It is important to note that disclosure should not be intended as a substitute for recognition and measurement but as a complement to them (CFA, 2007). In particular, concerning the *Liquidity Risk*, it should provide all the information useful to assess the *Liquidity* profile of assets and liabilities (if it is not possible to reach such a knowledge only by the reading of the Balance Sheet), the timing and amounts of future cash inflows and outflows -deriving from recognized and unrecognized items- and all other elements concerning internal metrics, if so, used to

manage this kind of risk ⁽⁵⁾. Next sections will be devoted to depict concepts of *Liquidity* and *Liquidity Risk*, the importance of disclosure for their assessment and actual requirements of IFRS 7, stressing its critical points and deficiencies. Finally, a discussion and some conclusions will be presented.

LIQUIDITY AND LIQUIDITY RISK

Liquidity is not an easy notion to define and does not have a univocal meaning: both a stock dimension, interpreted as the availability of cash or equivalents, as well as a dynamic one can be referred to. According to the latter “Liquidity represents the capacity to fulfil all payment obligations as and when they fall due – to their full extent and in the currency required. Since it is done in cash, liquidity relates to flows of cash only. (Duttweiler, 2009:2)”. Or, in a broader way, the concept may also embrace the company growth process that is the ability to fund new business transactions; in this case “Liquidity can be viewed as the essential resource that permits a company to replace its liabilities, meet contractual obligations, and fund growth, all at reasonable price, as and where needed (Banks, 2014:7)”.

As a complex item (Matz, 2011:4), *Liquidity* can be investigated through its components (Banks, 2014):

- *Funding Liquidity*: liabilities (both short and long term) from which cash can be drawn;

⁵ It is important to note that previous studies tested the impact of an increase in transparency and quality of reporting on liquidity risk and on liquidity measures. See, for an example: Sadka R., *Liquidity Risk and Accounting Information*, *Journal of Accounting and Economics*, 52, 2011, pp. 144-152; Daske H., Bischof J., *Mandatory Disclosure, Voluntary Disclosure, and Stock Market Liquidity: Evidence from the EU Bank Stress Test*, *Journal of Accounting Research*, Vol. 51, Issue 5, December 2013, pp. 997-1029; Frino A., Palumbo R., Capalbo F., Gerace D., Mollica V., *Information Disclosure and Stock Liquidity: Evidence from Borsa Italiana*, *Abacus*, Vol. 49, Issue 4, December 2013, pp. 423-440; Pagano M., Volpin P., *Securitization, Transparency and Liquidity*, *Review of Financial Studies*, Vol. 25, Issue 8, August 2012, pp. 2417-2453; Lang M., Lins K. V.; Maffett M., *Transparency, Liquidity and Valuation: International Evidence on When Transparency Matter Most*, *Journal of Accounting Research*, Vol. 50, Issue 3, June 2012, pp. 729-774.

- *Asset Liquidity*: availability of assets which can be sold or pledged in order to obtain cash;
- *Liquidity Contingencies*: future events that can impact on cash flows.

In theory, if a firm owns assets and liabilities well matched (in terms of duration) and if it can hold them until their maturity, assuming the absence of new transactions, it faces no *Liquidity Risk*: at these conditions, maturing assets will provide the funds needed to repay liabilities as they come due. Such a model, however, is just an ideal and static (it is true only neglecting *Liquidity Contingencies* and impacts of future scenarios) one. Entities, especially financial institutions that operate the maturity transformation, cannot satisfy the above-mentioned conditions; moreover, they serve the accounting estimates and must deal with unexpected events.

As a consequence, *Liquidity Risk* is an exposure that every firm must consider and manage.

To this end, it is useful to clarify that *Liquidity Risk* consists of many components (Banks, 2014):

- *Asset Liquidity Risk*: coming from the inability to convert assets into cash at the expected value;
- *Funding Liquidity Risk*: arising from an inability to access unsecured funding sources at an economically reasonable cost in order to meet obligations;
- *Liquidity Mismatches Risk*: arises when maturities of assets and liabilities do not match, leading to divergent cash inflows and outflows over time and consequential losses;
- *Liquidity Contingencies Risk*: refers to losses resulting from unexpected future events that may absorb *Liquidity* flows.

Some of them are influenced by accounting rules, in terms of recognition, measurement and disclosure. In particular, the *Asset Liquidity Risk* is

the most influenced by accounting rules: values assigned to assets should be predictive of their potential cash flows, while disclosure should provide useful information to investigate their timing. Connections between the *Funding Liquidity Risk* and accounting rules depend on how the former is interpreted. If it is considered as previously defined (inability to access unsecured funding sources at economically reasonable costs in order to meet obligations), accounting rules do not exert a direct influence on it. On the other hand, if it is understood as the possibility that the entity will become unable to settle obligations with immediacy, amounts (measurement rules) attributed to liabilities become important, as well as their timing (disclosure rules). Regarding the *Liquidity Mismatches Risk*, as financial instruments could be managed on a portfolio view, it is desirable that accounting rules take into account the specific business model adopted. Finally, financial reporting should provide evidence of *Liquidity Contingencies Risk*, if not through recognition, when there are no conditions for admittance of future/potential events in financial statements, at least by adequate disclosure. Hence, the next section will be devoted to investigate to what extent the IASB accounting rules on disclosure capture these connections.

IFRS 7: REQUIREMENTS AND DEFICIENCIES

In the case of information concerning the management of *Liquidity Risk*, both the stewardship assessment and the valuation role of information could be useful, even if the latter seems more relevant, assuming that “*without clear and complete disclosure of a company’s risk exposures, its plans and strategies for bearing or mitigating those risks, and the effectiveness of its risk management strategies, investors will be unable to evaluate either the company’s potential risks and rewards or its future expected outcomes*” (CFA, 2007:49). According to ESMA (ESMA, 2013:20), entities could enhance their *Liquidity Risk* disclosure, complementing quantitative data with narrative information and explaining the latter

with quantitative elements. Indeed, 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*. EFRAG (EFRAG, 2008) suggests a few issues, necessary for a better portrait of *Liquidity Risk*, including the following:

- whether assets can be easily sold or refinanced in order to raise funds (*Asset Liquidity*);
- stability and diversification of sources of funding, including regular and potential sources resulting from the occasional sale or refinancing of assets (*Funding Liquidity*); and
- stress analysis, including testing whether *Liquidity* buffers would be sufficient to face the occurrence of a stress scenario (*Liquidity Contingencies*).

In summary, disclosure concerning *Liquidity Risk* should provide information useful to assess the *Liquidity* profile of assets and liabilities (when such information cannot be achieved through the Balance Sheet), the timing and amounts of future cash inflows and outflows -deriving from recognized and unrecognized items- and all other elements concerning internal metrics, if so, used to manage this kind of risk ⁽⁶⁾.

In order to explain the previous assumptions, it should be answered to three main questions:

1. *What* should be disclosed?

⁶For an analysis of risk disclosure practices, 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).

2. *How* should it be disclosed?
3. *When* is it necessary to disclose information derived from the first two points?

The first question is related to *elements to disclose*. Information should encompass, among other aspects, those concerning:

- *Values* of assets and liabilities.

Carrying value could diverge from Liquidity value, because of the valuation method and asset liquidation costs. The latter could derive from the liquidation time horizon, the asset type (standardized or not) other than its fungibility, and the market structure (Culp, 2001). In case of differences (between carrying and liquidity values), deriving from haircuts or appreciations in liquidity value as compared to the carrying amount, a table of reconciliation and an explanation of causes of differences could be useful to complement actual IFRS 7's requirements, just focused on changes in the Fair Value attributable to alterations in the credit risk (7) of financial instruments. Another element to show could be the amount and the composition of liquidity reserves and of stock of assets available for liquidity purposes or to meet funding needs, free of regulatory, legal or contractual charges and that could be used as collateral or pledged to secure liabilities (i.e. unencumbered assets). Unfortunately, a clear and internationally accepted definition of asset encumbrance is still missing, as well as elements that should be included in the category and their values (EBA, 2013). Indeed, IFRS 7 (IASB, 2007) requires to disclose only Fair Values of collaterals and financial assets pledged to secure liabilities, but does not give many references concerning the amount of liquidity reserves detained for liquidity management, except than deposits at Central Banks (IASB, 2007: Paragraph B11F), as well as criteria

used to identify the so called High Quality Liquid Assets (BCBS, 2013).

- *Maturities* of assets and liabilities and *timing* of cash inflows and outflows.

Disclosure concerning the management of *Liquidity Risk* should consider also *amount* and *timing* of *future cash inflows and outflows*, that is *maturity* of assets and liabilities. To this extent, it is useful to divide flows in time buckets (or bands, as defined in IFRS 7). Cash movements can be classified according to the contractual and/or expected maturity of on and off balance sheet items, depending on the estimated time of settlement, sale or transfer of them. The consideration of contingencies, commitments and unrecognized items, such as intangibles, could be useful in order to properly depict the liquidity situation of the entity. Buckets could be built using different assumptions, both in a normal and in a stress period (*scenario analysis*). Moreover, in each bucket, an useful figure to be disclosed is the difference between assets giving origin to cash inflows and liabilities giving origin to cash outflows, in order to assess the net cash outflow for the specific period of time, that is the "*Cumulative Funding Gap*", useful to assess maturity mismatches. Cash flows can be ascertained even using the entity's maturity estimates for certain balance sheet items. This is especially valid for demand or non-maturity deposits, loans with pre-payment options and structured notes. In this case, disclosure should explain assumptions used in the assessment of *behavioural liquidity characteristics* where these differ materially from the contractual maturity (FSB, 2012; FSB, 2013). Concerning this point, IFRS 7 states that an entity shall disclose a maturity analysis for financial liabilities, derivative financial liabilities and financial assets (the latter only if it enables users to evaluate nature and extent of *Liquidity Risk*), assessing an appropriate number of time bands. Cash flows for each category and band are based on contractual maturities, with no reference at expected or behavioural *Liquidity characteristics* of on and off-balance sheet items. For example, in the case of demand deposits and,

⁷ It is possible to underline an alignment with provisions of IFRS 9 (IASB, 2010), which does not consider the *liquidity risk premium*.

more generally, 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, 2007: Paragraph B11C). Definitively, the standard appears quite poor relative to these issues, as it does not consider timing and economic maturity (quite typical for financial institutions) of certain items and cash flows associated to unrecognized items. The second question is related to the presentation of information previously identified. While IFRS 7 requires to divide qualitative and quantitative information and to illustrate significant concentrations of *Liquidity Risk*, in *Asset Liquidity* or *Funding Liquidity* (IASB, 2007: Paragraph B11F), an addition of tables and their explanations could be a useful complement. Moreover, information about values and maturities could be disaggregated according to different currencies, geographical areas, markets, counterparties and business lines, in order to assess the concentration of the *Liquidity Risk* in each identified segment (CFA, 2013). The last question is connected to the *timing of disclosure*. It is important to highlight that *Liquidity* (and *Liquidity Risk*) is not a static concept (ECB, 2006). It could change over time depending on macroeconomic and market conditions, other than entity changes. So, disclosure provided in financial statements may not be enough for investors to ascertain the *Liquidity Risk* of an entity. It could be the case to periodically integrate it by the use of some other documents, such as *Risk Reports*, *Operating and Financial Reviews*, *Management Commentaries* ⁽⁸⁾ etc. In each case it is important to use cross-references among different instruments used to disclose information about the *Liquidity Risk* management.

CONCLUSION

The objective of this study has been to evaluate if the disclosure provided by entities through the financial reporting correctly reflects their risk exposure. Indeed, nevertheless *Liquidity* is an important issue to be dealt with; it has not been fully addressed in the accounting standards. Actually, accounting standards should give information useful to predict future cash flows. To this end it would be necessary that the IASB first define the concept of *Liquidity*, and then mark accounting principles in line with this. One of the main weak points of the discipline is the lack of a framework (in terms of *Liquidity* concept) within which systematically build recognition, classification, measurement and disclosure recommendations. Especially concerning disclosure references, it is possible to identify some deficiencies, as IFRS 7 does not require adequate information about the differences, if so, between the carrying value and the liquidity value (depending on the liquidation time horizon, the asset type other than its fungibility and the market structure) and about the economic maturity. Concerning the latter point, indeed, it is known that cash flows can be ascertained even using the entity's maturity estimates for certain balance sheet items. But, according to IFRS 7, cash flows for each category of assets and liabilities and for each band are based on contractual maturities, with no reference at expected or behavioural *Liquidity* characteristics for on and off-balance sheet items. Concerning the presentation of information, an addition of tables and explanations of them could be a useful complement. In particular, disclosure provided in financial statements could be periodically integrate by the use of some other documents, as *Liquidity* is not a static concept and may change very fast. In each case it is important to use cross-references among different instruments used to disclose information about the *Liquidity Risk* management and remember that, according to the materiality concept, entities shall not aggregate or disaggregate information in a manner that obscures useful elements for stakeholders.

⁸ 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 INFLUENCES OF MANAGEMENT ACCOUNTING SYSTEM AND PROCESS QUALITY MANAGEMENT TO PRODUCT *QUALITY PERFORMANCE* (CASE STUDY ON MANUFACTURE COMPANIES IN INDONESIA)

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ABSTRACT

The purpose of this study is to empirically examine the influences of Management Accounting System(dimensions of Quality Objectives/QO, Quality Feedbacks/QF, and Quality Incentives/QI) and Process Quality Management (PQM) to Products Quality Performance/PQP (Internal Quality and External Quality) using regression analysis. This research was conducted at the manufacture companies listed in Indonesia Stock Exchange with the analysis unit employees who work associated with the production process. Simultaneously, the results of statistical tests indicate that the Management Accounting System (MAS) and PQM positive and significant influence on PQP in both Internal and External Quality. It can be used as a reference of the manufacturing companies in running the management accounting systems in order to improve the quality of their products so the products can be well accepted by customers and exceeding customer expectations. The results indicate that the MAS-(QO and QI) and PQM significant positive influences on the Internal Product Quality. However, MAS-(QF) not significant and negative influences on the Internal Product Quality .The results also indicate that the MAS-(QI) and PQM significant positive influences on External Products Quality. However, MAS-(QO and QF) not significant and negative influence on the External Product Quality.

Keywords: *Management Accounting System, Process Quality Management, Products Quality Performance*

INTRODUCTION

The level of competition in today's business world is getting higher in the presence of a free trade agreement by APEC(Asia Pacific Economic Cooperation), which is a cooperation forum in the Asia-Pacific countries to promote economic growth, trade, and investment among member countries, AFTA(Asean Free Trade Area), which is an agreement between countries of ASEAN cooperation aimed at creating a free trade area in the entire ASEAN region and will end with the formation of the ASEAN Economic Community(AEC) by 2015, ASEAN-China

Free Trade Area, and so on. The quality of goods is a powerful strategic tool to compete in the market and will also be able to meet the needs/desires are expected consumer. Quality is always a revelation that may change by the consumers to a product or services that meet or even exceed customer expectations. The process quality management is critical in creating a product or providing services that can meet or exceed the expectations of consumers. Control over the processes which take place really should be done continuously by management's so that any problems can be done corrective action. The impact of products or services produced will be in accordance

with established standards and have added value.

In this study wanted to know the effect of management accounting systems and process quality management affect product quality performance. Management accounting system has three functions of management, including planning, coordination, and control. Maiga (2008) states that there are three components in the control of management accounting systems, namely quality of goals, quality of feedback, and quality incentives that are expected to create the conditions that can motivate employees to achieve outcomes. It can be said that this study is a replication of the study Maiga (2008) but the object of research is a manufacturing company which is listed in the Indonesia Stock Exchange.

DEFINITIONS

Management Accounting System

In this study, there are three components of the control of management accounting systems, namely quality goals, quality of feedback, and quality incentives (Maiga, 2008). All three are expected to create conditions that can motivate employees to achieve the intended purpose. The goal can be seen as a target level of performance for individuals or organizations to achieve (Locke et al. 1981). Feedback is thought to fulfill several functions and usually refers to information regarding the level of performance and or the manner and efficiency/performance efficiency of the process that has been decided (Kluger and DeNisi, 1996). Incentive is defined as a system of recognition and awards/rewards to recognize quality improvement/progress of the group or individual (Spreitzer and Mishra, 1999; Ittner and Larcker, 1995).

Process Quality Management

Process quality management is the process of tracking and improves the quality of the production process (Ahire and Dreyfus, 2000). Ahire (1996) says that the process quality management is one of the functions of the

Total Quality Management (TQM). Process quality management is also a series of processes to produce high quality products. Excess organizations that have implemented a process quality management is able to develop the concept of quality with a comprehensive approach (holistic). In the concept of Total Quality Management, customers not just as a buyer but are intended as a further process that specify requirements and expects satisfaction. TQM emphasizes the operational aspects and social behavior on quality improvement.

Product Quality Performance

Hall (2007) said that two basic reasons why the quality is important for manufacturers worldwide. First, poor quality very expensive for the company. Secondly, the quality is world-class manufacturer of basic competition. Quality is no longer a charge neutralizer. Customers want quality and are looking for quality products at the lowest price. One way companies can increase quality is to place control points along the production process for identifying operations that are "out of control" when the operation occurred. The alternative is the final quality control procedures that traditional process. In this approach, the product will be studied after completion.

Internal quality is the quality of the finished product is assessed before being shipped and according to the quality process/quality associated process. External quality is the quality of the finished product from the customer point of view (Ahire and Dreyfus, 2000).

FRAMEWORK

Relations Process Quality Management, Management Accounting Systems and Product Quality Performance

Process quality management is the process of monitoring performed by management to ensure that the products are processed produce a quality product and in accordance with the standards or criteria/specifications that have been established. Quality has a very broad

sense, not only from the point of view of the customer or the company, but can also be seen from the comparison of products, value, and interest rate. The elements which express the quality is the fulfillment or exceed customer expectations, including products, services, people, processes, and environment, and the quality is a condition that can always change with the times. Three control components or subsystems of Management Accounting System, the quality goals, quality of feedback, and quality incentives are expected to increase worker motivation to achieve the result (outcomes) that have been established organization. This is in accordance with the opinion Flamholtz (1996) and Maiga and Jacob (2005) which states that the control system will affect the direction and level of effort shown by the individual. The product quality can be tested through the customer experience using the product organization (Ahire and Dreyfus, 2000). From the description above formulation of the problem the authors are interested to find out in this

study, which essentially can be formulated as follows:

H1 : Quality Goals, Quality Feedback, Quality Incentives, and Process Quality Management are simultaneously positive influence on the Internal Quality;

H2 : Quality Goals, Quality Feedback, Quality Incentives, and Process Quality Management are simultaneously positive influence on the External Quality.

Measures

The following figure illustrates the theoretical relationship between the independent variables and the dependent variable. In considering suitable/feasible “fit” of the Process Quality Management and Management Accounting System, the process of identification with Milgrom and Roberts (1995) are used. It is expected that Process Quality Management and Management Accounting System has an influence on quality performance products for every hypothesis that has been presented above.

