

**RISK GOVERNANCE & CONTROL:
FINANCIAL MARKETS & INSTITUTIONS**

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Journal *Risk governance & control: financial markets & institutions* is published four times a year, in September-November, December-February, March-May and June-August, by Publishing House "Virtus Interpress", Kirova Str. 146/1, office 20, Sumy, 40021, Ukraine.

Information for subscribers: New orders requests should be addressed to the Editor by e-mail. See the section "Subscription details".

Back issues: Single issues are available from the Editor. Details, including prices, are available upon request.

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*Risk governance & control:
financial markets & institutions*

ISSN 2077-429X (printed version)
2077-4303 (online version)

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EDITORIAL

Dear readers!

The recent issue of the journal is devoted to several risk governance issues.

Tessa Minter and Carlos Correia highlight the risk exposures and sets out the responsibilities of directors in relation to spreadsheets and the spreadsheet cycle. The paper underlines that spreadsheet risk exposure can be managed in terms of setting the control environment, undertaking risk assessment, providing the requisite information and communicating with internal and external parties as well as implementing spreadsheet lifecycle application controls and monitoring activities.

Shewangu Dzomira describes electronic fraud (cyber fraud) risk in the banking industry in Zimbabwe. He recommends that the issue of cyber security should be addressed involving all the stakeholders so that technological systems are safeguarded from cyber-attacks.

Joseph E. Isebor suggests the financial market is evolving because of its complex and changing nature, and so are the international banking regulations (Basel I, Basel II and Basel III) that support the system in terms of maintaining economic and financial stability. It is clear that Basel III will not stop the next financial crisis even though the Basel accords continue to evolve in response to maintaining economic and financial stability, with the core purpose of preventing another financial crisis.

Kunofiwa Tsaurai concludes that there exists a long run relationship between stock market and FDI net inflows in Zimbabwe. However, the direct causality relationship from either stock market to FDI or from FDI to stock market development could not be found. This implies that stock market development and FDI net inflows in Zimbabwe are indirectly related to each other via some factors whose investigation should be a subject of another research.

Garikai Makuyana and NM Odhiambo underline that, despite the government's efforts to boost both private and public investment in Zimbabwe, the country still faces a number of challenges, as do many other African countries. These challenges include, amongst others: (i) The high national debt overhang; ii) low business confidence; (iv) liquidity constraints; (v) low industrial competitiveness; and (vi) and an inadequate infrastructure.

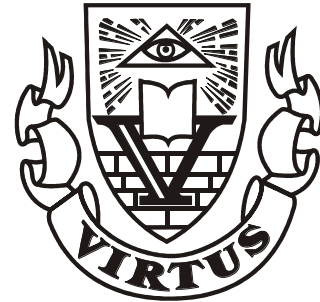
Pison F. Irene, Cibrán F. Pilar and Ntoug A. T. Liou find strong and positive evidence that Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk are useful predictors of banks performance (earnings efficiency), thus, any reform pilot toward this banking indicators will eventually have a positive impact on banking performance. Base on the present study, the Spanish reform was so vital for better banking performance.

We hope that you will enjoy reading the journal and in future we will receive new papers, outlining the most important issues in the field of risk governance and best practices of corporate governance!

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This study investigates the causality relationship between stock market and foreign direct investment. The subject has been contentious in recent years with three theoretical rationales emerging. The first being that FDI net inflows boost stock market by increasing the amount of funds into the host country's economy. The second suggests that FDI inflows forces the host country government to embrace market friendly policies, regulations and controls that end up boosting stock market. The third theoretical rationale mentions that well-developed and functioning stock markets attracts FDI as multinational firms perceive such a market as a friendly environment whose government is more open to the international community.

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This paper aims to put the spotlight on the evolution of both public and private investment in Zimbabwe, as they responded to the economic policies implemented from 1965 through to 2011. With the adopted inward-looking policy in 1965, the massive core of infrastructural growth in public investment became a catalyst to the high level of private investment growth. The perpetuated market-intervention policy in 1980 later resulted in the growth of public investment. Despite the adoption of a market economy in the 1990s, the envisaged cut in public investment did not occur.

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A diagnostic review of the Spanish financial system during the 2008 financial crisis reveals the emergency need for banking reform in the sector. In an attempt to evaluate the impact of the Spanish reform, the present study examines the bank's performance before/after the reform was adopted, using data of 19 Spanish commercial banks extracted from the Global Vantage research database (Standard and Poor's) over the period 2006 to 2013. This study uses multivariable regression method to investigate the impact of the CAMELS rating system: capital adequacy, asset quality, management quality, liquidity and sensitivity to market risks on the bank's performance such as earnings efficiency. The time-line of the study is essential because it helps us to determine the financial performance of Spanish commercial banks before the banking reforms during the financial crisis and an important set in terms of mergers and acquisition in the banking industry. The empirical results have found strong and positive evidence that Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk are useful predictors of banks performance (earnings efficiency), thus, any reform pilot toward this banking indicators will eventually have a positive impact on banking performance. Base on the present study, the Spanish reform was so vital for better banking performance. Therefore, this study serves not only to academics but also to policy makers.

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THE GOVERNANCE OF RISK ARISING FROM THE USE OF SPREADSHEETS IN ORGANISATIONS

Tessa Minter, Carlos Correia***

Abstract

The key to maximising the effectiveness of spreadsheet models for critical decision making is appropriate risk governance. Those responsible for governance need, at a macro level, to identify the specific spreadsheet risks, determine the reasons for such exposures and establish where and when risk exposures occur from point of initiation to usage and storage. It is essential to identify which parties could create the exposure taking cognisance of the entire supply chain of the organisation. If management's risk strategy is to control the risks then the question reverts to how these risks can be prevented and/or detected and corrected? This paper attempts to address each of these critical issues and to offer guidance in the governance of spreadsheet risk. The paper identifies the the risk exposures and sets out the responsibilities of directors in relation to spreadsheets and the spreadsheet cycle. Spreadsheet risk exposure can be managed in terms of setting the control environment, undertaking risk assessment, providing the requisite information and communicating with internal and external parties as well as implementing spreadsheet lifecycle application controls and monitoring activities.

Keywords: Spreadsheet Governance, Spreadsheet Risk, Spreadsheet Lifecycle

JEL classification: M42

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1. Introduction

Those charged with the governance of an entity have a responsibility for the “establishment of structures and processes, with appropriate checks and balances that enable directors to discharge their legal responsibilities, and oversee compliance with legislation.” (Institute of Directors in Southern Africa, the King III report, 2009, p.8). The criticality of Spreadsheets in business and daily life is becoming more pervasive and spreadsheets are being increasingly used for mission-critical applications (Grossman, Mehrotra & Ozluk, 2006) and for internal and external reporting purposes. A simple mismatch of columns can result in incorrect results for patients, students, prize-winners, analysts, financial managers and investors amongst many others. There is a vast range of errors on which there is on-going analysis and there have been numerous studies on the nature and type of errors within Spreadsheets and the development of a variety of taxonomies of errors (Panko, 2006). Serendipity often plays a part in recognising these errors that can have life changing impacts on individuals, companies and industries. How much more difficult is it then to detect an issue

if there is intent to deceive or manipulate the Spreadsheet information? The impacts increase with the specific characteristics of the Spreadsheet involved including the complexity of the models, the size of the spreadsheet, the number of versions or users, the attitude and competency of the individuals involved and the decision-making that follows from the information.