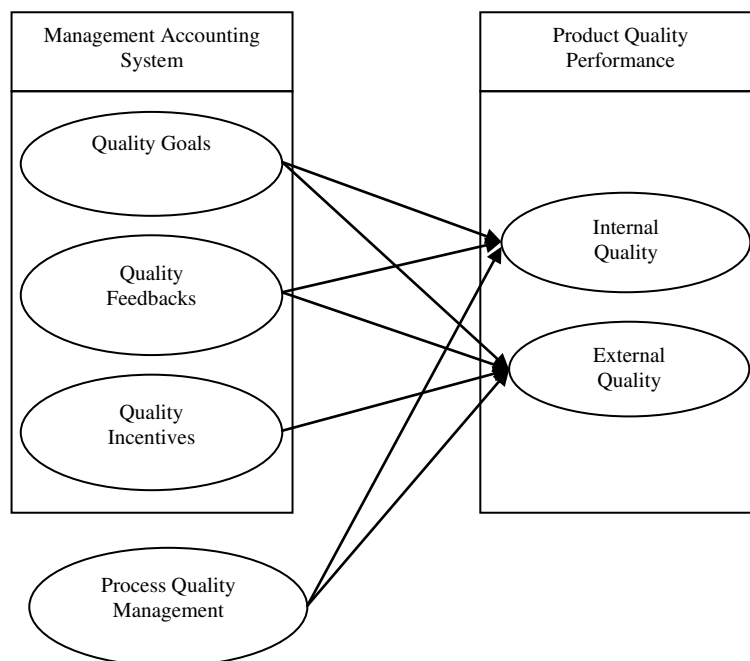


Figure1: Theoretical Relations between Independent and Dependent Variables

This study aims to obtain empirical evidence about the effect of the interaction of the

Process Quality Management and Management Accounting System to the

Product Quality Performance at the manufacturing companies listed in Indonesia Stock Exchange. The method used in this research is descriptive research. This descriptive study includes the collection of data to test hypotheses or answer questions about the current status of research subjects. The purpose of descriptive studies is to give researchers a history or to describe relevant aspects of the phenomenon of someone's attention, organization, industry orientation, or other (Sekaran, 2009). The population in this study are all companies listed on the Indonesia Stock Exchange. In March 2014 the number of companies listed on the Indonesia Stock Exchange is 492 issuers/companies, including 138 manufacturing companies as a sample. While the unit of analysis in this study is that individuals who work in the production ranging from Production Director, Head of Department/Division of Production, Production Manager, Production Supervisors, and Production Staff.

RESULTS AND DISCUSSION

In this research, questionnaires through visits to the companies and also via email through the corporate secretary. Each company was given five sets of questionnaires filled in by the hopes of five people who work associated with the production process such as Production Director, Head of Production, Production Manager, Production Supervisor, and Production Staff. Used in this research the validity test, reliability test, normality test, heteroscedasticity test, multi collinearity test, and descriptive test. From the descriptive test it can be seen descriptions of each of the variables studied, which consists of a

Management Accounting System (Quality Goals, Quality Feedbacks, and Quality Incentives), Process Quality Management and Quality Internal and External Quality. From these results it can be said that respondents to the variable Management Accounting System have been good. This suggests that the Management Accounting System are established manufacturing company and both responded positively by respondents. From all respondents from manufacture companies listed in Indonesia Stock Exchange (138 companies), 18 companies responded to the number of respondents were 110 people who filled out questionnaires and were accepted. Results of statistical analysis showed that the processing of the frequency distribution of respondents for each variable, namely the variable of Management Accounting System, Process Quality Management and Products Quality Performance indicates whether a variable is important.

The test results showed the frequency distribution of scores produce a minimum score of 84%, which indicates that the respondents in manufacturing firms understand how important variables Management Accounting System, Process Quality Management, and Products Quality Performance as a whole to be implemented in the company. The first hypothesis stated interaction Management Accounting System-Quality Goals, Quality Feedbacks, and Quality Incentives and Process Quality Management has an influence on Product Quality Performance-Quality internal. The result of the regression test was performed using statistical analysis software obtained the following results:

Table 1.
Model Summary Quality Internal

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,688 ^a	,474	,454	2,65155

a. Predictors: (Constant), pqm, qgoals, qfeedb, qinsen

b. Dependent Variable: qualinter

Table 2.
ANOVAa Quality Internal

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	664,950	4	166,237	23,645	,000 ^b
Residual	738,223	105	7,031		
Total	1403,173	109			

- a. Dependent Variable: qualinter
b. Predictors: (Constant), pqm, qgoals, qfeedb, qinsen

Table 3.
Coefficientsa MAS & PQM to QI

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	7,845	2,588		3,031	,003		
1 qgoals	,396	,131	,290	3,032	,003	,547	1,827
qfeedb	-,084	,109	-,063	-,777	,439	,756	1,323
qinsen	,555	,191	,319	2,907	,004	,415	2,409
pqm	,222	,107	,213	2,078	,040	,476	2,099

- a. Dependent Variable: qualinter

The results of the statistical analysis of output above shows the value of the adjusted R^2 of 0.454 . This means that 45.4 % variable Internal Quality can be explained by variable of Management Accounting System – Quality Goals, Quality Feedback, and Quality Incentives, and Process Quality Management, while the rest (100 % - 45.4 % = 54.6 %) is explained by other causes outside the model. Seen that the variable has Quality Goals t value of 3.032, Quality Feedback has t value of - 0.777, Quality Incentives have t value of 2.907, meaning to Quality Goals and Quality Incentives more than 2 and the probability of significance 0.003 and 0.004. This suggests that hypothesis is supported, i.e. SAM - Quality Goals and Quality Incentives each partial effect on Internal Quality. But Quality Feedback has a t value of - .777, meaning specific to the Quality Feedback is less than 2 and the probability of significance 0.439. This suggests that Quality Feedback partially not

affect the Internal Quality. The results of the F test(ANOVA) calculated F value obtained at 23.645 with a probability of 0.000. Because the probability is much smaller than 0.05, then the regression model can be used to predict the Internal Quality or it can be said that the Management Accounting System (Quality Goals, Quality Feedbacks, Quality Incentives) and Process Quality Management together influential the Internal Quality. This suggests that hypothesis is supported, i.e. MAS and Process Quality Management together affect the Internal Quality. The second hypothesis states interaction Management Accounting System and Process Quality Management has an influence on External Quality. The results of the regression test were performed using statistical analysis software obtained the following results:

Table 4.
Model Summary^b Quality External

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,634 ^a	,402	,379	3,61413

- a. Predictors: (Constant), pqm, qgoals, qfeedb, qinsen
b. Dependent Variable: qualekst

Table 5.
ANOVA^a Quality External

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	921,550	4	230,388	17,638	,000 ^b
Residual	1371,504	105	13,062		
Total	2293,055	109			

- a. Dependent Variable: qualekst
b. Predictors: (Constant), pqm, qgoals, qfeedb, qinsen

Table 6.
Coefficients^a MAS & PQM to QE

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	10,483	3,528		2,972	,004		
1 qgoals	,197	,178	,113	1,107	,271	,547	1,827
qfeedb	-,262	,148	-,154	-1,771	,079	,756	1,323
qinsen	,917	,260	,413	3,524	,001	,415	2,409
pqm	,328	,146	,246	2,254	,026	,476	2,099

- a. Dependent Variable: qualekst

The results of the statistical analysis of output above show the value of the adjusted R² of 0.379. This means that 37.9% variable Products Quality Performance-External Quality can be explained by variables Management Accounting System - Quality Goals, Quality Feedbacks, and Quality Incentives, while the remaining (100% - 37,9% = 62.1%) is explained by other causes outside the model. Seen that the variable has a Quality Goals t value of 1.107, Quality Feedbacks has t value of -1.771, Quality Incentives have t value of 3.524, meaning to Quality Incentives over 2 and a significance probability of 0.001. This suggests that Quality Incentives partially affect the External Quality. But Quality Goals and Quality Feedbacks having t values respectively 1.107 and - 1.771, mean for the Quality Goals and Quality Feedback less than 2 and significance probability 0.271 and 0.079. This suggests that Quality Goals and Quality

Feedback respective partial no effect on External Quality. The results of the F test (ANOVA) calculated F value obtained for 17,638 with a probability of 0.000. The probability is much smaller than 0.05, then the regression model can be used to predict the Products Quality Performance - External Quality or it can be said that the Management Accounting System and Process Quality Management together influential against the Products Quality Performance - External Quality. This suggests that MAS and Process Quality Management together affect/influential the External Quality.

CONCLUSION

Result of simultaneous test showed that positive and significant. It could be argued that the MAS - Quality Goals and Process Quality Management jointly affect the External Quality. These findings

are consistent with the research Maiga (2008) based on cost of scrap, reworking, and product defect with variable results are positively associated with External Quality and statistically significant. Thus, in this case, the company should communicate more frequently on targets that must be achieved so that employees have a clear view of the purpose of the company and can reduce the cost of scrap, reduce rework, reduce defective products.

Hopefully, by the interaction of these two variables (MAS - Quality Goals) and Process Quality Management can reduce the number of warranty claims, litigation claims lowering products, and decrease the number of complaints from customers. Further impact is a reduction in the cost of manufacturing and process engineering costs over the product failed, and lower engineering costs related to marketing the product failed.

The findings in this study indicate that the variable Quality Feedback is partially related to the negative direction of the External Quality and not statistically significant. These findings are not consistent with the results of research Maiga (2008) which is based on the quality assessment feedback (consisting of indicators: quality assessment, ongoing analysis, and data quality and application in the work plan) with the result of the interaction between the MAS and Process Quality Management is significant and positive.

Looking at the results above, based on these findings the company should pay more attention to the quality of feedback as learning, the use of an assessment of the quality of the product, and the data can be analyzed continuously in the process of creating a quality product and in accordance with established specifications. Thus, the quality of feedback can be beneficial to the employees and management to reduce costs of scrap, reduce rework, and reduce product defects which in turn will increase productivity and product quality.

The result of MAS-Quality Incentive and Process Quality Management simultaneous test showed that positive and significant. So it can be said that the MAS - Quality Incentives and Process Quality

Management jointly affect the External Quality. So the variable Quality Incentives partially related to the positive direction of the External Quality and statistically significant. That is, the company should also improve the quality of these incentives can inspire employees to be more productive and improve the quality of work that can produce high quality products, reducing the number of warranty claims, reduce litigation products, reducing the number of customer complaints, reducing the number of product returns, and finally can reduce the cost of manufacturing and engineering processes related to product failure and reduce engineering costs related to marketing the product failed.

These findings are not consistent with the results of research Maiga (2008), which produces test results MAS - Quality Incentive interaction with Process Quality Management showed no statistically significant results against External Quality. Therefore it is important for manufacturing companies in Indonesia to always keep the awards and recognition for employees who certainly linked to performance and also maintain interaction with good process management product that will have an impact on decreasing the number of warranty claims, claims litigation decline in the number of products, number of subscribers the complaint and any further reduction in the cost of failure is the product of the cost of engineering and engineering product marketing.

Based on the results of hypothesis testing concluded that the interaction of Management Accounting Systems and Process Quality Management simultaneously (overall) significantly affects Internal Quality on manufacture companies listed in Indonesia Stock Exchange. This suggests a role of Management Accounting System (related Quality Goals, Quality Feedback, and Quality Incentives) and Process Quality Management is very significant in influencing on the Internal Quality.

These results are consistent with research Milgrom and Roberts (1995) and Maiga (2008). It is important for the company in the production

process to produce the highest quality products, and implement corrective actions for any product problem, using statistical analysis or value analysis in the process, develop better processes, and also to establish good communication between management and employees in resolving problems quality of the process/product.

Communication between management and employees is critical in troubleshooting process/product. This is consistent with the results obtained by questionnaire respondents occupy the highest score in terms of the process quality management. This interaction with management accounting systems has an impact on the quality/reliability of the good products from the standpoint of the company's internal quality before the product is shipped to the customer. This is evident from respondents who stated that the performance of the product or product reliability is critical (occupying the highest score). It is expected to have an impact on performance of the company as a whole, such as increasing profits, the cost of production more efficient, and markets more trust and expanding.

Based on the results of hypothesis testing concluded that the Management Accounting System and Process Quality Management simultaneously (overall) significantly affects External Quality on companies. This suggests a role of Management Accounting System related quality goals, quality feedback, and quality incentives are very significant in influencing the External Quality.

These results are consistent with research Milgrom and Roberts (1995) and Maiga (2008). It is important for the company in the production process to produce the highest quality products, and implement corrective actions for any product problem, using statistical analysis or value analysis in the process, develop better processes, and also to establish good communication between management and employees in resolving problems quality of the process/product.

Preventive efforts better done before the product is finished, but if there is defect product, it is must to be reworking. Moreover, if the product has been used by the customer and then be disappointed because the quality of the product is not as expected customers.

Communication between management and employees is critical in troubleshooting process/product. This is consistent with the results obtained by a questionnaire that occupy the highest score in terms of the quality management process.

This interaction with management accounting systems has an impact on customer satisfaction/users of the products produced by the company (from the point of view of an external quality). This is evident from respondents who stated that the decrease in the cost of manufacturing, process engineering, marketing and engineering associated with the failure of the product is very important (occupying the highest score). The results of this study support the research, among others, Mia (1993), Milgrom and Robert (1995), Ittner and Larcker (1995), Chenhall (2003), Maiga (2008), Mokhtar and Yusof (2010), and Corredor and Goni (2010). This previous research related to quality processes and a significant positive effect on product performance. Overall the results of this study have clear implications are that the application of Management Accounting System which consists of the dimensions of Quality Goals, Quality Feedback, and Quality Incentives interacting with Process Quality Management is crucial in producing quality products from the standpoint of the External Quality. In the end, the expected impact on performance of the company as a whole, the company's products more reliable and of course the company expected profit is increasing.

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IDENTIFYING THE EFFECT OF INFORMATION TECHNOLOGY ON TOTAL QUALITY MANAGEMENT FOR ACHIEVING COST PERFORMANCE

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ABSTRACT

Two organizational practices, Information Technology (IT) usage and Total Quality Management (TQM) are emergent as the most important factors in increasing the organizational performance and each has been widely researched. However, there is a limited number of research carried out to identify the relationship between IT and TQM, particularly how IT influences TQM. This research presents an empirical study which examines the interrelationship between IT & TQM and the importance of these practices on organizational performance in terms of cost performance. The empirical data was drawn from forty two Sri Lankan manufacturing organizations through a mailed questionnaire survey and the data were analyzed using correlation analysis, factor analysis, and multiple regression analysis methods. The findings indicated that, IT practices did not have a direct significant effect on cost performance while both TQM practices and level of IT usage on TQM dimensions had a direct significant effect on cost performance. The correlation between IT and TQM practices are also positive and significant. Further, these results justified that an extensive use of IT had a significant effect on the level of IT usage on TQM dimensions. Even though IT did not have a direct significant effect on cost performance, the detailed path analysis justified that the Planning Related IT practices and Communication Related IT practices had a significant effect on cost performance. The findings of the study also justified that various relationships exist among concept variables as well. The major implication of this study was the importance of utilizing IT in order to achieve sustainable cost performance through TQM in manufacturing organizations.

Key words: *Information Technology, Total Quality Management, Quality Performance.*

INTRODUCTION

Recently there has been emergent recognition of the significance of assessing Information Technology (IT) assets in determining a firm's competitive potentials and capability for future performance (Bharadwaj *et al.*, 1999 as in Attay, 2006). Investments especially on IT capital is widely regarded as having enormous potential for reducing costs by increasing the human and systems effectiveness, and hence enhancing firms competitiveness (Brynjolfsson & Hitt, 1996 as in Attay, 2006). Number of research carried out based on similar areas justified that IT is a very important

factor in increasing productivity and reducing costs (Besson, 2002; Kagan, 1994; Kotha and Swamidass, 2000; Torkezadeh and Doll, 1999a; Weston, 1993 as in Martinez-Lorente *et al.*, 2004). However some studies show contradictory results (Mahmood and Mann, 1993; Willcocks and Lester, 1997 as in Martinez-Lorente *et al.*, 2004). Evidence of positive and significant returns from IT investment can be found in Brynjolfsson and Hitt (1996), Dewan and Min (1997), and Kelly (1994), while Loveman (1994), Powell and Dent-Micalef (1997) and Strassmann (1997) found that IT has an insignificant effect on productivity or on competitive advantage (Dewhurst *et al.*, 2003).

Using country-level data, Dewan and Kraemer (2000) have found that IT investments have a positive and significant effect on gross domestic product in developed countries but not in developing countries (Martinez-Lorente *et al.*, 2004).

On the other hand the impact of TQM on organizational performance has been considered by a number of researchers as the primary source of competitive advantage (Prajogo and Brown, 2004). At present, Sri Lankan firms not only in the private sector but also in the government sector, have a trend to implement, IT and TQM practices in organizations to increase productivity and to reduce costs. Hence, there is a trend of high investment on IT implementation in organizations in order to get continuous improvement in organizational performance. As mentioned earlier some researchers have found that IT has an insignificant effect on productivity or competitive advantage especially in developing countries. However Weston (1993) claimed that all the functions and sections of organizations rely on IT (Martinez-Lorente *et al.*, 2004). Even though IT does not effect all functions and sections of organizations in developing countries, there is an argument that IT must effect on TQM to get significant effect on the future performance of organizations. However, a very few work has been carried out to understand the relationship between IT and TQM, particularly in the way in which TQM is influenced by IT. To enhance the competitive advantage, manufacturers and service providers seek continuous improvements in organizational performance. Cost performance has been indicated as the major source of competitive advantage for last two decades. On the other hand continuous improvements should help the over-all development of the society, especially in developing countries. Without having a better understanding about the most important factors which are highly effective on the organizational performance, it is difficult to get the expected returns on investment.

The effects of IT and TQM on cost performance are studied in this research, while investigating the

influence of IT on TQM practices as well. It will be valuable for the Sri Lankan manufacturing organizations to formulate successful strategies by enhancing the organization's cost performance through IT and TQM practices. Also, the number of studies based on the relationship between IT and TQM are very limited. Therefore this study will contribute to examine the actual relationship between IT and TQM which is very important to the organizational decision making as well as the development of academic curricula.

RESEARCH PROBLEM

Manufacturers and service providers seeking continuous improvement in business performance apply various means for improving quality, reducing costs and increasing productivity (Martinez-Lorente *et al.*, 2004). These include total quality management (TQM), total productive maintenance (TPM), business process re-engineering (BPR), manufacturing resources planning (MRP), just-in-time (JIT), etc. Recently in Sri Lanka, most of the manufacturers and service providers are more concerned about TQM practices to enhance their competitive advantage rather than other functions of organizations, and willing to invest highly on IT as a powerful tool for implementing TQM. IT and TQM have significant impact on most organizations and each has been widely researched. However there are little studies carried out to investigate the interrelationship between these two practices. Therefore this study is mainly focused on IT and TQM practices in manufacturing organizations. It is expected to study the interrelationship among these two practices as well as the effect of these two practices on organizational performance. The cost performance is considered as the organizational performance, since it is highly important in the manufacturing context as a driver towards competitiveness.

The way that TQM and IT practices are interrelated with one another and the manner in which these practices affect the organizational cost performance is the main research problem being investigated throughout this study.

OBJECTIVES

According to the research problem of this study, the objectives can be stated as follows:

- To identify the effects of IT and TQM practices on organizations' cost performance.
- To investigate the relationship between IT practices and TQM practices in organizations.
- To identify how IT affects TQM dimensions in order to enhance the cost performance.