In addition, errors and irregularities can occur at any stage in the Spreadsheet lifecycle from the initial decision to use a spreadsheet, to its ultimate destination perhaps as stored data or its use terminated. Having identified the threats to the organisation and assessed the risks, where they are significant, management then have a responsibility to respond to the risk by accepting, avoiding, transferring or controlling the risk. Should management's risk appetite result in the option to control the risk they have the option to prevent the errors or irregularities or to detect and correct them or to do both. This will require the application of the internal control components, as set out in International Standard on Auditing, ISA 315 in Appendix 1 (International Auditing and Assurance Standards Board, 2010; pp.305-310).

2. Management Responsibility

The Institute of Directors' King III report (2009) further amplifies through the principles; management's responsibilities that would be applicable to the use of significant Spreadsheets. Principle 2.7 states that the board should be responsible for the governance of risk (Institute of Directors in Southern Africa, King III report, 2009, p.23). Principle 4.2 states that the board should determine the levels of risk tolerance (Institute of Directors in Southern Africa, King III report, 2009, p.36). Principle 4.4 states that the board should delegate to management the responsibility to design implement and monitor the risk management plan (Institute of Directors in Southern Africa, King III report, 2009, p.37).

In terms of Principle 4.5, the board of directors should ensure that risk assessments are performed on a continual basis (Institute of Directors in Southern Africa, King III report, 2009, p.37) and in Principle 4.9, the board is required to receive assurance regarding the effectiveness of the risk management process (Institute of Directors in Southern Africa, King III report, 2009, p.38). Principle 5 is invoked

when the effectiveness of significant Spreadsheets is dependent on the overall IT governance of the organisation. In addition these Spreadsheets will in all probability need to adhere to applicable laws, rules, codes and standards which are referred to in principle 6. Where there is a risk based internal audit function and the use of Spreadsheets poses a significant risk to the organisation this will raise the issues in principle 7, which refers to the internal audit function.

As the board is responsible for the organisation-wide risk management and not the day to day operational risk management this article does not address the specific spreadsheet error types and techniques in detail. For some examples of these and references to further studies the reader is referred to Correia & Minter (2011).

Caldwell (2012; p.14) has usefully outlined the responsibilities of the board of directors within a risk oversight framework and sets this out in a nine-step process, which is restated below (I – IX). The application of these responsibilities to Spreadsheets used within the business and within the risk management process has been set out in Table 1.

Table 1. Application of Caldwell's risk framework to spreadsheets

Caldwell's Risk Oversight Framework		Application of responsibilities to spreadsheets
I	Establish context Understand current conditions, in which the organization operates from an internal, external and risk management perspective.	Are these reflected in parameters used by those who are responsible for the design, input and use of the spreadsheets?
II	Identify risks Document material threats to the organization's achievement of its objectives and value of its assets.	Which are the key decisions and reporting obligations dependent upon the use of spreadsheets that could exacerbate these threats? These are further expanded by management setting the internal control objectives of spreadsheets
III	Analyse consequences Quantify the impact of the risk and likelihood of occurrence	The recording of these decisions is often undertaken utilising spreadsheets.
IV	Analyze interconnectivities and compounding effects Aggregate risks and understand relationships, interdependencies, and the compounding effect of simultaneous occurrences	What are the relationships between the spreadsheets and the parameters used and the possibility in particular of circular references
V	Re-analyse consequences Re-calibrate and, if possible, create probability distributions of outcomes of interrelated risks	Spreadsheets are an essential tool in the use of "what-if scenarios" and the calculation of probabilities
VI	Prioritise Rank risks in order of importance, blending severity with likelihood of occurrence and potential for mitigation	Once again spreadsheets are often used as a significant tool in the ranking processes.
VII	Assess Risk Capacity, Tolerance and Risk Appetite Assess Risk Capacity, Tolerance and Risk Appetite	It is important to assess risk capacity, tolerance and risk appetite within a spreadsheet environment
VIII	Choose Response Strategy Develop plans to avoid, reduce or control, share or insure, accept, or, in certain cases, potentially exploit risks	These plans will include the overview of the process to be followed by those responsible for the operational aspects including the design and utilisation of spreadsheets throughout the organisation.
IX	Monitor Continually measure and monitor the risk environment and the performance of the risk management strategies	This will include the use of significant spreadsheets in the making of decisions.

3. What is the particular risk exposure to the organisation?

In the majority of organisations, and of particular relevance in the financial and banking sectors of the economy, the creation and use of spreadsheets should be regarded as an asset. To determine the risk exposures one needs to determine the objectives to be achieved. These include the generally accepted definition of internal control objectives set out in the International Auditing Standard ISA 315 which relate to “the achievement of an entity’s objectives with regard to reliability of financial reporting, effectiveness and efficiency of operations, and compliance with applicable laws and regulations” (International Auditing and Assurance Standards Board, 2010: p.264)

The plethora of legislation arising from corporate failures has increased the risk of non-compliance relating to legislative and regulatory laws such as Sarbanes-Oxley, the operational risk section of Basel 11, various other laws, including privacy laws and those laws relating to the retention and admissibility of electronic records.

It is suggested that there are a number of sub-objectives relevant to spreadsheets that fall within the overall effectiveness and efficiency of operations including:

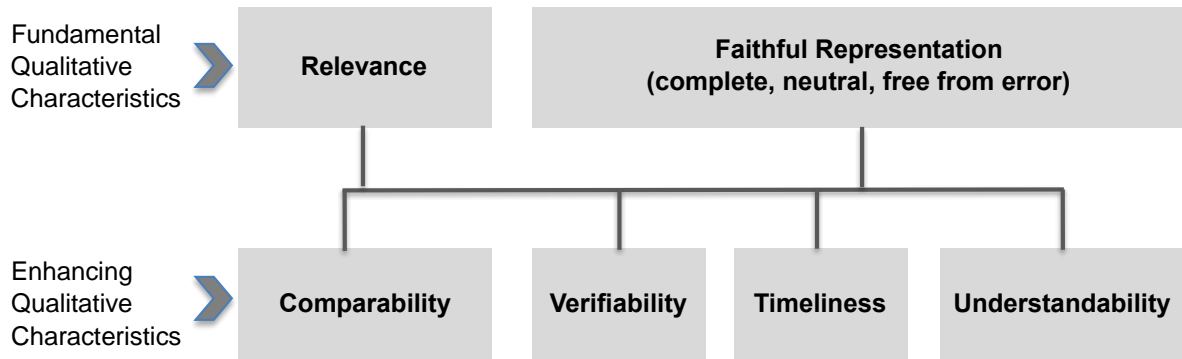
- the confidentiality of the spreadsheet information throughout its lifecycle,
- the availability of the spreadsheet according to business needs which may include the possibility of providing the spreadsheets as evidence in a court of law and,
- the safeguarding of the spreadsheet as the modelling and information contained therein are a critical resource.

In addition, if any spreadsheets used in the preparation for, or process of, reporting internally or externally they need to meet the qualitative characteristics listed in Figure 1 below (International Auditing and Assurance Standards Board, 2011: p.12). There was much international discussion on the need to replace reliability with faithful representation in the Hierarchy of Qualitative Characteristics (International Auditing and Assurance Standards Board, 2011; p.12). This we believe is conceptually relevant to the governance of spreadsheets which often employ estimates in a number of parameters which are faithful representations but may not be necessarily reliable. This is illustrated in paragraph QC 15 of the International Accounting Standards Board’s (IASB) Conceptual Framework for Financial Reporting (International Accounting Standards Board, 2011; p.85) which states:

“Faithful representation does not mean accurate in all respects. Free from error means there are no errors or omissions in the description of the phenomenon, and the process used to produce the reported information has been selected and applied with no errors in the process. In this context, free from error does not mean perfectly accurate in all respects. For example, an estimate of an unobservable price or value cannot be determined to be accurate or inaccurate. However, a representation of that estimate can be faithful if the amount is described clearly and accurately as being an estimate, the nature and limitations of the estimating process are explained, and no errors have been made in selecting and applying an appropriate process for developing the estimate.”

Thus the processes employed and basis for the estimates used in spreadsheets may be key risk areas.

Figure 1. Hierarchy of Qualitative Characteristics



(Source: International Auditing and Assurance Standards Board, 2011; p.12)

4. Where and when is the risk exposure within the spreadsheet lifecycle?

From a Governance perspective it is essential that management identify that the risk exposure can occur at any stage in the spreadsheet lifecycle. This

involves the following stages, from point of initiation where the need for a spreadsheet is identified, the design and testing thereof, the debugging, (the locating and correcting of errors in code, formulae and logic), the populating of the spreadsheet, the use of the spreadsheet, the changes thereafter and the

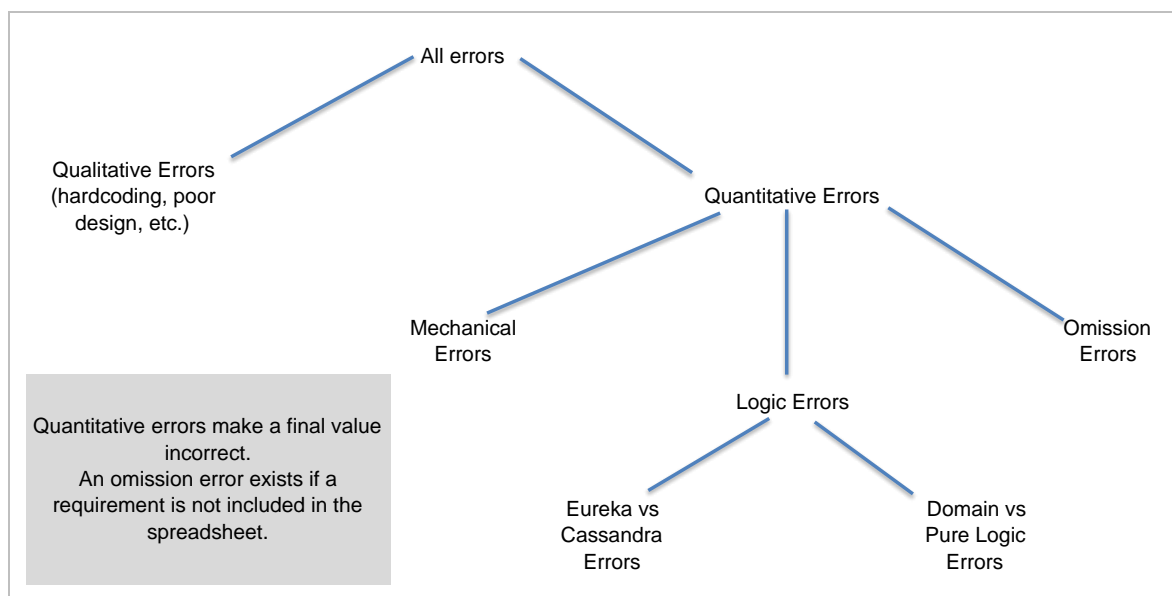
version control of the spreadsheet to its termination in use and storage. These stages form part of the audit trail required for taxation, legislative and regulatory purposes. Lemieux (2008) refers to *archiving* as the overlooked spreadsheet risk. In addition the operation of the spreadsheet is dependent on the general IT environment and thus the spreadsheet integrity is reliant on the effectiveness of the access, change and continuity aspects of general IT governance.

5. Why would there be risk exposure?

The risk of human error is exacerbated by issues such as overconfidence, exhaustion, insufficient time, incompetence and inexperience. This is combined

with the characteristics of a spreadsheet including free design, complexity of structure and formulae, size, multiplicity of cells in which to enter code or numbers, spreadsheet generated calculations that automatically update other key management reports or information, concentration of knowledge and ease of access. The combination of the human factor and the intrinsic nature of spreadsheets imply that there is a significant likelihood of errors in spreadsheets. Panko & Aurigemma (2010) have divided errors into qualitative and quantitative errors per the taxonomy in Figure 2 below which classifies the errors according to type of error.

Figure 2. Type of spreadsheet errors



An alternative classification by Powell, Baker & Lawson (2008) more closely associated with the spreadsheet lifecycle, is set out in Figure 3. Note the addition of the qualitative aspect of temporal errors referring to those using out of date data and the concept of hidden errors which are not visible except in use.

The true frequency of errors will never be known but the literature and the popular press support the conclusion that it is a significant risk. The results of a survey by Powell, Baker & Lawson (2009) are depicted in Figure 4, which indicate the frequency of errors.

Of interest is the range of errors from \$0 to >\$100,000,000 and the finding that 47 errors were found that had no impact on the spreadsheet. These arose from issues such as formulae with erroneous references but where the erroneous reference and the correct input values were the same.

Coster *et al* (2011) surveyed 38 companies (25 companies had assets between \$1bn and \$100bn) in respect to compliance with the Sarbanes-Oxley Act of

2002 (SOX) particularly in relation to spreadsheet risks and found that the processes where implementing controls were most difficult relate to change management, access control and version management. Leon *et al* (2012) found that input controls, change management, access control and version management represent the most difficult processes to control.

Further, Leon *et al* (2012) report that for most of the firms studied there was a lack of or incomplete documented policies for access control, change and version management and the reviewing and monitoring of spreadsheets.

Glater (2003) outlines a very significant error that was found in a Fannie Mae spreadsheet. Fannie Mae were adopting new and complex accounting standards under time pressure which involved marking to market their open positions using their internal systems and spreadsheets. There was an error in the applicable spreadsheet, which resulted in errors greater than \$1.2 billion.