LITERATURE REVIEW

In recent years, the value of IT has been of considerable interest in enhancing the organizations performance. According to the Orlikowski and Gash (1992) IT can be defined as "any form of computer-based information system, including mainframe as well as microcomputer applications" (Martinez-Lorente *et al.*, 2004). Several researchers have found that IT has a significant effect on firm productivity (Brynjolfsson & Hitt, 1996, Lichtenberg 1995, Green & Maireses, 2000 as in Attay, 2006) and financial performance (Bharawwajet *et al.*, 1999; Barua *et al.*, 1995 as in Attay, 2006). Also some recent research has studied the relationship between IT, organizational performance and productivity, has reported a positive and significant effects (Brynjolfsson & Hitt, 2000; Oliner & Sichel, 2000; Ko & Bryson, 2004 as in Asai, 2004). Further, IT on organizational performance in addition to productivity and financial performance, such as profitability improvement, cost reduction, competitive advantage performance are also found to be significant (Melville *et al.*, 2004 as in Attay, 2006). The critical role of information and IT on quality success has also been espoused by Sobkowiak and LeBleu (1996) (Anget *et al.*, 2000). Based on the previous literature (Bailey and Pearson, 1983; Bakos 1987; Boyer *et al.*, 1997; Swamidass and Kotha, 1998b) IT could be classified into six broader categories relating to their purpose of use as Administrative Related IT, Communications

Related IT, Decision Support IT, Production Planning IT, Product Design IT, and Production Control IT (Martinez-Lorente *et al.*, 2004). Administrative IT construct pertains to IT use to assist in the more clerical and administrative tasks such as document organization, data organization and storage, and data analysis. Communication related IT construct refers to IT that is directly related to the transmission of information. The decision support IT construct refers to the use of IT support to managers in the decision making process while Production planning IT construct refers to the use of IT in production planning process. In the same manner Product design IT and Production control IT constructs are used to assess product design processes and manufacturing and quality activities respectively. The concept of Total Quality Management (TQM) was developed by an American, W. Edwards Deming, after World War II for improving the production quality of goods and services. The concept was not taken seriously by Americans until the Japanese, who adopted it in 1950 to resurrect their postwar business and industry, and used it to dominate world markets by 1980 (Mehrotra). TQM was defined as a management philosophy that seeks to integrate all organizational functions (marketing, finance, design, engineering, and production, customer service, etc.) and focusing on meeting customer needs and organizational objectives. Thus, the TQM philosophy of management is customer focused. TQM incorporates the concepts of product quality, process control, quality assurance, and quality improvement. Over the last two decades, TQM has become one of the important forces leading to organizational growth and a company's success in national and international markets. Based on empirical studies, several researches have justified that TQM had a significant effect on quality performance of organizations (Ahire, Golhar, and Waller, 1996; Dow, Samson, and Ford, 1999; Flynn, Schroeder, and Sakakibara, 1995a; Forza and Filippini, 1998; Grandzol and Gershon, 1997 as in Prajogo and Brown, 2004). Further, TQM on organizational performance in addition to product quality, such as productivity, and financial

performance also found to be significant (Adam, 1994; Powell, 1995; Samson and Terziovski, 1999 as in Prajogo and Brown, 2004). Another research carried out based on Australian organizations (Prajogo and Brown, 2004) has justified that TQM has a strong links between TQM practices and quality performance, and there is no significant difference between organizations implementing formal TQM programs and those organizations simply adopting TQM practices. In this study to select the key dimensions of TQM consider Malcom Baldrige National Quality Award (MBNQA) criteria and several other research done to identify the key dimensions of TQM (Ahire *et al.*, 1996; Flynn *et al.*, 1994; Saraphet *et al.*, 1989 as in Martinez-Lorente *et al.*, 2004). According to these studies, the organizational practices embody eight TQM dimensions (Martinez-Lorente *et al.*, 2004). The dimensions are Top Management Support, Customer Relationship, Supplier Relationship, Workforce Management, Employee Attitudes & Behaviour, Product Design Process, Process Flow Management, and Quality Data and Reporting.

Several researchers have been written about how IT might be used to enhance TQM (Ayers, 1993; Berkley and Gupta, 1994; Cortada, 1995 as in Dewhurst *et al.*, 2003). Sobkowiak and LeBleu (1996) and Pearson and Hagmann(1996) has emphasized the key roles that information and IT play in TQM (Dewhurst *et al.*, 2003). Specific IT applications in various aspects of TQM have been described by Miller (1997), Aiken *et al.* (1996), Goodman and Darr (1996), Kalpan (1996), Kock and McQueen (1997) and Counsell (1997) (Dewhurst *et al.*, 2003). Main focus of this research is to investigate how IT affect TQM practices through eight TQM dimensions. Some authors have considered that IT is an enabler of TQM. Zadrozny and Ferrazzi (1992) have justified that the information systems function plays a key role in the TQM initiative through the strategic, human resources, and technology areas (Dewhurst *et al.*, 1999). Murray (1991) claims that IT is increasingly being used to measure, understand, and improve an organization's level of sustainable quality

(Dewhurst *et al.*, 1999). More over, IT can help to facilitate the application of statistical process control (SPC), design of experiments, failure mode and effects analysis (FMEA), quality function deployment (QFD) and self assessment against a business excellence model (Dewhurst *et al.*, 1999). IT can be vital in the development of real-time collection of data in terms of customer satisfaction, internal process controls, critical business systems, and other measurement systems which are necessary to support TQM. Konstadt (1990) has argued that sophisticated communications and computational tools and data storage systems are the key to success with TQM (Dewhurst *et al.*, 1999).

Companies operating in different competitive environments may have different performance priorities and that the competitive strategy must fit the specific needs of the company and its customers. Stable environment consists of operations focused on building efficient and lean operation flows. Their operations are dedicated to functional products with long life cycles and a low degree of innovation, such as in stable consumer goods industries. Their performance priorities start with cost, followed by delivery and quality. Empirical study carried out by Prajogo and Brown (2004) justifies that TQM had significant effect on organizational quality performance. Some of the major studies which investigated the relationship between TQM practices and organizational performance found to be significant (Dow *et al.*, 1999; Samson and Terziovski, 1999 as in Prajogo and Brown, 2004). Byrd and Marshal (1997) have found that IT had a significant effect on organizational performance while Rogers *et al.* (1996) provided empirical evidence of the importance of IT in quality performance (Dewhurst *et al.*, 2003). Capacity utilization, inventory turnover, labour productivity and overhead cost indicator variables were considered to measure the cost performance (Silveira and Cagliano, 2006).

RESEARCH FRAMEWORK

The only consideration giving how IT influences TQM is the reference model developed by Forza (1995a) to link TQM practices, information systems and quality performance through empirical research. However, using his own model and associated measures, Forza (1995a) did not succeed in empirically establishing a link between TQM practices and IT, but the use of IT in the quality

assurance aspect of TQM was explored. More recently, Dewhurst *et al.*, (2003) developed a model to investigate the relationship between IT and TQM practices. Based on these frameworks, the research framework is developed in order to achieve research objectives as shown in Figure 1.

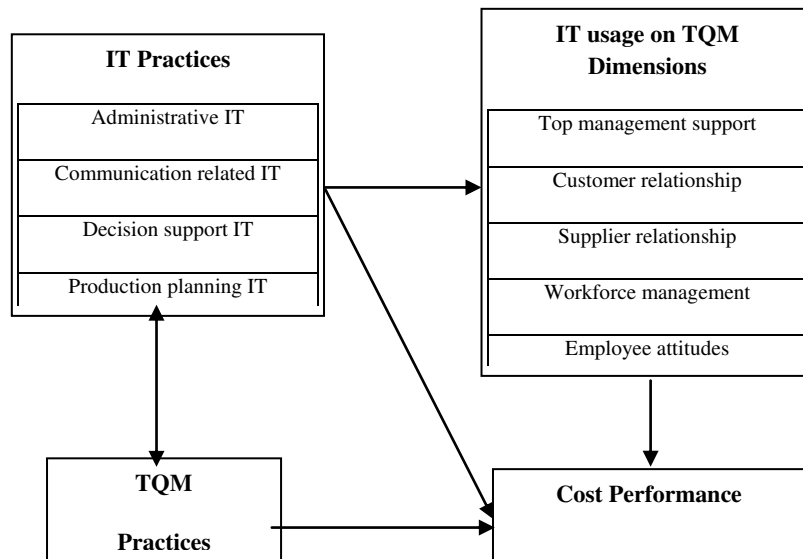


Figure 1: Research Framework

The framework shows the relationship between the independent and dependent variables. Organizational practices as the independent variables consist of three blocks. IT practices block comprises of six variables: Administrative IT, Communication related IT, Decision support IT, Production planning IT, Product design IT, and Production control IT. Level of IT usage on TQM Dimensions block comprises the variables: Top management support, Customer relationship, Supplier relationship, Workforce management, Employee attitudes, Product design process, Process flow management, Quality data & reporting. The quality performance behaves as the dependent variable. The arrows represent the relationships to be tested in order to achieve research objectives. Based on these expected relationships, the research hypotheses are formulated.

RESEARCH HYPOTHESIS

The first objective mentioned earlier should be achieved by testing the two relationships as illustrated in the above research frame work. The two hypotheses are as follows:

Impact of IT Practices on Achievement of Cost Performance

Many researchers have found that IT had a significant effect on organizational performance, such as increasing productivity and reducing costs (Besson, 2002; Kagan, 1994; Weston, 1993 as in Mattinez-Lorentee *et al.*, 2004). Therefore a positive impact of IT on quality performance can be expected.

H₁: There is a positive impact of IT practices on achievement of cost performance.

Impact of TQM Practices on Achievement of Cost Performance

Several researchers have justified that TQM had a significant effect on quality performance of organizations (Ahire, Golhar, and Waller, 1996 as in Prajogo and Brown, 2004) and in addition to product quality, such as productivity, financial performance is also found to be significant (Adam 1994; Powell 1995; Samson and Terziovski, 1999 as in Prajogo and Brown, 2004). Thus positive impact of TQM practices on achievement of cost performance can be expected.

H₂: There is a positive impact of TQM practices on achievement of quality performance

These hypotheses are formulated to test the impact of IT and TQM on quality performance which is jointly specified in the first objective. The second objective is to identify the relationship between IT and TQM practices and it is hypothesized as follows:

Influence of IT on TQM

More advanced organizations make an extensive bigger use of IT and also apply TQM (Martinez-Lorente *et al.*, 2004). Therefore a positive relationship between these practices can be expected.

H₃: There is a positive relationship between IT and TQM practices.

The third objective is to identify the effect of IT on TQM dimensions and it is hypothesized as follows:

Impact of IT Usage Level on TQM Dimensions

If IT affects TQM, a higher level use of IT should be positively related with TQM dimensions. Therefore IT usage on TQM should be positively related with the achievement of cost performance.

H₄: Impact of IT on TQM dimensions should positively effect on cost performance.

METHODOLOGY

Reference to the research framework presented in Figure-1, there are four main research constructs to operationalize: IT practices, TQM practices, Level of IT usage on TQM Dimensions and Cost Performance. Within IT and Level of IT Usage on

TQM Dimensions constructs, a set of concept variables are included based on related literature. Each variable again consists of a set of indicator statements with 1 to 5 likert measurement scale. The TQM practices and quality performance construct consisted a set of indicator statements that measure the construct directly. Each indicator statement positively supports the related concept variable. On the scale the score of 5 represented intensive use and 1 represented no use at all. In this way, higher responses indicate the higher level for the construct in a particular organization. IT Usage on TQM Dimensions construct consisted eight concept variables. Each concept variable contained set of indicator variables, based on Martinez-Lorente *et al.*, (2000) criteria (Martinez-Lorente *et al.*, 2004). TQM construct consisted seven indicator variables based on literature (Frank W. Dewhurst *et al.*, 2003; Martinez-Lorente *et al.*, 2004). Cost performance measurement included with statements related to capacity, inventory Labour and overhead.

The design of the research is relevant to cross sectional observational study which was based on manufacturing organizations in Sri Lanka and the data collection is done based on questionnaire survey method. Along with the indicator variables of research constructs, background information is collected of the industry sector, number of employees, and certification being awarded such as ISO 9000 series, ISO 14000 and SLS. The questionnaire was sent to the respondents via mail as well as email. Target respondents were production/operations managers, factory managers or quality managers. The population was limited to the manufacturing organizations located in Sri Lanka under the sectors presented in Table-1. The industry type and their number of establishments, according to the classification of Department of Census and Statistics of Sri Lanka (2000) are summarized in table-1. The sample is based on the list of organizations relevant to the industry types stated in Table-1, and the sampling frame is constructed using the online directories: Sri Lanka Telecom and Export Development Board. List of organizations of each of the industry type is entered

to a database and, alphabetically ordered. Systematic sampling is done to select the sample within each industry sector for data collection. The collected sample consists 180 organizations.

However, the response rate limited the sample size into 42 organizations, which covers 23.33% rate of response.

Table 1
Statistics of the Selected Industry for the Research

<i>Industry type</i>	<i>No. of</i>	<i>%</i>
	<i>Establishments</i>	
Chemicals, Petroleum, Rubber & Plastic	963	9
Food, Beverages & Tobacco	4,469	44
Meat Products, Machinery & Equipment	604	6
Paper products, Printing & publishing	331	3
Textile, Wearing Apparel & Lather	2,809	28
Wood, Wood products & Furniture	972	10
Total	10,148	100

Source: Department of census & Statistics (2000)

The data analysis started with checking validity and reliability of measurement scales of the research. It is followed by descriptive analysis of data, and finally, statistical analysis is used to test the research hypotheses. Each one of these data analysis methods is aligned with each other to tally with research framework and objectives. The main validity type concerned in this research is the construct validity. For the construct validity, the variance extracted by each set of variables under each research construct is taken into account by using factor analysis method (Silveira, 2006). For each variable set, the number of factors being extracted with Eigen Value greater than one and their variance extracted are taken into account using SPSS version 13. The reliability of the scale

measurements is tested for internal consistence using Cronbach's alpha. SPSS is used for the computation and the common criteria of Cronbach's alpha value greater than 0.7 is considered for a better reliability. Since there were several indicator variables for each construct variable that was included, the reliability at variable level as well as under construct level were measured in two stages.

The descriptive analysis is done in order to identify the nature of the sample data with respect to the background of the organizations as well as to practices and performance measured. SPSS is used to take the summaries under each measurement for computation of initial correlation analysis.

Table 2
Statistics for Construct Validity

<i>Construct</i>	<i>Components extracted with eigen value grater than one (% Variance explained)</i>	<i>KMO Statistic</i>	<i>Bartlett's test Chi-square/df (p-value)</i>
Information Technology	Single component (55%)	0.784	96 / 15 (< 0.001)
Total Quality Management	Single component (65%)	0.832	179 / 21 (< 0.001)
Level of IT usage on TQM	Single component (61%)	0.868	242 / 28 (< 0.001)
Cost Performance	Single component (74%)	0.6	10 / 1 (< 0.001)

Source: survey data

Frequency and cross tabulation done for categorical data while commonly used descriptive measures, such as minimum, maximum, mean and standard deviation are taken for the scale measures. In this research, all likert scale is taken to be an interval scale data, assuming continuity and equal intervals between successive levels. In order for verification of data for linearity and normality, scatter plots and normal probability plots are used. Thereafter, Pearson correlations are computed to quantify the linear relationships. The main focus of the statistical analysis is to test the research hypotheses and collect exploratory information to fulfill the requirement of the research objectives. The main method behind the statistical analysis is structural linear relationship analysis which combines several statistical techniques together, such as factor analysis, correlation and regression analysis as well as the path analysis. After establishing the structural linear relationship model, detailed path analysis is conducted to explore the relationships obtained from structural model. Multiple regressions with stepwise selection procedure are used to compute the path coefficients.

DATA ANALYSIS

The data analysis was started with validity and reliability tests. The construct validity was tested using confirmatory factor analyses method. For each variable under the constructs, the average of the indicators was computed as the concept variable measurement. This was already applicable since the criterion validity exist under those variables as justified through Spearman's nonparametric correlation matrix for the set of indicator statements under each concept variable. Then the set of variables are taken into confirmatory factor analysis based on principal component extraction method. The component having Eigen values greater than one are taken into consideration along with goodness of fit indicators for the method. The results are summarized in Table-2.

According to the results in Table-2, the construct validity for all constructs can be accepted. Each set of concept variables provide only one factor with Eigen value greater than one. This justifies that each set of variables mainly belongs to one latent factor. More than 60% of the variance was explained from this extract single factor for all

construct except IT construct. The KMO statistics, which are at least 0.5 indicate the sampling adequacy under each construct, while the test statistics in Bartlett's test provide enough evidence at 5% significant level that the correlation matrix of concept variables in each construct is not identical. Therefore the factor analysis is appropriate for the data for justification of the single component extraction. Cronbach's alpha values are used to test the internal consistency of the measurement scales for each concept variable

as well as for the complete construct. The results are presented in Table-3. Except quality performance construct all other complete constructs provide greater level of internal consistency from reliability coefficients which are greater than 0.7. Even reliability coefficient of quality performance construct is also close to the 0.7. Therefore internal consistency of the measurement scales can be accepted.

Table 3
Reliability analysis for measurement scales

	<i>Cronbach's alpha</i>
Information Technology	0.920
Total Quality Management	0.907
Level of IT usage on TQM	0.970
Cost Performance	0.769

Source: survey data

Composition of the Sample

The compositions of the sample by industry and by number of employees are presented

in Table-4 and Table-5 respectively.

Table 4
Sampled data by Industry

<i>Industry</i>	<i>n</i>	<i>%</i>
Chemical, Petroleum, Rubber & Plastic	7	17
Food, Beverage & Tobacco	19	45
Metal & Metal Products	4	9
Paper Products, Printing & Stationary	2	5
Textile and Wearing Apparel	7	17
Wood products and Furniture	3	7
Total	42	100

Source: survey data

Table 5
Sampled Data by number of Employees

<i>Number of Employees</i>	<i>N</i>	<i>%</i>
Less than 25	2	5
25 to 49	6	14
50 to 74	2	5
75 to 99	4	9
100 or more	28	67
Total	42	100

Source: Survey data

The certification received by the organizations are summarized in Table-6.

Table 6
Certification and Award Received.

	<i>n</i>	<i>%</i>
ISO 9000 Series	11	26
ISO 9001 Series	2	5
SLS	1	2
SLS and ISO 9000	2	5
ISO 9000 and ISO 14000	6	14
SLS, ISO 9000, and ISO 14000	1	2

Source: survey data

SUMMARY OF RESEARCH CONSTRUCTS

Since the measurement scales based on 1 to 5 Likert scale for all variables, the overall summary

is taken to compare research constructs among them. The descriptive analysis of the research constructs is summarized in Table-7. By

comparing the level of the perceived status of each research construct, it can be identified that quality performance gets the highest mean while IT construct takes the lowest.

When IT & TQM practices are compared, mean value of TQM practices are greater than IT practices, while relatively larger variation exists on TQM practices among organizations. The 95% confidence interval plots provide enough evidence to justify a significant difference between the two practices IT and TQM. Quality performance indicates lowest variation according to the value of coefficient of variation. Each of the research construct was then taken to test the effect of company background variables. All tests failed at 5% significant level indicating that there is no significant effect on company background of those variables.

Relationship between Research Constructs

The statistical analysis is mainly based on structural linear relationship modeling analysis which requires linear regressions and correlation measures. Therefore, both linearity and normality among concept variables were justified by using matrix scatter plots and normal probability plots respectively to confirm the validity of the findings. Stepwise linear regression and factor analysis methods are used to construct the path diagram for the research constructs in order to investigate the statistical relationship among research constructs. Figure-2 depicts the path diagram for the structural linear relationship analysis. The final model is significant at 5% significant level and the Durbin Watson value and other relevant goodness of fit

indicators are taken into consideration to test the goodness of fit of the final model.

According to the path diagram, the significant path on quality performance exist only from IT usage on TQM Dimensions constructs, but not from both IT and TQM practices. Further it is clear that in between two organizational practices IT and TQM had a positive and significant correlation (0.56). Also the influence of IT practices on improvement of TQM dimensions are positive (0.67) and significant at 5% level of significance. To further elaborate the relationship using the concept variables, detailed path analysis was carried out with the help of multiple linear regressions with stepwise selection method. The level of significance to enter was taken as 5% and for removal it was 10%. The resulting path analysis diagram with standardized coefficients is presented in Figure-3.