Figure 3. The spreadsheet cycle

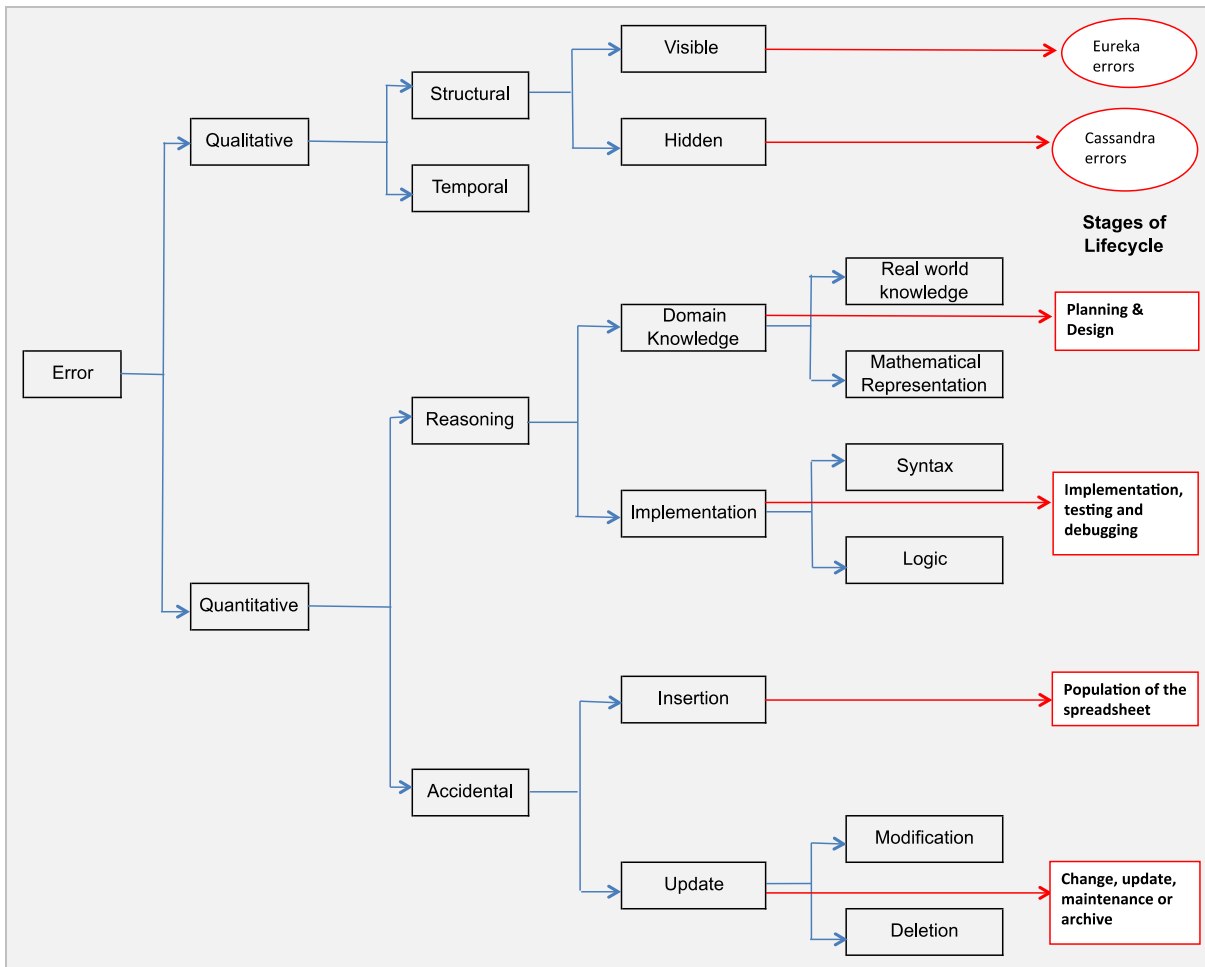
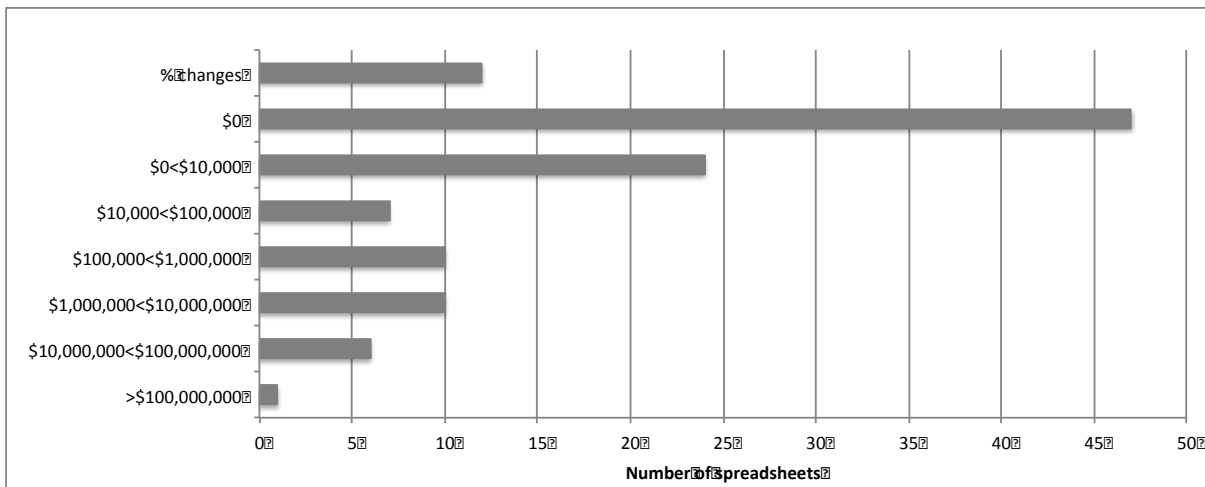


Figure 4. Frequency of errors



This is further explained on The Auditor™ (2012) website as follows;

"There were honest mistakes made in a spreadsheet used in the implementation of a new accounting standard...which resulted in increases to unrealized gains on securities, accumulated other comprehensive income, and total shareholder equity

(of \$1.279 billion, \$1.136 billion, and \$1.136 billion, respectively)"

A further risk of error is the correction of identified errors. Where spreadsheets are used in activities on which there are often incentives offered for pre-determined results the motivation and opportunity may exist for fraudulent design, input,

alteration or manipulation of spreadsheets or the omission or concealment of required information.

A well-cited example of the use of spreadsheets to commit fraud is the fraud committed by John Rusnak, a former currency trader with Allied Irish Bank. Mr Rusnak used spreadsheets to subvert the systems controls and this resulted in a fraud which lost \$691 million for the bank. According to Butler (2009);

the spreadsheet was corrupt as the cells for the Yen and Euro - the two currencies in which Rusnak traded the most - had links to Rusnak's computer that detoured outside of Reuters. the risk assessment analyst discovered that the source of daily foreign exchange rates was not independent...

The risk of both fraud and error is exacerbated where the spreadsheet developer and user is the same person.

6. Who could create the risk exposure?

With today's integrated information systems one needs to consider all the personnel throughout the entire supply chain of the organisation who may be in a position to commit fraud or error at any stage throughout the spreadsheet lifecycle. This may arise from activities such as reading the spreadsheet and accessing confidential information, changing, deleting, omitting or adding information.

Governance therefore involves the consideration of the threat of fraud or error being committed by any person who has either authorised or unauthorised access to the spreadsheet. Where this threat is likely in a given situation, a risk then arises on which management need to make a decision on how to respond.

Possible personnel to be considered include;

- Suppliers or customers, which in the financial services industry could include brokers, funders and dealers.
- Any authorised third parties to whom business activities that are not core to the organisation are outsourced. This often applies to the organisation's information technology services such as internet service providers, database managers, the use of cloud computing and the management of the hardware and system software.
- Management at both operational and board level.
- Internal employees who are authorised to access the spreadsheets
- Internal employees who are unauthorised to access the spreadsheets.
- Unauthorised third parties otherwise known as hackers.

7. How can spreadsheet risk exposure be prevented and/or detected and corrected?

The key is to develop a framework to ensure that the solutions are proactive and not just reactive and that

there is a systematic approach rather than a random application of techniques. The governance of spreadsheet risk is only as strong as the weakest link in the process. In addition, management do not wish to compromise the efficiency of the spreadsheet lifecycle by installing unnecessary controls that could cost time and money and affect staff morale.

To assist the body responsible for the governance of spreadsheet risk, the use of a framework is recommended. The most recognised framework is the Internal Control Components outlined in International Standard on Auditing ISA 315 (International Auditing and Assurance Standards Board, 2010) which is based on the framework as set by the original Committee of Sponsoring Organisations of the Treadway Commission (COSO). In December 2011, COSO (assisted by PwC) released a draft of the Updated Internal Control Framework to accommodate changes in the business and operating environments (Castelluccio, 2012) and the final Internal Control-Integrated Framework was released in May 2013 (COSO, 2013).