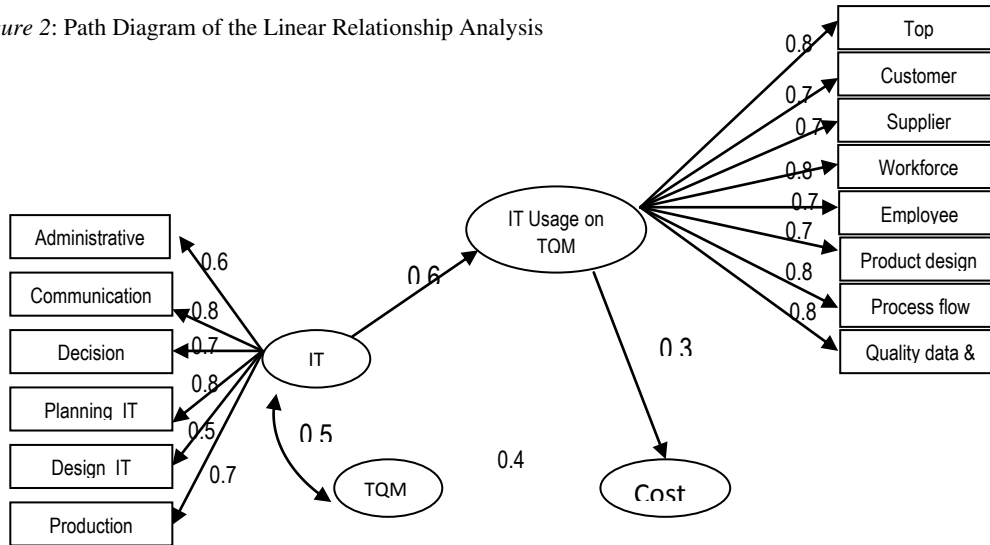
The relationships clearly indicate that the relationship from Level of IT usage on TQM Dimensions on quality performance exists only from top management support. That implies level of IT usage to improve the top management support is significantly effective on organizational quality performance. Even though the overall IT construct does not make direct influence on quality performance, the administrative related IT positively influence on quality performance. Conforming the result indicated in path diagram, the detailed path analysis also showed various ways of influencing IT on TQM dimensions. However, only main effects are presented in the detail path analysis model.

Table 7
Descriptive Statistics of Research Constructs

	Minimum	Maximum	Mean	Std. deviation	CV
Information Technology	1.45	4.39	2.63	0.76	0.289
Total Quality Management	1.00	5.00	3.18	0.96	0.302
IT usage on TQM Dimensions	1.51	4.26	2.91	0.82	0.282
Cost Performance	2.25	5.00	3.62	0.71	0.196

Source: survey data

Figure 2: Path Diagram of the Linear Relationship Analysis



DISCUSSION

The first hypothesis (H_1) of this study is to investigate the relationship between IT practices and the cost performance of the organizations. According to the results, the relationship from IT practices is not significantly related to cost performance. When individual concept variables are taken into account in the path analysis, it was shown that planning related IT and communication related IT had a significant effect on achievement of cost performance. Other than that, any of the IT practices do not create direct links on cost performance. This implies that the management cannot excel cost performance through IT practices directly. Therefore the data did not support the first hypothesis. Some previous studies also reported the same results (Mahamood & Mann, 1993; Swamidass & Kotha, 1998a as in Martinez-Lorente *et al.*, 2004).

Second hypothesis (H_2) is used to identify the impact of overall TQM practices on cost performance. Reference to the literature survey, the

positive impact of TQM on cost performance can be expected. In this research TQM was measured using seven indicator statements in order to get overall measurement of TQM practices in the organizations. The results clearly depict that the TQM practices on cost was significant at 5% significance level.

These results also not confirm the second hypothesis. Third hypothesis (H_3) is formulated to investigate the relationship between two practices, IT and TQM. The relationship between IT practices and TQM practices were significant as justified by the path diagram model. If a moderate correlation exists among these two practices, there is no indication for the overall effect of IT practices on overall TQM practices. However, detailed path analyses verify, and indicate a significant effect only from decision support IT practices on overall TQM practices. According to the results the third hypothesis can be accepted.

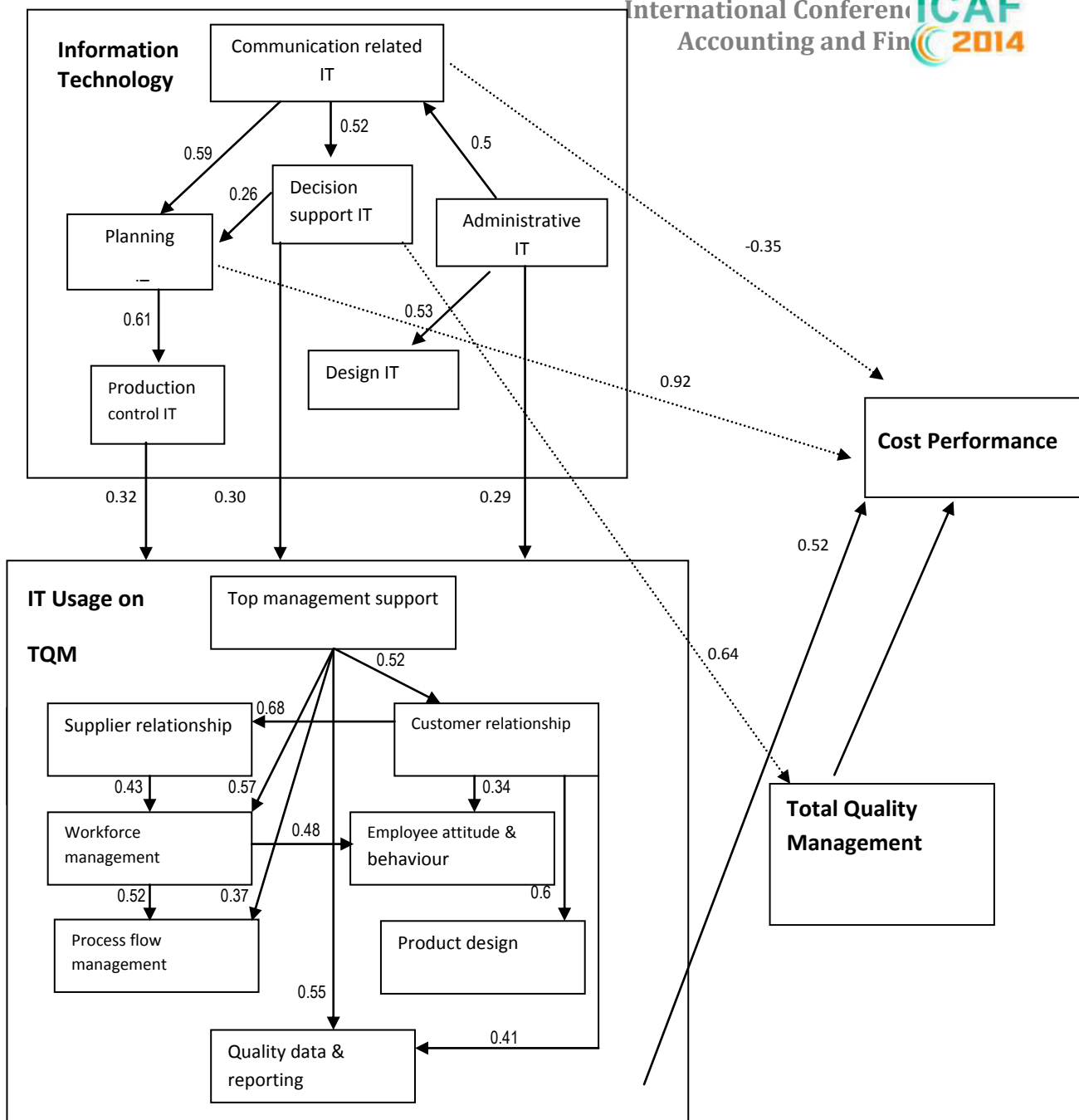


Figure 3: Detailed Path Analysis among Concept Variables

Fourth hypothesis (H_4) is used to identify, the way IT influence on TQM dimensions in order to achieve cost performance. Result justifies the effect of extensive use of IT is high and significant on the level of IT usage on TQM dimensions as shown in path diagram of the relationship analysis. This implies that organizations which use IT extensively on organizational practice, the use of IT on improvement of TQM dimensions is also high.

Reference to the findings of detailed path analysis, mainly higher usage of IT on administrative related IT, decision support IT, and production control IT make the higher influence on level of IT usage on TQM dimensions. Only design support IT does not make any significant effect on level of IT usage on TQM dimensions. All the other variables in IT practices are significantly related with the IT usage on TQM dimensions'

variables in various ways. This may cause the non-significance of the simultaneous relationship between IT and cost performance.

The linear relationship analysis model clearly depicts the significance of the affect of level of IT usage on TQM Dimensions on cost performance. When individual concept variables are taken into account in path analysis, only the quality data and reporting dimension is significant on cost performance of the organizations. This indicates that proper IT usage on quality data and reporting dimension, significantly affect the achievement of the cost performance. Finally all these result confirmed the fourth hypothesis.

Ultimately, it can be finalized that hypotheses four (H_4) can be accepted while hypotheses one (H_1) and two (H_2) should be rejected. The third research hypothesis (H_3) is also accepted by the model providing better correlation between IT and TQM practices. These conclusions on research hypotheses complete the achievement of objectives of the research. Following details are discussed in relation to detailed path analysis.

The six practices belonging to IT creates relationship among themselves as well. The direction of these relationships is decided according to the literature. Firstly, Administrative IT supports both communication related IT and design IT in a positive manner. Design related IT practices are not related with any other IT practice in the organization. Then communication related IT positively supported both decision support IT and planning IT. According to the path coefficients, communication related IT of the organization is highly related to planning IT. Proper IT practices on planning tend to increase the production control efficiency of the organizations. Altogether, it can be identified that the complete IT construct is associated with direct and indirect relationships among its own practice.

The TQM dimensions are also arranged according to the Martinez-Lorente criteria. It is clear that higher usage of IT on top management support positively influencing on both customer relationship and quality data & reporting dimensions. Better usage of IT in order to improve customer relationship tends to increase several dimensions such as quality data management, employee attitudes & behaviour, and supplier relationship. Path coefficients indicate that customer relationship is highly related with supplier relationship dimension. It implies that proper usage of IT on customer relationship improve supplier relationship dimension as well. Higher usage of IT in order to improve supplier relationship positively influences on workforce management. Proper usage of IT on workforce management tends to increase the level of IT usage on process flow management.

The effect of the set of variables which indicate the industry sector, number of employees and certification are taken in to account to test with research constructs. The preliminary tests carried out in descriptive analysis depict that industry sector and number of employees does not make considerable influence on any organizational practices or quality performance. Among the certifications being offered, ISO 9001, ISO 9000, ISO 14000, and SLS are analyzed for influence on research constructs. Results also justified, there is no significant effect from any one of the above certificates on organizational practices or quality performance.

CONCLUSION

Encompassing a comprehensive analysis of data and discussion of the findings, the research process concludes after stating series of concluding remarks, which may have the validity for the manufacturing sector in Sri Lanka. These conclusions can be listed down as follows;

- IT practices do not make direct influence on cost performance of the organizations.
- Level of IT usage on TQM dimensions makes direct influence on cost performance of the organizations, especially from the quality data and reporting.
- IT practices directly influence TQM dimensions mainly from decision support related IT, production control related IT and administrative related IT. This suggests that IT act as a supporting role for TQM.
- Higher IT practices of the organizations link with the overall TQM practices of the organizations in a positive way.
- Even though the complete set of IT practices do not make direct influence on cost performance, the planning related IT practices tend to increase cost performance while communication related IT tend to decrease cost performance.
- Higher IT practices tend to increase the level of IT usage on TQM dimensions in order to achieve the quality performance.
- All IT practices make direct influence on level of IT usage on TQM dimensions except design related IT practices.

This research is subjected to a number of limitations throughout the process. Mainly, the difficulty occurred when it was searched for a structured database of manufacturing organizations. In Sri Lankan context, still such a central database does not exist. The information about business organizations is being collected by relevant authorities to build the database. Therefore, freely available

directories are used for the preparation of the sampling frame for the research. Although the organizations are scattered throughout the country, due to the limitations of time and other resources, the data collection was carried out within the Greater Colombo Region only. The limited and lower response rates affected an in depth analysis of data. The measurement scales may also provide subjective responses according to the personal attitudes as well as the position of the responder. These variations are not considered for the analysis and it might increase error variations. Even though the cost performance measurements can be constructed as objective scales using real information, subjective scales are used due to difficulty of collecting such data. Some organizations are not properly keeping this information, while some are not willing to provide their details even though they are available.

References to above conclusions as well as to the limitations exist for this research; certain areas can be stated for future research. Mainly, this research is based only on cost performance as the organizational performance outcome. It can be expanded to other areas such as operations, marketing, finance, productivity based performance etc. Under this research nothing much is studied about TQM practices, it only considered the overall TQM practices. More detailed study of TQM may give better results. Instead of subjective scales, it will provide a better validity and reliability if it is possible to use relevant objective performance measurement scales as much as possible. The overall framework can also be researched for service organizations after applying relevant changes to the indicator variables as appropriate.

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[21]

CHANGING TRENDS IN CORPORATE FINANCIAL MANAGEMENT DUE TO GLOBAL FINANCIAL CRISIS

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ABSTRACT

Corporate finance is the area of finance dealing with the sources of funding and the capital structure of corporations and the actions that managers take to increase the value of the firm to the shareholders, as well as the tools and analysis used to allocate financial resources. A goal of corporate finance is to maximize shareholder value. In the field of Corporate Finance, we have certain predefined theories and phenomenon that helps an investor in deciding whether to finance an investment with equity or debt capital. But due to the global financial crisis that occurred in 2008, these research techniques, these economic and financial theories and models have not been giving results properly.

Keywords: *Corporate Finance, Financial Crisis, Economic, Financial and Monetary policies in India, Monetary policies in Taiwan*

RESEARCH METHODOLOGY

This paper includes a literature review to come up with a list of probable reasons for financial crisis. Secondly, references of some of the valuable studies which were done in the past will be taken from previous research papers, which will be used to gain important information about the steps taken during such situations in the past in other countries. This paper will also include the study of various factors which were involved in the framing of the policies, interest rate cuts and hikes and changes in the fiscal and the monetary policies by the Government and the RBI.

LITERATURE REVIEW

A brief of the Financial Crisis of 2007-08 and its impact in India

As in the rest of the world, the period from 2003-2007 was a period of rising asset prices

in India as well. Abundant liquidity created by foreign portfolio inflows and rapid economic growth in India created a sense of euphoria. Stock prices (as measured by the Sensex) rose by over 500 per cent (compound annual growth of about 45%) from an average of 3,250 in January 2003 to an average of over 20,000 in December 2007. Real estate prices also rose sharply. Anecdotal evidence suggests that property prices tripled in most urban areas, but there is no reliable time series of home prices in India. The compound rate of growth of 30 per cent per annum was much higher than the 10 per cent annual appreciation in the US real estate bubble of the same period. Historically, Indian property prices had grown at this rate only during periods of double digit inflation. The real estate boom led to huge investments in real estate-intensive businesses like shopping malls, urban infrastructure projects, hotels, and special

economic zones. The banking system benefited hugely from the real estate boom erstwhile defaulters repaid their loans so that they could monetize their real estate assets. The bursting of the stock market bubble and the withdrawal of foreign portfolio investors meant that the principal source of risk capital had vanished. Companies that had initiated large investment projects with the intention of raising equity capital at later stages found themselves confronting serious uncertainties regarding their financing. The 2007 financial tsunami that originated from defaults in subprime mortgage loans in The United States severely affected the global financial market

Impact on the Indian financial sector

- India's current account deficit was being financed largely by portfolio (mainly equity) flows. A reversal of these flows during the crisis led to a sharp depreciation of the rupee. Capital outflows meant that liquidity was sucked out of the markets, and also that risk capital more or less disappeared.
- After the bankruptcy of the US investment bank, Lehman, global credit markets dried up and the Indian corporate sector and banks were unable to roll over their short-term dollar liabilities. This created a severe liquidity crisis in the rupee market which was exacerbated by the failure on the part of the central bank to respond to the problem quickly enough.
- The global reduction in liquidity and risk appetite triggered the deflation of a domestic asset market bubble (in equities and real estate) and this placed strains on the domestic financial system.
- The collapse of global demand impacted export oriented sectors of the economy very badly and the resulting

economic slowdown was another negative shock for the financial sector.

Rupee depreciation due to Global financial crisis

The collapse of the inter-bank market after the failure of Lehman left the Indian banking system in the position of having to repay large dollar liabilities. In the absence of dollar liquidity from the RBI, Indian banks and companies were forced to raise dollar resources by borrowing in rupees and converting the rupees into dollars. This process created a dramatic liquidity squeeze in the rupee money market and inter-bank interest rates shot up well outside the rate band set by the RBI. Normally, the inter-bank rates are within the Repo and Reverse Repo rate which was 9% and 6% respectively. But, after Lehman the liquidity evaporated and the inter-bank rate averaged at 11.7%. It even touched 18.5% in October 2007. Even at these interest rates, there wasn't enough liquidity in the market.

Effect on the Foreign exchange reserves

The total drain of foreign exchange reserves during the period was very modest in relation to its reserves. The drawdown of reserves during the last quarter of 2008, according to the balance of payments data, was only \$18 billion. Net intervention by the central bank during this quarter was \$22 billion and the total gross intervention was only \$28 billion. These amounts are tiny compared to the total reserves of \$247 billion at the end of the quarter. This low drawdown in relation to total reserves has led to a view that India's reserves are excessive and that a large part of these reserves could either be eliminated or invested in risky assets.

Financial Sector Reforms

At a time when India is still mid-way through the process of financial sector reforms, this kind of thinking could lead to the slowing down or even reversal of reforms. This would however be a mistake for two reasons. First, the gap between India and the developed

world in term of financial sector sophistication is so large that even if the US and the UK were to significantly reduce the complexity of their financial sectors, they would still end up at a level much more sophisticated than India is today. Second, the claim that the global crisis was caused by financial innovation simply does not stand on closer analysis.

Current Scenario

In the wake of the global financial crisis, the economists have pointed out that the economic models have not been working properly since the bubble burst in 2007 which led to the financial meltdown in 2008. Many call it an aberration, a rare occurrence in a long period of time since the great depression on 1929. But then these extreme occurrences are what set them apart from what happens on a daily basis and lead to extreme financial crisis. One of the major flaws of these theories and techniques is that it was never able to predict the oncoming of the financial recession nor can it explain why the markets are not able to achieve equilibrium on its own. The theory of the 'Invisible Hand' which says that the market will reach its equilibrium and resolve all the disparities is hard to support as without government intervention the market may not survive for too long. Let's take the example of the Credit Ratings given by some of the best Rating agencies in the world to some of the biggest financial institutions. Companies like Lehmann Brothers and Merrill Lynch had a AAA rating when they got bankrupt. AIG, the largest insurance company in the US had to be bailed out by the US government. Many other big banks such as Bank of America and the Citigroup got bailed out too during that recession because the government was afraid that their failure would shatter the global economy. Maybe some companies are too big to fail and therefore the intervention of government ('The Visible Hand') is required because if it does fail, it will affect many other smaller companies who depend on these MNC's for their business and they would too fail, a phenomenon known as 'The Contagion

Effect'. Therefore, the goal of this paper is to address these issues. In tackling these questions, there will be two repeated themes. First, the contrasting understandings of advanced and emerging economies during the global crisis can be directly related to their very different styles of engagement with financial globalization during the pre-crisis period. Second, the current European crisis provides significant lessons for the rest of the world, in view of the extremely high levels of cross-border financial integration within Europe especially within the euro area.