However, the five components of the framework relating to the *control environment, risk assessment, information and communication, control activities and monitoring* have not changed and are expanded upon below particularly in relation to the responsibilities of the board of directors and management.

7.1 Control environment

Management need to set the "tone" of the organisation with a commitment to integrity and ethics to reduce the risk of fraud, and to competence to reduce the risk of errors. There should be clear reporting lines relating to spreadsheet activities. The human resource lifecycle policies including hiring, training, evaluation, remuneration and career progression or termination of the individuals involved throughout the spreadsheet lifecycle should be commensurate with the behaviour required.

Management should implement policies and guidelines in respect of:

- Access to resources including significant spreadsheets which may represent valuable intellectual property of the company. Consideration should be given to both physical and logical access controls throughout the information system.
- The development, testing, use and storage of spreadsheets.

Management should ensure that adherence to the above policies and guidelines are monitored and non-compliance is addressed timeously and appropriately.

7.2 Risk assessment

Management need to apply the objectives outlined in section 1 of this article and the possible sources of access throughout the spreadsheet lifecycle to identify

the risks. Management should continually assess the impact of the changing political, economic, social, legal and technological environment on spreadsheet risk.

7.3 Information and Communication

Management should ensure that there is sufficient and appropriate information relating to the use and control of spreadsheets and that it is communicated to all the relevant internal and external parties, who should be committed to, and understand their responsibilities. This is necessary to meet all the internal control objectives but especially accuracy, continuity and accountability. The information should include the policies and procedures that govern the spreadsheet lifecycle and detail the purpose, assumptions and logic used in the spreadsheet to ensure that there is evidence and support for any corporate decisions made using the spreadsheet content.

Documentation should be such that another person can use, change or update the spreadsheet model even after a lapse of time.

At a minimum: the documentation should include:

- The purpose of the spreadsheet, the objectives of the model, (what it does) and the basic structure, (how it does it). This could include a dependency graph showing the relationships within the spreadsheet.
- Who was involved in the various stages of the spreadsheet lifecycle and when.
- The assumptions made during its design and population and any amendments to those assumptions made in subsequent updates.
- The constants and required input data sources.
- The testing regime and corrections made.
- The version history and reason for the updates/changes (see Butler, 2001)

7.4 Control activities

General IT controls

No matter what control activities are built into the spreadsheet lifecycle they will only be as effective as the organisation's controls over the information technology that supports all the IT tasks. This is a separate risk which would impact all the applications throughout the computerised information system. Broadly, the IT controls should ensure that:

- Any changes made to system software such as the security and communications software, any database management, disaster management and back-up provisions do not impact the spreadsheets.
- Any access is controlled via secure identification and authentication procedures; all of which are recorded in a secure audit trail.

- All operational activities in the general IT environment are controlled.

There are a number of accepted frameworks to assist management in the governance of IT. One commonly used framework is Control Objectives for Information Technology (COBIT). In addition, Goldman and Ahuja (2011) have integrated COBIT and balanced scorecard (BSC) frameworks, in conjunction with Systems Security Engineering Capability Maturity Model (SSE-CMM) as a tool for performance measurement and evaluation of spreadsheets

Spreadsheet lifecycle application controls

There are numerous studies (see for example, Leon et al, 2012; Barnes et al, 2009; Ferreira & Visser, 2012) outlining detailed controls addressing various stages of the spreadsheet lifecycle, and the provision of controls built into specialised applications e.g. banking and investment, specific products/tools e.g. Microsoft Excel, Oracle Crystal Ball®, bbv Software Services AG.

Applying the organisation's overall control philosophy in respect of the requisite levels of competence, management would need to have guidelines/controls in place to ensure that the spreadsheet designer/developer has the relevant domain knowledge, training in the tools being utilised and awareness of error types. This control philosophy would also offer guidance as to whether management wishes to prevent errors and /or detect and correct errors. However there are common principles that are key, such as authorisation, segregation of duties, performance reviews, information processing and physical controls as set out in International Standard on Auditing, ISA 315, (International Auditing and Assurance Standards Board, 2010; para.A96):

- *Authorization.*

Whilst the general IT controls authenticate who is accessing the system there should be accepted protocols of who is authorized to perform certain functions within the spreadsheet lifecycle e.g. who can design the spreadsheet, use and read the spreadsheet, who can amend the spreadsheet and to what extent. Can they change inputs but not any formulae? Can they add or delete functions?

- *Segregation of duties.*

Where a person is in a position where s/he has a responsibility for more than one business activity e.g. as developer and user of a spreadsheet, there is the possibility of intentional manipulation to produce results that will reflect positively on either the individual or the organization or both. In terms of International Standard on Auditing, ISA 315 (International Auditing and Assurance Standards Board, 2010; Appendix 1, p.309):

The segregation of duties is intended to reduce the opportunities to allow any person to be in a

position to both perpetrate and conceal errors or fraud in the normal course of the person's duties.

Ideally the developer should not be the user. However this is often the situation that arises in organizations because of business needs and knowledge domain specialisations. If this separation is not possible then there should at least be an independent check of the spreadsheet design. Research undertaken by Vemula, Ball & Thorne (2008) indicates that group development may be more effective than cross checking especially when the development group consists of more than two people.

- *Performance reviews.*

This requires a dedicated responsibility for one or more individuals to review the overall reasonability of the inputs and outputs of a spreadsheet in relation to the overall business knowledge and to each other and in comparison with previous or budgeted/forecast results and then to take any necessary corrective actions. The key issues for effectiveness of these reviews are the objectivity and holistic economic, industry, business and domain knowledge of the person(s) performing the review.

- *Information processing.*

Nixon & Ohara (2010) proved conclusively that auditing software tools are useful in pointing the user in the right direction but the tools themselves do not detect and correct the errors. In addition to auditing software tools the developer and user have a range of techniques that can be undertaken manually, or built into the spreadsheets, to check both the logic of and input into the spreadsheet. These techniques are a research area on their own and from a governance perspective management need to have assurance that there is an awareness of these techniques and that the capability and access exist to maximize the use of these resources to address some key risk areas. At a basic level these include automated controls such as edit and validation checks of input data and numerical sequence checks where appropriate. Undertaking reasonability and logic tests of output, in comparison to domain knowledge and previous outcomes and trends, are another form of control.

- *Physical controls.*

Logical access is an essential control for information but access controls over the general IT environment are not sufficient to protect the spreadsheet information. Spreadsheets are often accessed and used via notebooks and removable electronic media such as Universal Serial Bus (USB) flash drives, compact discs (CD's) and digital video disks (DVD's). Employing cloud computing and wireless access particularly in public spaces e.g. in airport lounges, means that users need to adhere to the relevant privacy and security protocols.

As part of the control environment the organization should have policies in place that ensures that all personnel with access to or use of electronic information are aware of and take precautions against unauthorized access including

what is known as "shoulder surfing". An unauthorized person may have access via looking at the screen whilst it is in use and this may be accentuated by the availability of connections that achieve extremely fast data transfers in a very short space of time. All it takes is seconds of not attending to an open notebook for significant transfers of data to occur in any space. In addition, one should ensure that the hardware containing the spreadsheet information is also physically secured from both theft and damage. Another key control is the physical control over the preparation, use and accessibility of documentation.

7.5 Monitoring

Management need to evaluate whether all the components above are functioning effectively and that where there is an internal audit function that the board are aware of, and react appropriately to any internal audit reports relating to spreadsheet risk and ensure that corrective action is carried out.

8. Conclusion

The analogy of an iceberg is an apt conclusion as there is no guarantee that all risks will be addressed and history has unveiled a number of significant frauds and errors that have arisen during the lifecycle of Spreadsheets. What about those lying below the water line? What can management do to address these?

Management need to identify the ambit of the objectives for which they are responsible and relate those to Spreadsheets and should consider that there are risks of both fraud and error. Further, management should recognise that these risks can occur anywhere in the spreadsheet lifecycle and ascertain the people who could be in a position to commit fraud or error. In addition management should ensure that the control environment and control and monitoring activities are implemented in accordance with their risk appetite and their control philosophy and recognise that this is a continuous process.

In implementing the above management can be more assured that they are complying with their responsibilities for the governance of risk relating to spreadsheets and thereby reducing the likelihood of material and significant impacts on their organisations arising from intentional or unintentional errors and irregularities in the spreadsheet lifecycle.

References:

1. Barnes, J., Tufte, D. and Christensen, D. (2009). Spreadsheet Design: An Optimal Checklist for Accountants, *American Journal of Business Education*, Vol. 2, No. 9, pp. 117-130
2. Butler, R. (2001). Tackling the Subversive Spreadsheet, *IS Audit & Control Journal*, Vol. 5,

- 2001, available at <http://www.isaca.org/Journal/Past-Issues/2001/Volume-5/Pages/Tackling-the-Subversive-Spreadsheet.aspx?PF=1> Accessed 10 August 2012.
3. Butler, R. (2009). The Role of Spreadsheets in the Allied Irish Bank / Allfirst Currency Trading Fraud, available at <http://arxiv.org/ftp/arxiv/papers/0910/0910.2048.pdf> Accessed 6 August 2012.
 4. Caldwell, J. (2012). A Framework for Board Oversight of Enterprise Risk, *Canadian Institute of Chartered Accountants (CICA)*, Canada, pp.1-69.
 5. Castelluccio, M. (2012) COSO releases Framework for Public Comment, *Strategic Finance*, Vol.93, No.7, p.24
 6. Committee of Sponsoring Organisations of the Treadway Commission (COSO) (2013) Internal Control – Integrated Framework, *Executive Summary*, May 2013, pp.1-10
 7. Correia, C. & Minter, T (2011). The Role of Spreadsheet Model Design in Corporate Finance courses, *International Conference of Education, Research and Innovations*, ICERI2011 Proceedings, 14-16 November, 2011, Madrid, pp. 356-365
 8. Coster, N., Leon, L., Kalbers, L. and Abraham, D. (2011) Controls over Spreadsheets for Financial Reporting in Practice, *Proceedings of European Spreadsheet Risks Interest Group (EuSpRIG) 2011 Conference "Spreadsheet Governance – Policy and Practice"*, 12th Annual Conference, Greenwich, London, 1 July 2011.
 9. Ferreira, M. and Visser, J. (2012). Governance of Spreadsheets through Spreadsheet Change Reviews, Proceedings of European Spreadsheet Risks Interest Group (EuSpRIG) 2012 Conference "The Science of Spreadsheet Risk Management", 13th Annual Conference, Manchester, UK, 5-6 July 2012. <http://arxiv.org/pdf/1211.7100v1.pdf>
 10. Glater, J. (2003) Fannie Mae Corrects Mistakes in Results, *The New York Times*, Business Day, October 30, USA
 11. Goldman, J. & Ahuja, S. (2011) Integration of COBIT, Balanced Scorecard and SSE-CMM as an Organizational & Strategic Information Security Management (ISM) Framework in M. Quigley, (ed.), *ICT Ethics and Security in the 21st Century: New Developments and Applications* IGI-Global, Ch14, pp.277-309
 12. Grossman, T. Mehrotra, V. & Ozluk, O. (2006) Lessons from Mission Critical Spreadsheets, University of San Francisco School of Business and Management, Working Paper
 13. Institute of Directors in Southern Africa, (2009) The King Report on Governance for South Africa (King III), The Institute of Directors in Southern Africa, September 2009
 14. International Auditing and Assurance Standards Board (IAASB), (2010). Identifying and assessing the risks of material misstatement through understanding the entity and its environment. *International Standard on Auditing 315*. New York, NY: International Federation of Accountants
 15. International Auditing and Assurance Standards Board, (IAASB) (2011) The Evolving Nature of Financial Reporting; Disclosure and Its Audit Implications, Discussion paper, New York, NY: International Federation of Accountants, January 2011, pp.5-43
 16. International Accounting Standards Board (IASB) Conceptual framework for Financial Reporting, July 2011, IFRS Foundation, United Kingdom, pp.71-122
 17. Lemieux, V. (2008), Archiving: The Overlooked Spreadsheet Risk, arXiv:0803.3231v1 <http://arxiv.org/abs/0803.3231>
 18. Leon, L., Kalbers, L., Coster, N. and Abraham, D. (2012), A Spreadsheet Life Cycle Analysis and the impact of Sarbanes-Oxley, *Decision Support Systems*, Vol. 54, No.1, pp. 452-460.
 19. Nixon, D & Ohara, M. (2010) Spreadsheet Auditing Software, <http://arxiv.org/ftp/arxiv/papers/1001/1001.4293.pdf>. Accessed 9 August 2012
 20. Panko, R. (2006). Spreadsheets and Sarbanes-Oxley: Regulations, Risks and Control Frameworks, Xactly Corporation, USA.
 21. Panko, R. & Aurigemma, S. (2010). Revising the Panko–Halverson taxonomy of spreadsheet errors, *Decision Support Systems*, Vol.49, No. 2, pp.235-244
 22. Powell, S, Baker, K & Lawson B. (2008) A critical review of the literature on spreadsheet errors, *Decision Support Systems*, Vol. 46, No.1, pp.128–138
 23. Powell, S, Baker, K & Lawson B. (2009) Impact of errors in operational spreadsheets, *Decision Support Systems*, Vol. 47, No.2, pp.126–132
 24. The Auditor™. Automated spreadsheet auditing. Error & Risk resolution Fannie Mae makes billion dollar spreadsheet error overstating gains <http://www.audinator.com/HorrorStories.html> Accessed 9 August 2012
 25. Vemula, V, Ball, D & Thorne, S. (2008) Towards a Spreadsheet Engineering, *Arxiv preprint ArXiv: 0803.0159* <http://arxiv.org/ftp/arxiv/papers/0803/0803.0159.pdf>, 3 March 2008. Accessed 7 August 2012.

ELECTRONIC FRAUD (CYBER FRAUD) RISK IN THE BANKING INDUSTRY, ZIMBABWE

*Shewangu Dzomira**

Abstract

The paper explores forms of electronic fraud which are being perpetrated in the banking industry and the challenges being faced in an attempt to combat the risk. The paper is based on a descriptive study which studied the cyber fraud phenomenon using content analysis. To obtain the data questionnaires and interviews were administered to the selected informants from 22 banks. Convenience and judgemental sampling techniques were used. It was found out that most of the cited types of electronic fraud are perpetrated across the banking industry. Challenges like lack of resources (detection tools and technologies), inadequate cyber-crime laws and lack of knowledge through education and awareness were noted. It is recommended that the issue of cyber security should be addressed involving all the stakeholders so that technological systems are safeguarded from cyber-attacks.