Fiscal & Monetary policy by the Taiwanese government

The 2007 financial tsunami that originated from defaults in subprime mortgage loans in the United States severely affected the Taiwanese financial market. In addition to the different type of financial crisis, the environment of Taiwanese financial market has also undergone a rapid development and liberalization process in the last 10 years. The developments in non-financial industries, especially in the manufacturing sector, led to changes in the Taiwanese financial market. In response to the higher degree of internationalization and various kinds of capital structure, the financial services industry in Taiwan became more flexible and began providing a wider variety of services. Therefore, the effect of the global financial crisis in 2007 on the Taiwanese financial market and the policies enacted by Taiwanese government in response to the shock of global financial crisis are worthy of close study. In 2007, to curb the excess liquidity and inflation resulting from credit over-expansions, the Federal Reserve Bank increased interest rates to 5.25%. The high level of interest rate caused constrained households to default because they could not afford such high interest payments. The real estate bubble in the United States began its gradual burst, leading to depreciation in home equity and directly affecting the mortgage-based securities market. Therefore, the increasing interest rate not only affected

housing prices, but also caused the collapse of the credit market. The effect of the credit crisis was extensive, triggering the global financial crisis. The subprime mortgage crisis in the United States and the collapse of Lehman Brothers have had a huge influence on the profitability of many Taiwanese banks who purchased investment products associated with Lehman Brothers and the American International Group (AIG). At that time, approximately 50% of Taiwanese banks were state-owned, whereas the other 50% were private banks. Concerned with the bankruptcy risk of Taiwanese banks, customers moved their deposits from private banks to state-owned banks. Private Banks experiences a plummet in their stock prices due to the decline in deposits and weak investor confidence. Investors shy away from financial products in a gloomy economy where banks are cautious in lending and the risks of bad debts rising. The loss of major profit sources is a double blow to private banks. In addition to banks, other financial institutions in Taiwan, such as brokerage firms, were not immune from the effects of the global financial crisis. The securities industry has been involved more deeply in over-competition in a saturated market with lower profits than in the past. Under the influence of the global financial crisis, the Taiwan Stock Exchange Capitalization Weighted Stock Index (TAIEX) dropped by approximately 47% in 2008, and the stock trading volume shrank by 21%. As a result, stock brokerage firms experienced a significant decline in brokerage commissions, the major and most stable source of income for these firms.

Monetary Policy by the Central Bank of China (Taiwan) The Central Bank of China (Taiwan) adopted a loose monetary policy to boost capital liquidity by continuously lowering interest rates. In contrast, to obtain a certain degree of liquidity, life insurance companies held a large portion of short-term fixed income securities. Therefore, the loose monetary policy caused a lower spread to life insurance

companies. Combined with severe losses from investments in the stock market and the real estate market, life insurance companies faced a dramatic drop in the net value. The monetary policies in Taiwan include the lowering of deposit reserve rates and discount rates with the Central Bank of China (Taiwan), interest rate cuts, and expansion of open market repurchases. All of these policies are aimed at propping up the liquidity of security market, which has been less liquid since the global financial crisis.

Fiscal Policy measures by the Taiwanese government

The Taiwanese government formulated asset of measures to boost the economy in response to the global financial crisis. These measures included offering of low-rate business loans, full protection of deposits, adjustments of exchange rates, lowering of tax rates, expansion of public spending on infrastructure by NTD 500 billion in four years, and moral persuasion to scale back redundancy programs. Efforts have been taken to increase private spending to boost domestic demands. On February 18, 2008, NTD 85.7 billion worth of consumption vouchers were issued. Each resident in Taiwan could obtain vouchers worth of NTD 3600 for shopping. This move was expected to create 0.66% economic growth through the multiplier effect. A number of financial measures have also been taken to reduce the effects of the global financial crisis. Fiscal policies aimed at stimulating private investments with tax cuts were also put in place, including security transaction tax, and estate and gift tax. The tax-free allowance for gift taxes was raised from NTD 1 million to NTD 2.2 million. Such policies are expected to reduce tax revenues by NTD 16.5 billion to NTD 20 billion per year. These tax cuts were proposed to invite capital inflows and inject liquidity to the Taiwanese financial markets. Moreover, the government implemented a number of supporting policies to stabilize the confidence of investors in the financial market. These policies include an extension of six

months for corporate lending, crackdown on vultures in the stock market, and full coverage of deposits in all the financial institutions.

TOWARD A NEW PARADIGM

FIRM'S OBJECTIVE: SHAREHOLDER'S WEALTH MAXIMIZATION

The classical economic view of a firm's objective is to maximize shareholder's wealth or strictly speaking maximizing firm value. The shareholder wealth maximization objective is based on a long-time horizon, and thus the strategy used in achieving this firm's goal is presumably based on a long-term perspective. However, the usefulness of this paradigm of firm value-maximization has been under caution, because the necessary assumptions for this paradigm are not always met in reality as revealed by the meltdown of the banking and financial systems during the 2007-08 financial crisis. The necessary conditions are efficient markets, a long-term horizon, and alignment of the interests of shareholders and managers or alternatively, the absence of agency problems between shareholders and managers. Evidence presented in the finance literature shows that financial markets are not efficient. For example, during the dotcom bubble in 2001, dotcom stocks' valuation fueled by the overreaction of investors went up so rapidly that even short-selling in the market could not prevent the crash to occur. It is puzzling that a well-functioning financial market such as the U.S. stock market may fail at times. Deviations from the long-term objective of shareholder wealth maximization are inevitable because both the top managers (CEOs) and investors have a short-term perspective. CEOs typically have short tenure. In fact, the average CEO tenure has dropped from ten years to six since 1995 as the complexity and scale of firms have grown [Coates and Kraakman (2010)]. As their tenure gets shorter, CEOs would likely be more interested in focusing on the short-term rather than the long-term performance of the

company in order to maximize their bonus, which is typically tied to the short-term performance. If a company misses the quarterly earnings target, stock analysts may make sell recommendation, causing the stock price to slide. Shareholders with clout may advocate for the removal of the CEO. As stock analysts exert pressure on the CEO for better firm performance, the CEO may manipulate earnings in the short run in order to meet analysts' expectations. While CEOs have incentive to focus on the short-term performance under the current incentive structures for most companies, shareholders also tend to hold their investments for a short horizon. Since the 1970s, the average holding period for U.S. equities has come down from about seven years to seven months. Investors now with little patience are seeking for short-term financial gains as opposed to long-term growth. Fund managers investing in companies are also interested in short-term gains, because their compensation is also linked to the short-term performance of the stock. Recently it appears that investors across the globe are quite unforgiving on firms that miss earnings targets. It remains to be seen whether this recent trend that investors focus more on the short-term earnings targets will become a long-term trend. This current market practice of using short-term earnings targets appears to sway firms' management from the long-term fundamentals. Clearly, short-term earnings guidance has unintended adverse effects on the firm's long-term strategy and its performance.

FIRM'S OTHER OBJECTIVE- SUSTAINABILITY

Pundits of the shareholder wealth maximization objective suggest alternative goals such as the long-term sustainability that are worthy of consideration. Modern finance theories, such as the capital structure theory and capital asset pricing model are built on a one-period static model framework. In extending a single-period analysis to a multi-

period analysis in the existing financial economic models, the preference of stockholders which is critical to the production decision needs to be specified in order to define the firm profit and production function over time. That is, the financial theory of a firm in a multi-period context assumes that rational investors (stockholders) prefer more to less, and they are only interested in pecuniary gains. As a result, a firm should select projects that maximize the net present value (NPV) of the free cash flows over time with the appropriate risk-adjusted discount (market) rate or the cost of capital. If stockholders do not have the same liking of the firm's production function, they themselves can achieve their own particular preference through buying and selling in the market under the perfect market assumption. While it seems reasonable to assume in the past that stockholders are not involved in production decisions, this assumption is no longer true. As many stockholders have become activists in corporate governance, their participation in the decision-making process affects the production function in two important ways. First, their involvement in the executive compensation of public companies will mitigate the agency costs through proxy fights. Stockholders in many public companies including American Airlines, Citigroup, Electronic Data Systems, and JP Morgan Chase has approved proposals enabling them to be actively involved in the board decision on executive pay. Second, many stockholders have become aware of corporate social responsibility. They demand firms to consider their inputs in strategic decisions, especially in socially responsible investments. I suggest that firms should not only adopt the wealth maximization proposition as stockholders do, and not only evaluate this objective but also other objectives such as social justice issues. Moreover, government intervening in the market through various regulations on business practices will abate the working of the 'visible hand.' Thus, in order for corporations to survive (or sustain in the long

run), they no longer have a choice but to act on the policies that address new laws and regulations directed to them by the government as well as the changing preference of consumers and stockholders.

Stakeholders' Objective: Relationship with Customers and Employees

The production function of a firm does not exist in a vacuum according to the standard economic model. Specifically, a firm cannot simply produce a product assuming it will be unconditionally accepted by consumers. Consumers buy a product because it meets an intrinsic need or satisfaction. The extent to which customer satisfaction of a product can be maintained over time depends on consumers' perception of the image, quality, and credibility of the product. While including the customers' interest as part of the firm's production function and the firm objective seems straightforward even under the traditional paradigm, incorporating employees' interest as stakeholders of the firm requires an overhaul in the paradigm. The traditional economic theory treats employees as a factor of production and thus wages as a cost of production that stands in the way of the corporate pursuit for profit maximization. Undoubtedly employees play a pivotal role in the production function; they are not just a cog in the production machinery.

They can make or break a successful firm. The decision makers of firms should pay special attention to the situation if the real wage of the workers in a firm increases along with the increase in the productivity of workers. That is, a firm is sustainable only if workers should share proportionally part of the profitability of the firm, which does not go primarily to the people in the corner offices. Among the non-pecuniary motivators, employees' credibility, trust, loyalty, and relationship with the firm could be as powerful as pecuniary compensation, although their relationship with the output may not be linear as it will be with pecuniary compensation. Stakeholders'

interests in the production function may contribute on-linearly to the firm profitability and its success, yet they are typically absent from the standard linear economic models. In any new paradigm, non-pecuniary motivators should be an integral part of the production and profit functions.

ORGANIZATIONAL STRUCTURE AND FINANCIAL STRATEGY

Different organizational structures serve different purposes in light of the operating environment and market impediments. Different organizational structures may dictate different financial policies and strategies. For example, investment banks used to be organized as unlimited partnerships, leaving the residual risks of the firm to be borne by the partners/owners and management. This organizational form limits risk taking if the owners are risk averse. However, when investment banks are organized as limited liability corporations, shareholders but not the executives will be the residual claimants. Top executives might probably take advantage of the organizational structure to maximize their own financial interests by engaging in excessively risky projects. This illustrates how the structure of organization could determine the firm's strategy in the presence of agency problems. Thus, it can be argued that to a certain extent organizational structure determines strategy. Although financial strategy is an important aspect of the firm's overall strategy, finance theory does not put much emphasis on the interaction of financial strategies with the overall firm strategy, let alone its interaction with the organizational structure. Often, this is left to those who study organizational behavior. This benign neglect should be corrected in the future by the finance profession. Many financial policies such as the dividend policy, M&A, and foreign investment should be examined carefully with the overall strategy of the firm. They cannot be merely evaluated by a standalone approach. In addition, the financial strategies that deal with

the various types of uncertainty should be incorporated into a decision-making framework.

DECISION MAKING

The Yin and Yang theory from the Chinese philosophy and its premises of the notion of 'cyclone' could induce the innovative and non-linear thinking into the traditional business analysis (such as SWOT or Porter's Five Forces of Competitive analysis). The term 'cyclone' is borrowed from the weather terminology to conjure up the notion of three- or multi- dimensional cycles. Paths in a two-dimensional cycle will either be up, sideways, or down, whereas for a 'cyclone', paths are multi-dimensional and can move in any direction. Where they will end up is beyond our comprehension. Paths may look like the whirlwinds in a cyclone, except that paths will never be exactly the same since the time dimension is also being considered. Despite difficulty in quantifying the infinite paths a 'cyclone' might take, it is not difficult to realize that in reality decisions in a way may get caught in a 'cyclone.' In other words, we probably would not know what the ultimate outcome we might get for the decision we make now, regardless of the probability the model suggests. But, we know for certain that the actual outcome would be very different than the one we thought we would be getting at the time of making the decision. Using the cycle-'cyclone' analogy, decisions made in a cycle are path dependent but outcomes are still uncertain. We use an example with Barclays Bank to illustrate a 'cycle-cyclone' decision path.¹⁸ When Lehman Brothers collapsed in September 2008, Paul Parker, Lehman Brothers' co-head of M&A helped negotiate the sale of the bank's North American operations to Barclays, signaling the low point of his career cycle. In March 2011, that deal had helped put Barclays Capital, the investment banking division of Barclays, was challenging Goldman Sachs for the number one for the 2010 total mergers and acquisitions

in the U.S., placing Parker to be the global head of M&A at Barclays Capital on the upside of his career cycle [McCracken (2011)]. The moral of the story is that today we may be doing well or badly, but we do not know what the outcome will hold in the future. Although Parker was forced to make the decision to sell, a 'bad' decision turned out an unexpectedly good outcome. It was a bad decision to him at that time because going down that path in this career cycle, the probability of having a good outcome was zero. Had he thought of his decision back then in the context of 'cyclone', he could have realized that as the M&A industry had to go through different phases of the life cycle as the US financial system was collapsing, his career path might take many different turns. In sum, we believe philosophy has a lot to offer in the understanding of how to think nonlinearly and run a business successfully. However, there remains much work to be done as to how to weave this philosophy into the paradigm fabric of the financial economic models.

CONCLUSION

Many causes have been identified as the culprits for the financial crisis. Some of the causes have common roots. For example, the implosion of the subprime mortgages attributed to the careless government regulation and failures in monitoring risk by individual financial institutions, banks, investors, and government regulators all contributed to the meltdown of the global financial markets. Corporate governance in many largest financial institutions failed miserably, allowing them to take excessive risk in the financial markets that caused irreparable damages once imploded. More important, in this paper we have identified some shortcomings in the financial economic paradigm underpinning the decision making of the top executives of companies involved in the crisis who were among the brightest business executives in the world. We believe the global financial crisis calls for a new paradigm in financial economics. We suggest

several concepts that should be considered when we come up with new finance or economic theories. As we all agree that the future is uncertain, we do not expect to have models that would include all possible scenarios for analysis. Having blind-faith in the prevailing paradigm of financial economic models that assume the uncertainty about the future can be quantified and calibrated by risk metrics has been the major problem of the old paradigm. We suggest that those who are responsible for developing the financial policy and strategy should think not only 'outside the box' so to speak, but to think beyond what the financial economic models can infer. As such, we suggest management of companies should learn and approach financial decision making in a more philosophical rather than a mechanical way as taught in business schools under the rational expectations and efficient markets paradigms. We illustrate by way of discussing the Chinese philosophical premises of 'relative position' and 'cyclone' of the Yin and Yang theory in business decision making. We suggest that top executives, working in finance or not, should allow themselves to think flexibly in a non-linear way, instead of pinning themselves down in a linear thinking path as in most rational economic models.

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MORNING STAR RATINGS AND SUBSEQUENT PERFORMANCE OF MUTUAL FUNDS

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ABSTRACT

In this study, we examine the predictive power of Morningstar's new ratings system for U.S. equity mutual funds and compare it against the old ratings system and four alternative predictors. As well, we examine the predictive power of the new system in bull and bear markets. The results suggest that Morningstar's new ratings system reasonably predicts performance only for five-star rated complete funds in the short to the medium term. In addition, the new system does not predict better than the old system or the four alternative predictors. Finally, the new Morningstar ratings system has greater predictive power during bear periods than bull periods.

Keywords: *Morningstar rating, mutual fund, alternative predictor, bull-bear period*

INTRODUCTION

Since the inception of mutual funds in the 1920s in the United States, they have become increasingly popular, and today they are a \$24-trillion industry globally (ICI, 2012). Investments in these funds are mainly guided by funds ratings. Morningstar Inc.'s star rating is one of the dominant ratings in the industry. Morningstar rates mutual funds from one to five stars using a quantitative method based on the funds' past risk-adjusted returns. They provide an overall rating for each fund based on the weighted average of three time periods:⁹ three-year, five-year, and ten-year. In June 2002, Morningstar made some changes in their star-rating system. It reorganized its four broad asset classes into 65 Morningstar categories and changed its risk measurement to capture total variation in a fund's performance and emphasize the downward variation (Morningstar, Inc., 2008). Morningstar ratings provide an intuitive,

immediate understanding of a fund's historical performance to an investor to select right mutual funds (Guercio & Tkac, 2008; Sharpe, 1998). Evidence suggests that Morningstar ratings have an incremental effect on the investments in mutual funds and funds with high Morningstar ratings attract large cash inflows (Goetzmann & Peles, 1997; Guercio and Tkac, 2008; Sirri & Tufano, 1998). Thus, it is important to evaluate the predictive power of Morningstar ratings given their influence on investments in mutual funds. A number of studies have examined the predictive power of the Morningstar ratings. Sharpe (1998) analytically compares Morningstar's old ratings to the Sharpe ratio ratings and finds that neither is an efficient tool for choosing the right mutual funds. Blake and Morey (2000) examine the Morningstar's old ratings and compare it with that of four alternative predictors for U.S. domestic equity funds. Their results show that the predictive power of the Morningstar ratings is better for only one- and two-star rated funds. Also Morningstar

⁹ For details see Benz (2005).

ratings predict better than the Jensen alpha and the four-index alpha. Gerrans (2006) studies Australian Equity Trust and finds that Morningstar ratings do not predict funds' performance for all rated funds. Morey and Gottesman (2006) investigate the predictive power of the new star ratings for U.S. domestic equity funds and they find that the new ratings predict the funds' future performance for most of the funds. Kräussl and Sandelowsky (2007) compare the predictability of the old and new star ratings for all Morningstar-rated U.S. mutual funds and find the old ratings superior. The above inconclusive results motivate us to further extend this research in numerous ways. First, we compare the predictability of the new Morningstar ratings against four alternative predictors. Second, we examine the predictive power of the new star ratings in different economic conditions (bull vs. bear periods). Both of these objectives have not previously been examined. Third, this study extends the time period in Kräussl and Sandelowsky's (2007) study and retests the predictability of new star ratings and compares it with the old star ratings. The remainder of the paper is organized as follows. Section 2 discusses the data and the methodology used for the analysis; Section 3 presents and discusses the results of the study; and Section 4 provides the summary and concludes.

DATA AND METHODOLOGY

Data

This study uses monthly return data for equity funds from the Morningstar Direct Database from July 1992 to June 2011. Since we focus on mutual funds rated by Morningstar, the funds must be open-ended (share class A or class B or no load funds) with at least three years of returns history, as required by Morningstar. We obtain data on 9,870 U.S. equity funds for new rating system and 3,865 for old rating system. After identifying the funds, we eliminate duplicate funds following the procedure of Morey and Gottesman (2006). Some funds have had a name change, a merger, or both, or liquidation. We label these funds "problem funds.", and include them in our samples to reduce survivorship bias (e.g., Blake & Morey, 2000; Morey & Gottesman, 2006). We divide our sample into complete funds and periodic funds. Complete funds must have overall rating data for the entire relevant period (e.g., from July 1, 2002 to July 1, 2010 when analyzing the performance of the new rating system). Periodic funds must have an overall Morningstar rating only on July 1 of each year to be included in that year's analysis. We measure out-of-sample performance of these funds for three windows: one-year, four-year, and nine-year. The number of funds for each analysis is reported in Table 1.

Table 1
Summary Table of Number of Funds

Objectives	Funds type	Rating time	Nine-year	Four-year	One-year
Predictability of new star ratings	Complete funds	July-2002	768	768	768
		July-2002	768	768	768
	Periodic funds	July-2003		853	853
		July-2004		946	946

		July-2005	1,005	1,005	
		July-2006	1,060	1,060	
		July-2007	1,126	1,126	
		July-2008		1,194	
		July-2009		1,266	
		July-2010		1,323	
Comparison with alternative predictors	Complete funds	July-2002	768	768	768
Predictability in bull and bear periods	Complete funds	January 2003 for bull and July 2007 for bear		810	
Comparative predictability of old and new star ratings	Complete funds	July 2002 for new and June 1993 for old		319	319

METHODOLOGY

Returns

Following Blake and Morey (2000) and Morey and Gottesman (2006), we use both load-adjusted and non-load adjusted returns to

examine the predictive power of new star ratings. However, like them we find that load-adjustment do not affect the results. So, we use only load-adjusted returns for our other three study objectives.

Front-end load adjusted return for fund i in month t is computed as:

$$R_{it}^{FLA} = R_{it} - f^m, \quad (1)$$

where R_{it} is the monthly return of fund i in month t , and f^m is the monthly front-end load adjustment, computed as $f^m = \frac{f}{\sum_{j=1}^h (1+r)^{-j}}$, where f is the front load for a particular fund, h is the number of months the fund is held, and r is the monthly interest rate. Similarly, deferred-load adjusted return for fund i in month t is computed as:

$$R_{it}^{DLA} = R_{it} - d^m \quad (2)$$

where d^m is the monthly deferred-load adjustment, computed as $d^m = \frac{d}{\sum_{j=1}^h (1+r)^j}$, and d is the deferred-load for a particular fund.

Performance measures

To measure the out-of-sample performance of the funds, we use four risk-adjusted measures: the Sharpe ratio (Sharpe, 1966), the Jensen alpha (Jensen, 1968), the four-index alpha¹⁰ (Carhart, 1997) and the information ratio (Goodwin, 1998). The first three measures are used extensively in the literature and Goodwin (1998) suggests the fourth measure is a powerful instrument for evaluating the skills of a fund manager and the best single measure of the mean-variance characteristics of portfolios.

¹⁰ Elton, Gruber, and Blake (1996) argue that the four-index alpha accounts for all influences of the mutual funds better than the Jensen alpha.

The load-adjusted Sharpe ratio for fund i is (Reilly, Brown, Hedges, Chang, 2010; Sharpe, 1966):

$$Sharpe_i = \frac{\overline{R_i^{LA}} - \overline{R_{ft}}}{\sigma_i} \quad (3)$$

where $\overline{R_i^{LA}}$ is the average monthly load-adjusted return for portfolio i , $\overline{R_{ft}}$ is the average risk-free rate, and σ_i is the standard deviation of the monthly returns.

The load-adjusted single-index Jensen alpha for fund i (Jensen, 1968; Reilly et al., 2010) is:

$$R_{it}^{LA} - R_{ft} = \alpha_i + \beta_i [R_{mt} - R_{ft}] + e_{it} \quad (4)$$

where α_i is the Jensen alpha, β_i is the systematic risk, R_{it}^{LA} is the monthly load-adjusted return, R_{ft} is the risk-free rate, R_{mt} is the market return (S&P 500), and e_{it} is the random error.

The load-adjusted four-index alpha for fund i (Carhart, 1997; Reilly et al., 2010) is:

$$R_{it}^{LA} - R_{ft} = \alpha_i + \beta_{i1} [R_{mt} - R_{ft}] + \beta_{i2} SMB_t + \beta_{i3} HML_t + \beta_{i4} MOM_t + e_{it} \quad (5)$$

where α_i is the four-index alpha, β_i is the systematic risk, R_{it}^{LA} is the monthly load-adjusted return, R_{ft} is the risk-free rate, R_{mt} is the market return, SMB_t is the difference in returns from a portfolio of small versus large capitalization stocks¹¹, HML_t is the difference in returns from a portfolio of stocks with high versus low ratios of book-to-market values, MOM_t is the price momentum factor, and e_{it} is the random error term.

The load-adjusted information ratio for fund i (Goodwin, 1998; Reilly et al, 2010) is:

$$IR_i = \frac{\overline{R_i^{LA}} - \overline{R_b}}{\sigma_{ER}} = \frac{\overline{ER_i}}{\sigma_{ER}} \quad (6)$$

¹¹ Data of the four factors are obtained from Kenneth R. French data library (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

Where $\overline{R_i^{LA}}$ is the average monthly load-adjusted return, $\overline{R_b}$ is the average monthly return for the benchmark portfolio, $\overline{ER_i}$ is the average excess return, and σ_{ER} is the standard deviation of the excess return.

Alternative predictors

In addition to using the Sharpe ratio, Jensen alpha, four-index alpha and the information ratio as performance measure, we also use them to rank the mutual funds into 5 stars categories, just like Morningstar, and evaluate the performance of these rankings. In particular, following Morningstar's methodology, we calculate the Sharpe ratio, Jensen alpha, four-index alpha and the information ratio using monthly returns for three time periods (i.e., ten-year (e.g. July 1992-June 2002), five-year (e.g. July 1997-June 2002), and three-year periods (e.g. July 1999-June 2002)) and compute the composite predictors as the weighted averages for the three time periods. Finally, we convert the composite predictors to the star equivalents (for details, see Benz (2005)).

Evaluating the ratings

We use regression analyses and Spearman-Rho rank correlation tests to examine the predictive power of new and old star ratings as well as alternative ratings. We estimate the following cross-sectional regression to examine the predictive power of the Morningstar ratings and those of the four alternative predictors' rankings:

$$S_i = \gamma_0 + \gamma_1 D4_i + \gamma_2 D3_i + \gamma_3 D2_i + \gamma_4 D1_i + u_i, \quad i = 1 \text{ to } N \quad (7)$$

Where S_i is one of the four out-of-sample performance measures for fund i . We set $D4$ ($D3$) [$D2$] [$D1$] to one if a fund receives an overall four-star (three-star) [two-star] {one-star} rating at the start of the performance measurement period and to zero otherwise, and there are N funds in the sample¹². The

¹² The start of performance measurement period is always the first date of the month and year specified in the Table 1, e.g., for the complete

coefficient γ_0 designates the mean performance measure for the five-star equivalent funds and $\gamma_1, \gamma_2, \gamma_3, \gamma_4$ capture the performance of the four-, three-, two-, and one-star equivalent funds relative to the five-star funds. If the ratings have predictive power, the coefficients $\gamma_1, \gamma_2, \gamma_3$, and γ_4 should be negative and they should decrease (i.e., $\gamma_1 > \gamma_2 > \gamma_3 > \gamma_4$), implying that higher rated funds, on average, should outperform lower rated funds. Following Duncan (1970) and Paternoster, Brame, Mazerolle, & Piquero (1998), we test the difference in coefficients using a Z-test¹³. Next, we use one-tailed¹⁴ Spearman-Rho rank correlation tests to identify the significance of the association between in-sample rankings and the out-of-sample performance measures. To perform the test, we first calculate the out-of-sample performance for each fund for all four performance measures. Then we sort the predictor (as of the measurement date¹⁵) in descending order and divide the data into deciles based on this orderings. For each decile, we calculate the average ranking and the average out-of-sample performance measure (e.g., Blake and Morey (2000)). We then calculate the correlations between the average rankings and the average performance measure for each predictor.

RESULTS AND DISCUSSIONS

funds, the start is July 1, 2002; for periodic funds, the start is July 1st for all time periods beginning in July 2002 to July 2010. To compare with the alternative predictors, we consider the ratings as of July 1, 2002 for all five predictors. For bull and bear periods, the start is January 1, 2003 and July 1, 2007 respectively. To compare the old and new rating systems, the start dates are June 1, 1993 (old) and July 1, 2002 (new).

$$^{13}Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}}$$

where b_1 and b_2 are the first and second coefficients respectively of the regression to be compared, SEb_1 and SEb_2 are the standard error of the first and second coefficients respectively.

¹⁴ We also conduct two-tailed rank correlation tests for the same samples and the results are similar.

¹⁵ Dates are same as that of regression analyses.

Predictive power of morning star's New Ratings

First we report the results of the regression analysis¹⁶ and then the results of Spearman-Rho rank correlation test. Table 2 presents the results of the regression analysis of the four different performance measures using Morningstar ratings as of July 1, 2002 as the predictor for the four-year complete funds. The F-statistics shows that, the regression equations are mostly significant. The adjusted R^2 s are consistent with previous studies (i.e., Blake and Morey, 2000; Kräussl and Sandelowsky, 2007; Morey and Gottesman, 2006)

¹⁶ We perform the White (1980) test to examine heteroskedasticity and we do not find hetero problem at the 10% level.

Table 2
Regressions Using Morningstar New Rating as the Predictor: Complete Funds

Out-of-sample performance measure	γ_0 (Constant)	γ_1 (4-Star)	γ_2 (3-Star)	γ_3 (2-Star)	γ_4 (1-Star)	F-stat	Adj R ²
Panel A: Non-Load Adjusted Returns							
Non LA Sharpe ratio	0.206* (27.189)	-0.019* (-2.108)	-0.029* (-3.261)	-0.018* (-1.827)	-0.026* (-1.737)	2.76*	0.009
Non LA information ratio	0.065* (7.828)	-0.020* (-1.942)	-0.020* (-2.077)	-0.002 (-0.180)	-0.002 (-0.092)	2.27**	0.007
Non LA Jensen alpha	0.325* (7.852)	-0.080** (-1.597)	-0.105* (-2.187)	-0.024 (-0.439)	-0.085 (-1.036)	1.73	0.004
Non LA four-index alpha	0.091* (2.975)	-0.063* (-1.705)	-0.096* (-2.704)	-0.052** (-1.332)	-0.107* (-1.786)	2.08**	0.006
Panel B: Load Adjusted Returns							
LA Sharpe ratio	0.206* (27.186)	-0.019* (-2.109)	-0.029* (-3.262)	-0.018* (-1.827)	-0.026* (-1.738)	2.76*	0.009
LA information ratio	0.065* (7.816)	-0.020* (-1.945)	-0.020* (-2.081)	-0.002 (-0.184)	-0.002 (-0.093)	2.28**	0.007
LA Jensen alpha	0.325* (7.853)	-0.080** (-1.599)	-0.105* (-2.191)	-0.024 (-0.443)	-0.085 (-1.038)	1.73	0.004
LA four-index alpha	0.090* (2.974)	-0.063* (-1.706)	-0.096* (-2.706)	-0.053** (-1.334)	-0.107* (-1.788)	2.09**	0.006

* indicates significance at the 5% level. ** indicates significance at the 10% level.

Panel A of Table 2 reports the estimates of equation (7) for non-load adjusted returns and Panel B presents the results for load adjusted returns for complete funds for the four-year sample period. From the Panel A, the estimates of γ_0 are all positive and significant, suggesting that the five-star rated funds yield positive and significant risk adjusted returns. The estimates of the other coefficients ($\gamma_1, \gamma_2, \gamma_3$, and γ_4) are all negative as expected and which 75% of them are significantly different from zero. This implies that the five-star rated funds generally outperform other funds. However, the estimates of $\gamma_1, \gamma_2, \gamma_3$, and γ_4 do not generally decline as expected.

Note. Sample size of 768 includes those funds that had an overall rating on July 1, 2002. Out-

of-sample returns data used for the analysis is from July 2002 to June 2006. *t*-statistics are in parentheses. LA = Load Adjusted. We have performed one-tailed *t*-tests for all the tests of statistical significance in this study. However, we also perform two-tailed *t*-tests for the same samples and results are similar.

Test of difference in coefficients, reported in Table 3, shows that none of the difference is significant, suggesting there is no difference among any pair of the four-, three-, two-, and one-star rated funds. Thus, while the five-star funds outperform the lower rated funds, the performance of the lower rated funds are similar to each other. The results from Panel B deliver the same conclusions suggesting that our results are not affected by a fund's load.

Table 3
Tests of Differences in Coefficients for Morningstar New Ratings: Complete Funds

Out-of-sample performance measure	γ_1 vs. γ_2	γ_1 vs. γ_3	γ_1 vs. γ_4	γ_2 vs. γ_3	γ_2 vs. γ_4	γ_3 vs. γ_4
Panel A: Non-Load Adjusted Returns						
Non LA Sharpe ratio	-0.01 (-0.7857)	0.001 (0.0743)	-0.007 (-0.4002)	0.011 (0.8176)	0.003 (0.1715)	-0.008 (-0.4438)
Non LA information ratio	0	0.018	0.018	0.018	0.018	0

	(0)	(1.2108)	(0.954)	(1.2108)	(0.954)	(0)
Non LA Jensen alpha	-0.025	0.056	-0.005	0.081	0.02	-0.061
	(-0.3607)	(0.7609)	(-0.0521)	(1.1211)	(0.2105)	(-0.6213)
Non LA four-index alpha	-0.033	0.011	-0.044	0.044	-0.011	-0.055
	(-0.6479)	(0.2046)	(-0.6242)	(0.8397)	(-0.1584)	(-0.7686)
Panel B: Load Adjusted Returns						
LA Sharpe ratio	-0.01	0.001	-0.007	0.011	0.003	-0.008
	(-0.7857)	(0.0743)	(-0.4002)	(0.8176)	(0.1715)	(-0.4438)
LA information ratio	0	0.018	0.018	0.018	0.018	0
	(0)	(1.2108)	(0.954)	(1.2108)	(0.954)	(0)
LA Jensen alpha	-0.025	0.056	-0.005	0.081	0.02	-0.061
	(-0.3607)	(0.7609)	(-0.0521)	(1.1211)	(0.2105)	(-0.6213)
LA four-index alpha	-0.033	0.01	-0.044	0.043	-0.011	-0.054
	(-0.6479)	(0.186)	(-0.6242)	(0.8206)	(-0.1584)	(-0.7546)

Note. This table reports the difference in the coefficients reported in Table 2. LA = Load Adjusted. *z*-statistics are in parentheses.

We perform similar regressions for one- and nine-year sample periods for complete funds. The results, which are not tabulated for brevity, show that 94% of the estimates of $\gamma_1, \gamma_2, \gamma_3$, and γ_4 are negative and significant for the one-year sample periods, while the corresponding value for the nine-year periods is only 25%. Also, none of the test of differences in the pairs of these coefficients is

statistically significant, consistent with the four-year period results. Overall, for the complete funds, we find that the new star ratings system accurately predicts strong performance for the five-star rated funds in the short- to the medium-term. However, for funds with four or lower rated star, the ratings do not predict their performance at any horizon.

Table 4
Spearman-Rho Rank Correlation Test Between Morningstar Ratings of July 2002 and Four Performance Measures: Complete Funds

Out-of-sample performance measure	Deciles	Out-of-sample period		
		Nine-year	Four-year	One-year
Sharpe ratio	All	-0.024	0.445	-0.104
	Top 5	0.821*	0.667	0.821*
	Bottom 5	-0.667	-0.154	-0.103

Information ratio	All	-0.201	-0.250	-0.104
	Top 5	0.359	0.359	0.821*
	Bottom 5	-0.872*	-0.872*	-0.103
Jensen alpha	All	-0.311	0.085	-0.213
	Top 5	0.667	0.667	0.821*
	Bottom 5	-0.872*	-0.154	-0.564
Four-index alpha	All	0.037	0.439	0.500
	Top 5	0.821*	0.821*	0.975*
	Bottom 5	-0.872*	-0.359	0.462

Note. *correlation is significant at the 5% level.

Table 4 summarizes the results¹⁷ of the rank correlations of the Morningstar's new ratings and four out-of-sample performance measures using complete funds. For example, the correlation between the Sharpe ratio for the four-year period and Morningstar's published ratings of July 2002 is 0.445 for all 10 deciles. However, the correlation is 0.667 for the top five deciles and -0.154 for the bottom five deciles, suggesting the association between the Morningstar ratings and out-of-sample rankings of the performance measure is stronger for the top five deciles. Furthermore, the results show that the positive correlations are higher for the one-year period than the other periods, with the exception of the Sharpe ratio for top five deciles. In sum, our results show that the new star ratings can predict the future performance of five-star rated funds for the mid-term and short-term periods for complete funds. The other funds do not perform significantly different from each other over different sample periods. These results generally hold for all of the performance measures, although the new star ratings may have slightly better predictive power when the four-index alpha is used to measure performance. We repeat the above analyses for

periodic funds. The results, which are not tabulate for brevity but available upon request from the authors, are consistent with those for the complete funds. In particular, they suggest that the Morningstar's new ratings correctly predict stronger performance for the five-star rated funds than the lower rated funds in the short to medium term but there is no significant difference in the future performance of any pair of the four-, three-, two-, and one-star rated funds.

Comparative Predictive Power of New Star and Alternative Predictors' Ratings

Table 5 presents the summary results of the regression analyses. The result shows how the top-rated funds perform on average compared to the lower-rated funds as captured by $\gamma_1, \gamma_2, \gamma_3$, and γ_4 in equation (7) for five different predictors. In particular, rows three to seven of the table presents the total number of the four coefficient estimates that are negative for the three sample periods (one-, four-, and nine-year windows), resulting in a maximum number of 12 negative coefficient estimates for each predictor.

¹⁷ The results of non-load adjusted returns are similar and available from the authors.

Table 5
Summary of Regressions Using Morningstar and Alternative Predictors' Rankings as Predictors

Predictors	Out-of-sample performance measure				
	Sharpe ratio*	Information ratio	Jensen alpha	Four-index alpha	Total (out of 48)
Sharpe ratio rank	12 (12)	12 (11)	12 (12)	11 (10)	47 (45)
Information ratio rank	12 (10)	12 (11)	11 (9)	9 (7)	44 (37)
Jensen alpha rank	11 (9)	11 (9)	10 (9)	6 (0)	38 (27)
Four-index alpha rank	8 (7)	12 (10)	8 (7)	6 (1)	34 (25)
Morningstar rating	12 (9)	10 (7)	10 (6)	11 (9)	43 (31)

Note. *Coefficient has expected sign out of 12 cases. Significant cases are in parenthesis.

For instance, when we consider the Sharpe ratio as out-of-sample performance measure and the information ratio as the predictor, the result shows that all 12 coefficient estimates have negative signs and 10 of them are significant. Considering the information ratio and the predictor and across the four out-of-sample measures give a total of 44 of the estimates have negative signs (out of 48) and 37 of them are significant. If we rank the predictions by the number of coefficient estimates that have negative signs or are significantly different from zero, we see that

the Sharpe ratio is the best predictor followed by the information ratio, Morningstar rating, Jensen's alpha and the four-index alpha. Thus, it does not appear that the Morningstar's new rating system is superior to the Sharpe ratio and the information ratio in predicting the performance of the five-star rated funds. However, the results of the differences in coefficients between other rated funds for all five predictors show that the ability of the new star ratings to distinguish subsequent performance for these funds is the lowest compared to four alternative predictors.

Table 6
Rank Correlation Test of Morningstar and Alternative Predictors' Ratings as of July 2002 with Four Performance Measures

Predictors	Deciles	Out-of-sample performance measure			
		Sharpe ratio	Information ratio	Jensen alpha	Four-index alpha
Sharpe ratio rank	All 10*	3 (3)	3 (3)	3 (3)	3 (3)
	Top 5	2 (0)	2 (1)	2 (0)	2 (1)

	Bottom 5	2 (2)	2 (1)	2 (1)	1 (0)
Information ratio rank	All 10	3 (3)	3 (3)	2 (2)	2 (2)
	Top 5	3 (1)	3 (2)	3 (1)	2 (0)
	Bottom 5	2 (0)	2 (0)	2 (0)	1 (0)
Jensen alpha rank	All 10	3 (3)	3 (3)	3 (3)	1 (1)
	Top 5	2 (1)	2 (1)	2 (1)	0 (0)
	Bottom 5	2 (0)	2 (0)	2 (0)	2 (0)
Four-index alpha rank	All 10	2 (2)	2 (2)	2 (1)	0 (0)
	Top 5	2 (2)	3 (2)	3 (2)	3 (1)
	Bottom 5	1 (1)	1 (1)	1 (1)	0 (0)
Morningstar star	All 10	0 (0)	0 (0)	0 (0)	1 (0)
	Top 5	3 (2)	1 (1)	3 (1)	3 (3)
	Bottom 5	0 (0)	0 (0)	0 (0)	0 (0)

Note. *Number of cases (out of 3) in which the rank correlation test is greater than 0.5 across all 10 deciles/ top 5 deciles/ bottom 5 deciles. Significant cases are in parenthesis.