Keywords: Electronic Fraud, Cyber Fraud, Cyber-Crime, Internet Banking, Electronic Banking

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1. Introduction

In modern times banks are not so often robbed because money is not only kept in bank vaults. In modern computer technologies and data networks a lot of money exists in cyber space. Banks have to adapt to modern trends of doing business electronically and at the same time protect themselves against cyber-crimes. The first recorded “cyber-crime” took place in the year 1820! That is not surprising considering the fact that the abacus, which is thought to be the earliest form of a computer, has been around since 3500 BC in India, Japan and China. The era of modern computers, however, began with the analytical engine of Charles Babbage (Khan, 2011). In Zimbabwe almost all banks to date have implemented electronic banking and/or cyber banking in one way or the other.

According to Dube et al. (2009), the first visible form of electronic innovation in Zimbabwe was in the early 1990s when Standard Chartered Bank and the Central African Building Society (CABS) installed automated teller machines (ATMs). (Kass, 1994 cited by Goi, 2005). Electronic banking in Zimbabwe has grown significantly in recent years. According to Gono (2012), fifteen banking institutions have already introduced mobile banking products in partnership with mobile operators and the number of banking institutions venturing into mobile banking are on the increase. The, volume of mobile payment transactions and the volumes of internet transactions also increased substantially. However, according to

Kadleck (2005), as more businesses and customers launch their money into cyberspace, opportunities for 21st century tech-savvy thieves also increase.

While on the one hand, financial institutions in Zimbabwe are coping with global developments in technology, on the other hand cyber fraud perpetrators are on the look-out. E-banking fraud is an issue being experienced globally and is continuing to prove costly to both banks and customers (Usman et al., 2013). According to Shinder (2002), e-commerce, on-line banking and related technologies have resulted in millions of dollars of financial transactions taking place across network connections and as banks expand their array of online services to clients, the risk of internet computer fraud (ICF) increases and the risk landscape changes. Financially motivated high-profile attacks have been observed across the globe with the growing patronage of e-banking services and its anticipated dominance in the near future. Some of the known factors that contribute to the acute problem of security must be addressed (Usman et al., 2013).

According to Mushowe (2009), the Zimbabwean government had plans to come up with legislation to curb cyber-crime in the country in view of its increasing threat to world economies. Given the threats posed to global economies by cyber-crime, there was a need to come up with measures to combat this crime. In addition to that, Kabanda (2012) posits that incidences of cyber-crime in Zimbabwe were on the increase and need to be quantified through research. The prevalence of cyber-criminals is a

worrying development as Zimbabwe grows more reliant on ICTs. More so, Moyo (2012) adds that, people cannot redefine fraud because it has been committed through cyberspace and further mentions that due to the fact that most victims of cybercrime are high-profile bank customers, they were reluctant to announce or admit in public that they have been successfully defrauded by some cyber-criminal.

The Zimbabwean criminal codification act does not, at any point mention computer aided crimes or cyber criminology directly as a crime but this does not mean that cyber criminology is exempted. While there is so much online activity masked in anonymity and plasticity, tracing online criminals can be impossible or arduous, Muleya (2012)).

Although research have been carried out on adoption and use of internet banking, and security strategies in terms of online banking in Zimbabwe, the author found no research that specifically addressed the cyber fraud and the challenges faced by banking institutions in trying to combat this kind of risk.

In view of the above background, the paper intends to attain the following objectives:

- to examine electronic frauds perpetrated in the banking sector in Zimbabwe; and
- to explore the challenges faced by banks in an endeavour to combat cases of electronic fraud in Zimbabwe.

The following sections of this article outline the literature review, methodology, analysis of the findings, conclusions and recommendations.

2. Literature Review

Electronic fraud (cyber fraud)

At global level ICT advancement has immensely contributed to economic development including finance and banking. The internet is one of the fastest-growing areas of technical infrastructure development. Today information and communication technologies (ICTs) are omnipresent and the trend towards digitization is growing (Gercke, 2012). Due to the pivotal roles of banks in the growth and economic development of any nation, it has become very necessary to protect these institutions from the antics of fraudsters (Ikechi & Okay, 2013). However, it is the same ICT systems used by the banks which are negatively utilized by perpetrators of fraud. The increased use of ICT such as computers, mobile phones, internet and other associated technologies are the routes which gave rise to lot of constructive work as well as destructive work. The destructive activities are considered as 'electronic crime' which includes spamming, credit card fraud, ATM frauds, money laundering, phishing, identity theft, denial of service and other host contributing crime (Siddique & Rehman, 2011; Bamrara, Singh & Bhatt, 2013). While straight-through-transaction processing has

afforded new levels of efficiency for financial institutions and greater convenience for consumers, it also creates new opportunities for fraud, as transactions are faster, do not require any human intervention, and are often "anonymous" (Oracle, 2012). Due to the pivotal roles of banks in the growth and economic development of any nation, it has become very necessary to protect these institutions from the antics of fraudsters (Ikechi & Okay, 2013).

According to the World Economic Forum's Global Risks (2014), cyberspace has proved resilient to attacks, but the underlying dynamic of the online world has always been that it is easier to attack than to defend. On that note, the contemporary approach at all levels on how to preserve, protect and govern the common good of a trusted cyberspace must be developed, since the growth of the information society is accompanied by new and serious threats. The rising of such threats at various stages is because of the explosion of online banking coupled with the acceptance by consumers to disclose sensitive information over internet. Electronic fraud is committed in different ways.

Types of e-frauds

Electronic fraud could be classified into two categories namely, direct and indirect frauds. Direct fraud would include credit/debit card fraud, employee embezzlement, and money laundering and salami attack. Indirect fraud would include phishing, pharming, hacking, virus, spam, advance fee and malware.

Credit card/debit card fraud and identity theft are two forms of e-fraud which are normally used interchangeably. It involves impersonation and theft of identity (name, social insurance number (SIN), credit card number or other identifying information) to carry out fraudulent activities. It is the unlawful use of a credit/debit card to falsely obtain money or belongings without the awareness of the credit/debit card owner. (Williams, 2007; Njanike, Dube & Mashanyane, 2009; Saleh, 2013). Theft of someone's identity can be done through different ways. According to Barker, D'Amato & Sheridan (2008), skimming involves stealing information off a credit card during a legitimate transaction. This type of scheme usually occurs in a business where the patron's credit card is taken out of sight while the transaction is being processed. The fraudster will swipe the card through an electronic device known as a "wedge" or skimming device, which records all information contained on the magnetic strip (ACFE, 2007, p.1.104) cited by Barker et al. (2008). To obtain credit card details, offenders may employ sophisticated method such as hacking into merchants' databases or simply "engineering" the victims into giving their credit card details (Prabovo, 2011). However, Williams (2007) argued that whilst businesses and banks suffer losses from credit card

fraud which continue to increase exponentially, there is not sufficient legislation to enable the eradication of this crime entirely.