Table 6 shows the summary result of the rank correlation tests of five in-sample rankings with the out-of-sample rankings of four performance measures. Our results show that, the total numbers of positive higher and significant correlation coefficients are greater for all of the alternative predictors compared to the Morningstar new star ratings for both top and bottom five deciles. For Morningstar's new ratings, the positive higher and significant correlation coefficients is present for only the top five deciles, implying it can only predict for the top rated funds. These results confirm that the predictive power of the Morningstar new star ratings is low compared to those of alternative predictors. In short, our previous discussions suggest that the predictive power of Morningstar's new ratings is at best midrange for the top rated funds compare to the four alternative predictors, while for the other rated funds the predictability is lowest. This result is new in the sense that only one

previous study perform similar test for the old star ratings system.

Predictive Power of Old and New Star Rating Methods

Table 7 reports comparison of the predictive power of the old and new star rating methods using the sample data from June 1993 to May 2002 (old ratings) and July 2002 to June 2011 (new ratings)¹⁸. We use funds with information over the entire period (319) in comparing the two ranking methods. The result shows that both old and new star ratings predict similar for the five-star rated funds. However, both ratings predict better for the

¹⁸ Note. *Out of 4 cases. Significant cases are in parenthesis.

¹⁸ We select the same length of time frame for both ratings systems to keep the number of in-sample monthly returns constant for both new and old star-rating methods, i.e., 108 months.

star ratings method, and mostly for differences with the one-star funds. This implies that the old star ratings have greater ability to distinguish subsequent funds' performance, particularly for the lower-rated funds (i.e.,

one- and two-star rated), which is accord with Blake and Morey (2000) and Gerrans (2006). Rank correlation test also suggest similar conclusions

Table 7
Summary of Regression Results Using Morningstar Ratings as Predictors: Old and New Star Ratings

Method	Coefficient has expected negative sign	Nine-year	Four-year	One-year
New	Total (out of 16)	3 (0)	9 (1)	15 (7)
	4-star funds*	1 (0)	2 (0)	4 (4)
	3-star funds	1 (0)	2 (0)	4 (3)
	2-star funds	0 (0)	2 (0)	4 (0)
	1-star funds	1 (0)	3 (1)	3 (0)
	Total (out of 16)	13 (1)	4 (3)	13 (4)
Old	4-star funds	4 (0)	0 (0)	1 (0)
	3-star funds	3 (0)	0 (0)	4 (0)
	2-star funds	3 (0)	2 (1)	4 (0)
	1-star funds	3 (1)	2 (2)	4 (4)
	Total (out of 16)	13 (1)	4 (3)	13 (4)

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In summary the predictability for both methods is better for the short-term for the lower-rated funds, when comparing their performance to the five-star rated funds. However, the new star ratings cannot distinguish between the performances of the lower-rated funds, while the old star ratings method is slightly better in this respect.

Morningstar's New Ratings' Predictive

Power in Bull and Bear Periods

We use January 2003 to June 2007 for the bull-period and July 2007 to December 2010 for the bear-period²⁰. We analyze 810 funds that have an overall rating on both January 1, 2003 and July 1, 2007. Table 8 summarizes the results of the regressions.

Results show that the predictive power of new star ratings for the five-star rated funds is better for the bear period. However, none of

the differences in coefficients among four, three-, two-, and one-star rated funds are significant for either period, suggesting that the new star ratings cannot differentiate between the subsequent performances of these funds. Rank correlation test also provide similar results.

¹⁹ Detail results are available from the authors.

Table 8

Summary of Regressions Using Morningstar New Ratings as Predictor: Bull and Bear Periods

Coefficient has expected negative sign	Bull period	Bear period
Total (out of 16)	9 (2)	16 (13)
4-star funds*	2 (0)	4 (1)
3-star funds	3 (1)	4 (4)
2-star funds	2 (1)	4 (4)
1-star funds	2 (0)	4 (4)

Note: *Out of 4 cases. Significant cases are in parentheses.

Is in summary, Morningstar’s new star ratings’ predictability indicates that the new star ratings predict better for the five-star rated funds during the bear period than the bull

CONCLUSION

The purpose of this study is to examine the predictability of Morningstar’s new ratings in a variety of contexts, including in absolute terms, relative to four alternative predictors, in bull versus bear periods, and relative to the old star ratings. Our results suggest that Morningstar’s new ratings have the ability to predict performance for five-star rated complete funds for short- and medium-term periods. However, they are not able to predict the subsequent performance of the four-, three-, two-, and one-star rated funds for both complete and periodic funds. In addition, the comparison of the predictability of the new and old star ratings show some evidence that the old star ratings relatively predict better compared to the new one. Our results are consistent with the study of Kräussl & Sandelowsky (2007) for only the predictability of five-star rated funds over short-term sample periods. The predictability of Morningstar’s new ratings is only moderate compared to four alternative predictors and

period. However, the new star ratings do not distinguish among the subsequent performance for other funds for either economic period.

persistent over different sample periods. The new star ratings predict subsequent performance better for bear periods compared to bull periods. These two findings are new additions to the literature. These findings have implications for fund managers and investors who use Morningstar ratings to guide their investments in mutual funds. This study can be extended by examining all types of funds including equity funds, bond funds etc. The present study could also be extended with different data sets, different time frames, and different alternative predictors.

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INFORMATION DISSEMINATION OF EQUITY MARKET IN SRI LANKA

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ABSTRACT

Equity market investment has become one of the crucial factors of financial backbone of a country. To make effective investment decisions, information dissemination in the stock market is mandatory. Most of the equity markets in developed countries have enriched with productive investment decision making because adequate knowledge and resources have been provided to potential investors in various ways. In the Sri Lankan context, we see people are reluctant to invest in equity markets rather than saving in banks. When there is no adequate knowledge or information about equity markets to potential investors, capital investments are unrealistic. On the other hand, it would be costly to get information from a third party; therefore their investment capacity will be limited. In order to create a win-win situation for both the equity market and investors, developing investor's Knowledge, Skills and Abilities (KSA) is essential. This can be achieved by providing necessary education and training for the younger generation. If seminars can be done for school children (ex: A/L students) or workshops for professionals in different fields would be a remarkable investment for the future of the nation. Thus, when children leave colleges they know the fundamentals of equity market and the significance of investing in it. Professionals of organizations will know to make effective and wise investment decisions in the equity market. By educating people about equity market, Sri Lanka can yield greater returns and accelerate its pace of economic development in the longer run.

Keywords: *investment, equity market, education, training, economic development*

[24]

BANKING REGULATION: HOW FAR HAVE WE REACHED SINCE 2008?

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ABSTRACT

The year of 2008 was not an ordinary one for the financial industry. The upheavals created in the US market gradually engulfed the entire global market. What happened has been well documented in many articles and research papers. This paper, however, does not investigate the causes and effects of the financial crisis. It is rather an attempt to study what came after the crisis in terms of regulations and banking supervision in general. Every financial crisis poses a big challenge to the supervisors. It is expected of them to come up with some immediate action which can improve the condition. It also calls for some stringent set of rules which could bolster the financial market and make it less prone to such disastrous crisis in distant future. The paper will introduce the 2008 financial crisis in brief which would be followed by the discussion on importance of banking regulation. Key features of Dodd-Frank Act, Basel 2.5 and Basel 3 will be discussed in detail as these were some of the major reforms which were brought in as a response to the crisis. Emphasis would be made on the enhancements introduced by these new reforms and the impact these have made on the banking industry. The goal of these reforms was to strengthen the banking system and build a framework which could plug in all the loopholes exposed during the crisis. Have these reforms brought significant change? How far have we reached in achieving our goal?

Keywords: *supervision, crisis, Dodd-Frank, Basel, enhancements, impacts*

INTRODUCTION

What happened in 2008?

The vagaries of financial market are known to all of us. But the year 2008 brought something more than that. The fall of Lehman Brothers, acquisition of Bear Stearns by J P Morgan Chase and Co., acquisition of Merrill Lynch by Bank of America, huge bailout package given to Citigroup and American International Group, the world witnessed it all. It also exposed some of the deregulations, corrupt practices which were prevailing under the nose of the regulators. Derivatives and securitized products were being traded in great volumes. What happened in 2008 was a nightmarish scenario in true sense. There have been several discussions, research articles endorsing

different reasons which triggered such a crisis. It brought with itself a threat of total collapse of the entire financial industry especially in US. The notion of “too big to fail” was shattered after US government allowed Lehman Brothers to go bankrupt on 15 September 2008. A good question to ask would be how much we can blame the regulators. Could they have prevented such a crisis? How important is it to have an efficient supervisor which would be vigilant enough to prevent such a crisis? Nobody, with certainty, can say that any financial crisis could be easily deferred forever. However, utmost endeavor should be made to prevent it and also mitigate the effect of it.

Importance of Banking Regulation

The structure of banking industry is intricate and evolves frequently. The last two-three decades have seen a phase of revolution in the field of banking industry. Huge competitive market, frequently changing interest rates, slew of new measures being enforced in order to adapt to new conditions. Hence, importance of a supervisory body, in such condition, cannot be undermined. Banks are important pillars of financial market structure. It not only extends credits for investment projects but also act as a conduit through which large volumes of monetary transactions are done day in and day out [1]. Hence, it is challenging for any supervisory body to make the banking system insulated to the shocks in financial market and make it not too stringent at the same time. There are different ways in which a banking regulatory body enforces rules and regulations. Let us discuss some of them. Capital Requirement – It refers to the buffer capital which a bank is required to maintain so that it can withstand any crisis situation and also combat liquidity crunch. Different regulatory bodies lay down different capital requirements rules. It is usually some percentage of term and demand deposits made by the customers or some percentage of total assets. The capital is expected to be maintained in form of liquid assets so that it can be easily converted to cash as and when needed. Corporate Governance and Market Discipline – Every financial crisis exposes some of the shortcomings in banking system and thereafter it is expected to be fixed as soon as possible. After 2008 financial crisis, some strict rules were put forth requiring additional disclosures related to financial statements, risk management practices, expertise of board members and executives.

REFORMS IN REGULATION AFTER 2008 CRISIS

The crisis of 2008 was heart wrenching for many investors. Therefore, it was important to re-establish the confidence among them and also keep the financial market machinery

churning efficiently. There were several reforms introduced soon after the crisis. Some of the reforms were readily adopted by the leading banks as “need of the hour” as directed by the respective regulators, while some were deferred for further considerations. This section would take up some of the important regulations with their key features.

Basel 2.5

Basel 2.5 (or Enhancements to Basel II framework) was an immediate response to the crisis which the banks were expected to comply latest by December 31, 2010. It covered many aspects like securitized and re-securitized financial instruments. [2] Securitized products derive its value from an underlying pool of securities. Before, the crisis unfolded, securitized product trading was soaring. Little or almost no regulation in derivatives trading promoted the untamed growth of securitization market. Almost every investor wanted to invest and reap the benefits. It was appropriately aligned with their desire and matched the risk appetite as well. Many banks sold their assets to special purpose vehicle which used to bundle these assets and sell them as securitized products. It allowed banks to move the risky assets off its balance sheet and also mitigate credit risk associated with the counterparty. The repercussions of crisis asked for imperative reforms and control over securitized financial products. Basel 2.5 required banks to assign higher risk weight to securitized and re-securitized products. Besides, banks which are involved in “internal rating based” approach for risk weight assignment should do their own due diligence and credit analysis of securitized exposures and not solely rely upon external credit rating agencies. It, in turn, required a bank to maintain additional buffer capital for securitized products to cover the losses attributed to the same. Moreover, it was observed that banks were not employing effective risk management practices. The risk assessment procedures followed by many

banks had loopholes. It was important to improvise upon the same and introduce a uniform risk assessment measure. Following this, all banks were directed to follow a process called Internal Capital Adequacy Assessment Process (ICAAP) which is a vital component of risk management practice. Supervisors are responsible to validate the bank's internal assessment process and intervene accordingly. Many obligors defaulting on their debts, banks extending sub-prime loans to borrowers with low credit worthiness implied that internal control within the banks was not up to the required standards. Hence, it was clear that the regulations could not have been limited to capital requirements and risk management procedures. It was extended to other aspects of day to day operations of a bank including corporate governance, market ethics, etc. In order to incorporate these, Basel 2.5 emphasized upon active board members, nomination of qualified independent board members, effective management, etc. Many articles were presented which endorsed the fact that the Basel 2.5 rules were more like constraints on banking business than a tool to make risk management practice better. However, such notions are contentious and should be left open for discussions. It is true that since 2008 banking industry is going through a phase of revolution. It witnessed a lot of internal restructuring in business model, adoption of efficient and accurate credit assessment methods. The volume of trade for securitized products has decreased. Hence, banks are not able to make billions out of those synthetic products. But, opportunities to make money and innovating new financial products are not over. Many banks have been able to adapt themselves with new reforms and still generate decent profits.

Basel 3

Basel 2.5 proved to be benevolent to cover the shortfalls in the banking supervision framework. Was it enough to deal with all the concerns related to a financial crisis in general? The answer was Basel III which aimed at improving the banking industry in all aspects of terms. Basel III was strict, more comprehensive and hence, banks were given enough time to implement the same over time. "Basel III" which was published by Basel Committee on Banking Supervision (BCBS) in Dec. 2010 had many new features to capture and improve upon the existing Basel rules and regulations [3]. The financial crisis of 2008 showed that many financial institutions were not holding enough capital to absorb such crisis situations and bear the losses as they materialize. Hence, Basel III brought in some amendments to improve the quality and quantity of the capital base. Tier 1 capital ratio was increased to 6% of total risk weighted assets (RWA) while Tier 2 was decreased to 2%. Total capital ratio remained 8% of risk-weighted-assets (RWA) as was present in Basel II proposals. Tier 1 would mostly comprise of common equity and retained earnings which are considered to be critical in absorbing losses. Apart from these changes, two new capital buffer ratios were also introduced, a capital conservation buffer of 2.5% and a capital countercyclical buffer of (0-2.5%) depending upon macroeconomic conditions of the individual countries. Basel Committee also laid down tentative deadlines which are being very closely followed by different regulators. Tier 1 Capital requirements will be incorporated between 2013 and 2015, while capital buffers would be implemented by 2019 as a gradual process. For Example: Federal Reserve of United States, which is the regulatory body for banks in US has presented the following timeline which is to be strictly complied by all registered US banks [4].

Table 1

Timeline for implementation of capital requirements as given by Federal Reserve, US

Year	2015	2016	2017	2018	2019
Minimum common equity Tier 1 capital ratio	4.5%	4.5%	4.5%	4.5%	4.5%
Minimum Tier 1 capital ratio	6%	6%	6%	6%	6%
Common equity Tier 1 capital conservation buffer	N/A	0.625%	1.25%	1.875%	2.5%
Minimum common equity Tier 1 plus capital conservation buffer	4.5%	5.125%	5.75%	6.375%	7.0%
Minimum total capital plus capital conservation buffer	8%	8.625%	9.25%	9.875%	10.5%

One of the reasons attributable to 2008 crisis was counterparty credit risk. It was significantly prevailing during the period of 2006-2008. However, it surfaced and gained light only after things went out of control. It was necessary to curb the same using effective measures. In order to capture the credit risk associated with over-the-counter trades, a capital charge called “Credit Value Adjustment” was proposed. It refers to the market value of counterparty credit and is calculated using a given formula which includes probability of default (PD) of the counterparty which in turn is a function of the credit spread of the CDS issued in the name of the counterparty. The other parameters were expected exposures (EE) which is calculated using Monte Carlo simulation and recovery rate. Credit Value Adjustment was a known concept prior to crisis also, but it was not rigorously followed by all the regulated banks. With the Basel III rules, banks have been directed to account for CVA strictly. Even the large financial institutions could not bear the difficult situation. It showed that without stringent regulatory enforcement even they would be vulnerable to such crisis. With the intention to cover such a scenario a parameter called “Asset Value Correlation” was introduced which is actually a multiplier of 1.25 required to be applied for exposures to

large regulated financial entities and all non-regulated financial entities. Exposures to Central Counterparty (CCPs) were also taken into serious consideration. Previously there was no capital charge imposed on CCPs as they were considered apparently non risky. However, some if the CCPs also suffered losses because of counterparty defaulting and liquidity concerns. As a part of Basel III proposal, a risk weight of 2% would be applied to all the trade exposures with CCP. Leverage Ratio, which is not a binding instrument but an additional feature focusing on the amount of core risk absorbing capital required to be kept as a buffer as compared to the total exposure a bank is confronted to. It is calculated as the ratio of Tier 1 capital to sum of exposures of all assets and off-balance sheet items not deducted from the Tier 1 capital. Currently, a leverage ratio of greater than or equal to 3% has been proposed. It could be modified further by country specific regulatory bodies. The severe liquidity crunch suffered by financial institutions during the period of crisis apparently forced the regulators to come up with something called Liquidity Coverage Ratio (LCR). Banks are expected to hold high quality liquid assets greater than liquidity outflows less liquidity inflows in a 30-day stress period. With enhanced disclosure requirements, Basel III made a way forward.

The purpose was clear and straightforward, that is to strengthen the financial system, bring in more transparency and instill a sense of trust and confidence in markets. In addition to this, Banks must have comprehensive procedures for stress testing, and internal controls. Stress Testing determines the ability of bank to withstand a period when things take a turn for the worst. The parameters which act as inputs to stress testing are high unemployment rate, high inflation rate, low GDP growth, etc depending upon the objective of the testing. Corporate governance was not only touched upon, but put in serious contemplation and scrutiny. With Basel III implementation regulators are serious about tightening the corporate governance norms. Board members are required to be actively involved in formulating risk strategies, overseeing the management. Banks are required to disclose the selection procedure and expertise of board members, achieving sufficient diversity among board members and establish an independent risk management function.

Dodd-Frank Act

Savings worth billions were wiped out. Confidence in market plummeted within couple of months. The US market which was the epicenter of the financial crisis was itself going through a phase marked with deep trouble and uncertainty. It was expected from the government to intervene very soon and they did rightly so. The Dodd-Frank Wall Street Reform and Consumer Protection Act (or “Dodd-Frank Act”) was a set of rules and regulations passed by government of United States in 2010 as the “most comprehensive financial regulatory reform”. It attempts to enhance the accountability enjoyed by Wall Street firms, restores the responsibility in the financial system to give investors a sense of confidence that existing financial system works in their interest and is present to protect their investments from adverse effects. It altogether, strives towards creating a sound economy with stable financial structure. Some

of the major reforms which were introduced as part of Dodd- Frank act are as follows [5]: Dodd-Frank Act was a deliberate attempt to end the notion of “too big to fail” by implementing stringent capital and leverage requirements and rigorous supervision. Oversight failures would continue to happen without the presence of an effective regulatory body. Hence, a proposal was made to create the “Financial stability Oversight Council” (Council) to oversee financial institutions. It also covers establishment of Office of Financial Research to support the Council through data collection and key research works. Dodd-Frank Act put special emphasis on the securitization framework covered in Basel III rules and regulations .It asks for improved disclosure method for securitized method. Due diligence analysis is mandatory to be performed by the agencies involved in securitization and it should be presented to the investors as well. Credit Rating Agencies (CRAs) were also taken into serious consideration. Detailed disclosure is required for qualitative and quantitative methodologies used for credit assessment. CRAs are required to submit annual reports to Securities and Exchange Commission (SEC) with an attestation from the CEO. Volcker Rule was the latest addition to Dodd-Frank Act after it was endorsed by Obama Administration in January 2010. It puts restrictions on proprietary trading done by banks and their affiliates. Furthermore, banks were not allowed to retain equity, partnership or any other ownership in a hedge fund or private equity fund (collectively called “fund activities”). Shareholders will have more say on pay on the compensation of the executive members of the firm. Dodd-Frank gives SEC the authority to direct public companies to take back the compensation of the concerned executive members if the accounting standards are not complied with. Insurance companies, for instance, American International Group (AIG) were hit very badly during the time of crisis. They were heavily involved in trading credit derivative likes

Credit Default Swaps. When the credit event occurred one after the other due to defaulting of various counterparties over different reference entities, AIG had to pay huge amounts as insurance to protection buyers. As a result, AIG was on the verge of bankruptcy and it had to be bailed out with huge sum of money granted by the federal government of United States. It also led to establishment of Federal Insurance Office, which is the first ever office in federal government to oversee insurance companies covering insurance schemes offered by the companies and risk management practices employed by the same in broad sense.

CRD IV REGULATIONS

US and European markets seemingly dominate the global markets. While Dodd-Frank Act was delivered to cater to financial institutions in US, European Commission came up with a comprehensive set of reforms for the financial institutions which comes under its ambit. This new set of rules covers implementation of Basel III proposal within specified timelines, lays down new etiquettes for corporate governance. This set of reforms was passed by European Parliament in April 2013 as Capital Requirement Directives (CRD) IV package. It became a law after it was approved by European council in June 2013 [6]. The purpose of CRD IV is to implement Basel III capital accord, that is, total capital to risk-weighted-asset ratio of 8% and Tier 1 capital to risk-weighted assets ratio of 6%. Along with this, CRD IV introduces five new capital buffers: the capital conservation buffer, the counter-cyclical buffer, the systemic risk buffer, the global systemic institutions buffer, the counter-cyclical buffer to improve the capital base to meet unforeseen crisis situations. Capital Requirement Regulation (CRR) which is a part of CRD IV package contains two new liquidity buffers: Liquidity coverage Requirements to cover the short term liquidity risk and the Net stable Funding Requirements to ensure that the quality of

funding available to a firm to carry out its operations is stable enough over a stressed period of one year [7]. Besides, capital and liquidity requirements, CRD IV package also includes directives on corporate governance, counterparty credit risk in derivatives trading, reliance on credit ratings, etc. These directives are similar to what was covered above in other regulatory reforms [8].

IMPACT OF THESE REFORMS: A CASE STUDY OF CITIGROUP

CITIGROUP is a leading financial services company with head office in New York, United States, promoted under the brand name "CITI". It is present in nearly 160 countries through its different legal entities and employs nearly 200,000 people. Citigroup has been dominating in the finance industry by providing highly quality services to its client's since last 200 years. But, the year 2008 exposed many sub standard practices like poor risk management practices. Citigroup became almost bankrupt after which government was prompt enough to provide much needed bailout capital. Since then CITI has gone through rigorous phase of reforms implementing new rules set as quickly and efficiently as possible and also plugging the loopholes present in existing system. Appropriate cost cutting measures, exiting business which suffered huge losses were some of the immediate steps followed by the company. This section takes the particular case of CITI. It attempts to draw a study on the change in various quantifiable parameters of the company. The below graph shows the stock price trend for CITI since January 2007 to April 2014. One could notice the dip in the stock price. The downfall for stock price started in late 2008 when the stock price went as low as a dollar. The situation remained dull till 2011. However, CITI adapted to new regulatory framework and its effect became palpable very soon. The earnings began to rise. Investors felt confident about the future prospects of the company and started to invest

again, which in turn contributed to rise in stock price [9].

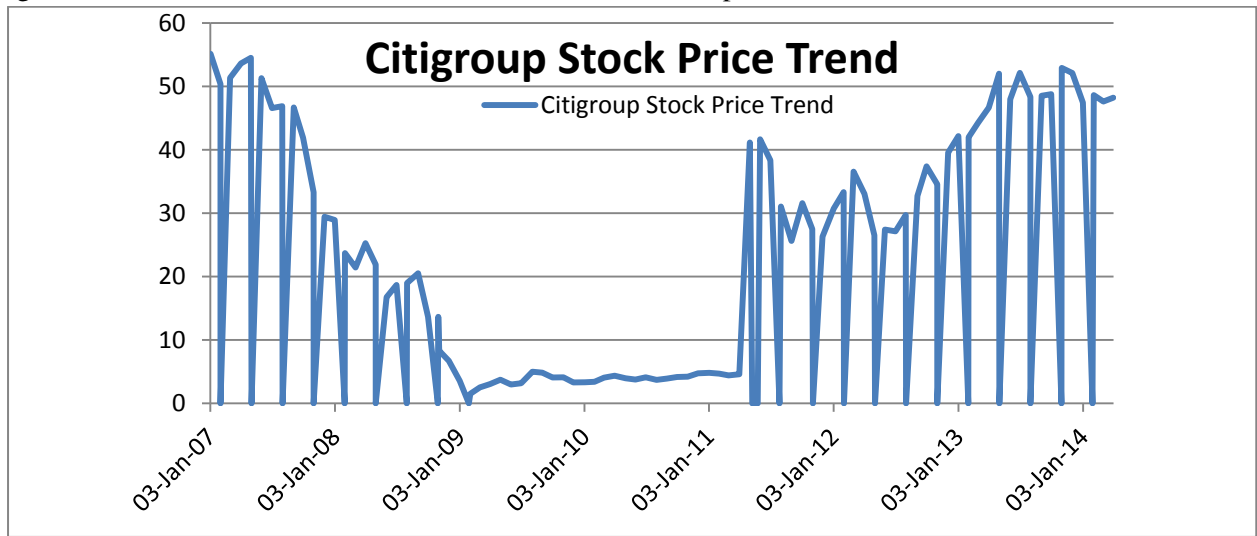


Figure1. This is the graph representing stock price trend line of CITI since Jan'07 till April'14

Notes: The horizontal axis represents the date ranging from Jan'07 to Apr'14, while the vertical axis represents the stock price (in \$) average over the period of month.

The commitment was visible even in terms of capital requirements. CITI managed to maintain a decent capital ratio. For the 2013, CITI reported the common Tier 1 capital ratio of 12.6% which is way above the minimum

required value of 4.5% [9]. Total Capital ratio expressed as a percentage of Risk Weighted Assets (RWA) has been graphically represented as follows:

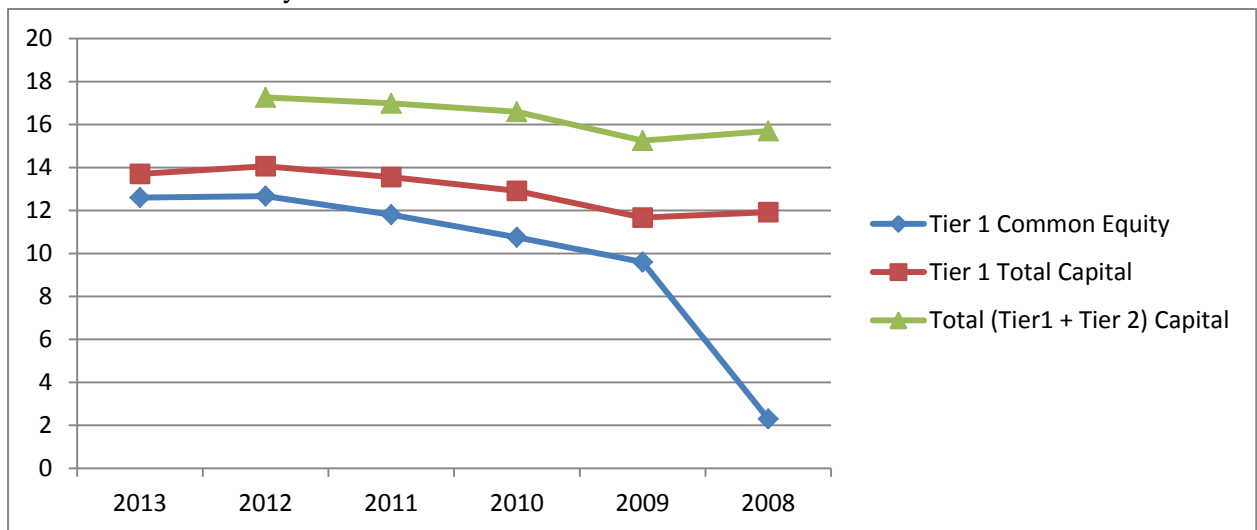


Figure 2. This is the graph of capital ratios over the period of 2008 to 2013.

Notes: The horizontal axis represent years while the vertical axis represents the amount of capital expressed a percentage of total risk-weighted assets (RWA).

The data used to plot the graphs are publicly available on the internet. The data related to financial statements could be found on the website of Securities and Exchange Commission (SEC). This is one particular case. It shows the typical example of how effective supervision can bring about the change. The capital buffer could be used to meet the difficult financial circumstances. All these steps and measures would in turn help in bolstering the banking system. The current situation of CITI is stable. It has been able to generate substantial earnings per share and working in the best interest of their shareholders'. All the efforts made by the company helped conveyed a message to the entire financial industry that is possible to be fully complied with all the rules laid by the regulators without any dip in revenue generation. It also helped CITI build a good long term relationship with the regulators.

CONCLUSION

Since 2008 till date could have a rough journey for the entire banking industry. However, we have not reached the dead end of the road. A long way lies ahead where regulators in full cooperation with banks should keep on bolstering the banking industry. Banks form the core of financial system. Hence, it is important to safeguard with best of efforts. All the reforms brought in after the 2008 financial crisis has been proved fruitful. Nearly every regulated bank is currently going through the process of change. If all the reforms are appropriately implemented then all the banks or any other financial institution would be financially strong to withstand any crisis. More than proposal of new set of reforms, the thing which matters is the way reforms are enforced and adopted by banks. It is incumbent upon regulators to periodically review the procedures employed by banks to implement the regulations. Some of the requirements are still under discussion while some might be recalibrated serving the need of changing banking industry. Different regulations will be proposed as we move ahead. Some would be

accepted while some would be deferred or rejected. It is true that with effect of the new reforms the role of banks would change. But, the change should be driven in the right manner, so that it becomes possible to establish sustainable economic growth, create significant job opportunities and provide investors with excellent returns.

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GENERAL CRITERIA AFFECTING INVESTMENT POLICIES OF INSURANCE COMPANIES IN THE EUROPEAN UNION

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ABSTRACT

Investments of insurance companies relate to assets that guarantee the insured the payment of benefits (liabilities assumed), so they are conditioned by the duration of contracts, the amount of the sums insured and the level of technical reserves required. An entity shall preserve the value of the investment in time for benefits obligations to policyholders and maintain the solvency margin and capital to protect shareholder or participant / beneficiary. Some insurance investment policies are based on the consideration of risk and return on assets and have incorporated the outcome measures of investment expenses and cost of capital. After analyzing the management of portfolios of several insurance companies in the European Union, two types of general criteria when selecting investment assets are observed, at least theoretically: the ownership structure of the entities and the types of products that are managed (life and non-life).

Keywords: investment, insurance, capital, risk

INTRODUCTION

While most companies tend to manage their operations by preventing and controlling most of the internal and external risks to which they are exposed, the nature of the insurance operations is to accept and manage these risks in order to make a profit (Hernandez, 2011). In this context, risk can be defined as the potential for an unexpected financial loss; and within the major risks that insurers face, both individually (subscription, insufficient provisions, reinsurance) and sectorial (juridical and legal) and economic, are the investment risks. It is therefore considered that the management of investment risk has great impact on the activity and solvency of insurance companies, which in turn includes the following subcategories of more specific risks:

- Risk of pure investment: unsatisfactory results due to improper mix of

investments, over-valuation of assets, or focus on certain investment products.

- Risk of asset-liability management: disengagement from investments and commitments by cash-flow problems, currency, or duration of commitments / investments.
- Risk of loss of value of assets: when an Insurer needs to divest an asset for a benefit, and the result is much smaller than provisioned, such as equity investments when the financial market is in downturns.
- Other risks:
 - Interest rate: affects the valuation of assets and liabilities, as liabilities may be fixed and assets vary.
 - Re-investment risk: when the fixed income investments

mature, there are mergers or acquisitions in the invested listed companies (equities), or property depreciation are made, so Insurers should invest again to maintain the level of technical provisions.

Therefore, as a matter prior to the financial analysis of these risks, which correspond to future areas of research, we wondered if there might be some common criteria to explain the investment policy of insurance companies, which in turn had influence to varying degrees on their risks, as they could be in particular two issues relevant to the sector: ownership structure (mutual or stock companies) and risk aversion, and the type of insurance products they sell (life and non-life), given the different characteristics of each product; which are further developed below.

INVESTMENT POLICIES OF INSURANCE COMPANIES

Investments of insurance companies relate to assets that guarantee the insured the payment of benefits (liabilities assumed), so they are conditioned by the duration of contracts, the amount of the sums insured and the level of technical reserves required. The insurer has to preserve the value of the investment during time to make the benefits from the obligations contracted with policyholders, and maintain the solvency margin and the capital to protect shareholder or participant / beneficiary. Some insurers base their investment policies on consideration of risk and return on assets, and incorporate the investment expenses and the cost of capital to the outcome measures (Grépin et al., 2004). After analyzing the management of portfolios of insurance companies, and reviewing the related literature, two types of general criteria are observed, at least theoretically, when selecting investment assets, which are set forth below:

- The ownership structure of the entities.

- The types of products managed: Life and Non-Life).

INVESTMENT POLICIES ACCORDING TO THE OWNERSHIP STRUCTURE

According to some researchers (Mayers & Smith, Fama & Jensen, Datta & Doherty, Adams) investment preferences differ depending on the ownership structure of insurance companies (Mutual or Listed insurers), that is, there is a relationship between corporate finance and investment policy (Camino, 2003). In general, it is postulated that:

1. Mutual insurers tend to invest in more conservative assets, since its objective is to increase and maintain the assets of the company and its solvency, and because they have limited access to capital.
2. By contrast, listed insurance companies look to optimize profitability, and therefore have a more active portfolio management, leading them, in general, to invest in equities, such as stocks.

To contrast this theory, we have made a comparative analysis (Figure 1) of this theory among listed insurance companies (that have higher percentage of business life and broader international presence) and mutual insurers in the European Union. The result is somewhat different from that proposed by the financial literature, which can be appreciated in the Figure: Listed companies are more conservative when investing their assets, perhaps to ensure solvency pressure from regulators and the capital markets; and not having much pressure mutual insurers on the other hand; which may perhaps be in part attributable to the effects of the 2007-2011 financial crisis (Hernandez & López, 2013). Either way, it seems reasonable to infer that listed insurers compete more effectively in the market to have greater pressure on management performance, usually for the

good of the company and the policyholders (Bushler et al., 2001)

INVESTMENT POLICIES BY TYPE OF CONTRACT: LIFE AND NON-LIFE

Other criteria observed when selecting investment assets are the types of risks taken by insurance entities: Life and Non-Life (Martinez and Hernandez, 2013). Their most important general characteristics are:

- Life
 1. Hardly volatile risks.
 2. The obligations arising from life insurance contracts are generally long lasting.
- Non-Life
 1. These risks are much more volatile (uncertainty) than life: mortality is relatively predictable, but natural disasters or fires are less so; although Non-Life insurance consists of products with very different loss behavior.
 2. In many Non-Life companies, over the years, the value of investments exceeds their obligations.
 3. The obligations of the contracts are short-term, so that liquidity is relevant.

As for the actual composition of the investment portfolio, European Non-Life insurance companies, in general, invest in a higher percentage in equities and property entities than Life insurers, while the latter invest almost mostly in bonds, as shown in the sample in Figure 2.

CONCLUSION

The volume of investments in the insurance sector is very significant within the European Union, which is an industry highly regulated at the national and European level. The

investment need by these financial entities stems from the obligation to pay benefits in an uncertain future in return for the payment of premiums of the insurance contracts. Most of these investments correspond to Life insurance segment, where contractual obligations are long term and the insured risk is less volatile, which are invested mainly in fixed income. In contrast, Non-Life entities have a greater preference to invest in equity and real income when compared to the previous. The influence of the recent 2007-2011 crisis in the financial markets can be seen in the figures for investment in equities which has been losing ground in favor of bonds.

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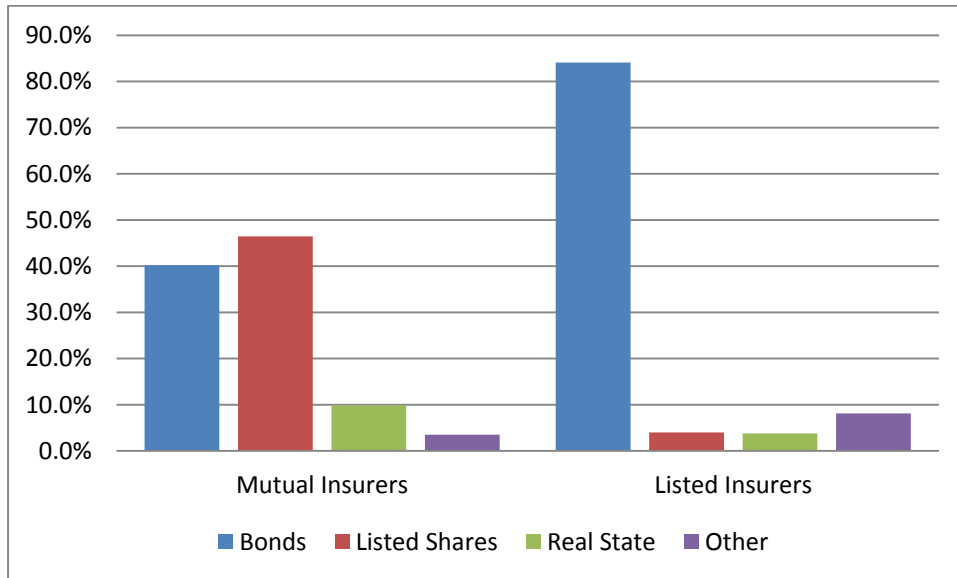


Figure 1. Structure of the investment portfolio: Mutual Vs. Listed Companies, in %

Source: Annual Reports from Mutual and Listed Companies (2012)

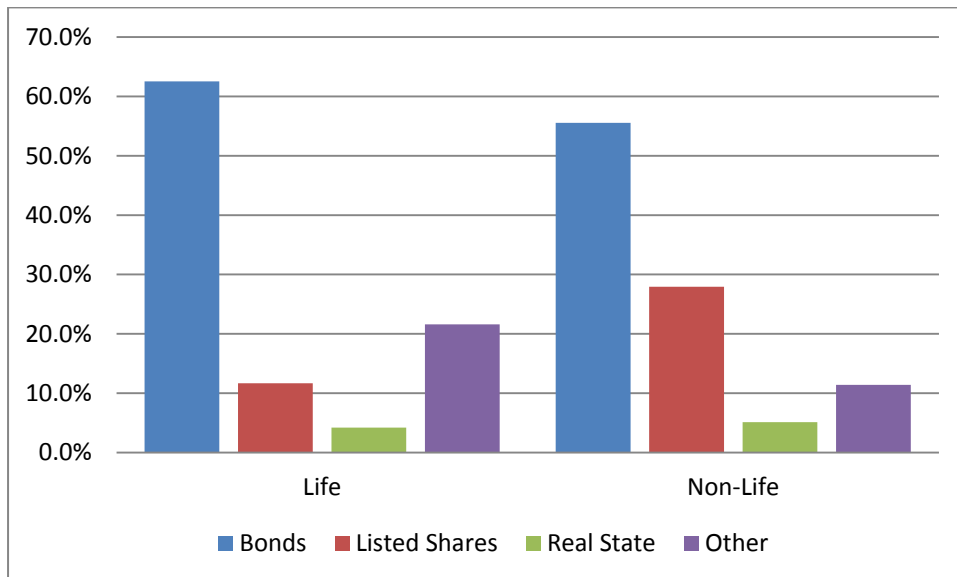


Figure 2. Structure of the investment portfolio: Life Vs. Non-Life, in %.

Source: Annual Reports from the insurance associations of the EU countries (2011)