In an attempt to maximize the benefits from technology utilization most people end up being victims of technology. Cyber fraudsters design web pages to look like legitimate sites where victims enter personal information such as usernames, passwords and credit card details. Often emails are sent to recipients asking disclosure and/or verification of sensitive information, and upon disclosure of such information the offenders make online transfers (Barker et al., 2008; Gercke, 2008). “Smishing” and “vishing” are forms of phishing which are more sophisticated and uses phone text messages and phone calls to bait victims (Tendelkur, 2013; KPMG, 2012). This kind of fraud can also be used to target corporates and other merchants. E-commerce merchant sites have been a target as they normally contain valuable loyalty points or stored payment card information that can be used for fraudulent purchases and also a kind of mass-marketing fraud (McGuire & Dowling, 2013; 41STParameter, 2013)

Traditionally, fraud perpetrators targeting bank institutions used “pen and paper” to commit internal fraud. However, upon computerization of the transactions the same perpetrators shifted to computer fraud committing the same type of fraud. According to Shinder (2002), embezzlement, which involves misappropriating money or property for own use that has been entrusted to an employee (for example, an employee uses legitimate access to the company’s computerized payroll system to change the data, or moves funds out of the company’s bank accounts into a personal account). Moreover, a financial institution can allow trusted employees to access personal customer data that can be used to gain online access to customer accounts. In this way an employee can easily commit fraud (BITS, 2003).

In some cases fraudsters run a program known as the “salami technique” as an approach to steal money in small increments. The program makes micro-changes over an extended period, so that the changes are not easily noticeable. An example of this type of fraud is a program that deducts a few dollars per month from the accounts of many clients (Tendelkur, 2013; Marshall, 1995).

Fraudsters also run malicious codes and malware programs which take control of individual’s computer to spread a bug. A computer virus is a program that causes an unwanted and often destructive result when it is run. A worm is a virus that replicates itself. A Trojan (or Trojan horse) is an apparently harmless or legitimate program inside which malicious code is hidden; it is a way to get a virus or worm into the network or computer (Shinder, 2002; 41STParameter, 2013; KPMG, 2012).

In the recent global recession period money laundering and/or cyber laundering has been a common unethical practice. It is a form of fraud that

involves the electronic transfer of funds to launder illegally obtained money. The competence to transfer limitless amounts of money without having to go through strict checks makes cyber money laundering an attractive proposition. (Shinder, 2002; Ikechi & Okay, 2013; Siddique & Rehman, 2011). New technologies and cyberspace offer money launderers new opportunities and present new challenges to law enforcement and difficulties in the investigations of internet-based-money laundering techniques (SiongThye, 2002; Gercke, 2011).

Another type of fraud involves spamming where unsolicited emails or junk newsgroup postings are sent without the consent of the receiver and frequently being malicious and sometimes offenders pretend to be financial institutions or companies (Schjoberg, 2008; KPMG, 2012; Geeta, 2011). In light of that, according to Gercke, (2011), some experts suggest the only real solution in the fight against spam is to raise transmission costs for senders.

In certain instances victims are redirected from legitimate websites to fraudulent or phony websites which look very identical to real ones; however any personal information entered into the forms (passwords and credit card number) would be sent to the cyber-criminal (Tendelkur, 2013; 41STParameter, 2013; McGuire & Dowling, 2013).

More so, hacking/cracking is one of the oldest computer related crimes which refers to unlawful access to a computer system and include breaking the password of password-protected websites and circumventing password protection. These spy hackers are usually sophisticated and use trail covering techniques like relay computers to make it seem like the attack originates locally and makes it harder to trace them. Hackers gain unauthorized access to large amounts of confidential data with the aim to cause monetary and reputational damages to the targeted entity (Gercke, 2011; Aseef et al., 2005; EMC, 2013),

In advance fee fraud, offenders send out scam emails asking for recipients’ help in transferring large amounts of money to third parties and promise them a percentage, if they agree to process the transfer using their personal accounts. The dynamics of advance fee fraud is to trick prospective victims into parting with funds by persuading them that they will receive a substantial benefit, in return for providing some modest payment in advance (Gercke, 2011). In essence, advance fee fraud encompasses mass marketing frauds and consumer scams, including advance fee scams such as 419 frauds, inheritance frauds, fake charity or disaster relief frauds, fake lotteries and pyramid schemes (Chang, 2008; McGuire & Dowling, 2013).

These e-fraud types have caused serious threat to the banking industry especially in most emerging economies including Zimbabwe and there is a need to address these issues.

General challenges in combating e-fraud/cyber fraud

The challenges faced by banks mainly include technical disadvantages, lack of knowledge and awareness, and lack of legislation.

In emerging and developing economies the issue of fighting electronic fraud is a major problem owing to a number of reasons. Mostly, advances in technology are fast-paced, as are fraudsters, however organisations are often far behind and the easy availability of new technologies with high operational speeds, capacity and connectivity make unlawful activities easier to escape detection. Cyber users in Africa do not have up-to-date technical security measures like anti-virus packages, and many of the operating systems used are not regularly patched (Kritzinger & Solms, 2012; Harry, 2002; PWC, 2011). Generally there is lack of resources to investigate cyber-crime and beef up required instruments to combat electronic fraud.

In the wake of ever increasing ICT advances banking stakeholders need to engage cyber fraud awareness and education. The lack of awareness among the general public of how to maintain a minimum level of security with regard to personal information or electronic property, and it is vital not only to educate the people involved in the fight against cybercrime, but also draft adequate and effective legislation (Harry, 2002; Gercke, 2011; Mwaita & Owor, 2013). This is a very risky situation and means therefore that there is a clear, but certainly not deliberate lack of cyber security awareness and education to make cyber users aware of all possible cyber threats and risks (Kritzinger & Solms, 2012).

Most law enforcement agencies lack the technical expertise as well as sufficient regulatory powers and automated equipment to investigate complicated evidence collection because of intangible nature of cyber space and prosecute fraudulent digital transactions (Harry, 2002; Gercke, 2011; Mwaita & Owor, 2013). Therefore lack of cyber space legal legislation provides a safe haven for cyber criminals.

In light of trying to protect corporate reputation, investor and public confidence most businesses are reluctant to report cyber-criminal activity (Harry, 2002).

3. Methodology

The research on which this paper reports pertains to electronic fraud (cyber-fraud) perpetrated within the banking sector in Zimbabwe. The study was based on descriptive research. Descriptive study is a study that sets out to describe a phenomenon or event as it exists, without manipulation or control of any elements involved in the phenomenon or event under study (Page & Meyer, 2000). The descriptive study is popular in research because of its versatility across management disciplines (Cooper & Schindler, 2011). The main purpose of descriptive research is to describe the status-quo of affairs as it exists. In descriptive research the problem is structured and well understood (Ghuri & Gronhaug, 2005). In this study electronic fraud types and challenges faced by the banking sector in an attempt to combat the risk, forms the phenomenon. The primary data was collected on the basis of self-completion questionnaires and interviews administered to various respondents from different banks. According to Bryman & Bell (2003), self-completion questionnaire, respondents answer questions by completing the questionnaire themselves.

4. Sampling

In this research the non-probability sampling technique has been applied. Purposive and convenience sampling techniques were used. Purposive sampling involves choosing people whose views are relevant to an issue because one makes judgment, and/or persuaded by collaborators, that their views are particularly worth obtaining and typify important varieties of viewpoint (Jankowicz, 2005). In a convenience sample, often termed an accidental sample, units that we find convenient for some reason are selected (Ghuri & Gronhaug, 2005). In this study both purposive and convenience sampling were applied and the researcher targeted all 22 banks, from where the participant sample was selected. Tables 1 and 2 below show architecture of Zimbabwe's banking sector and the sample structure of CEOs, auditors, risk managers and BAZ members respectively.

Table 1. Architecture of Zimbabwe's Banking Sector as of December 2012

Type of Institution	Number
Commercial Banks	16
Building Societies	3
Merchant Banks	2
Savings Banks	1
Total Banking Institutions	22

Source: RBZ Monetary Policy Statement issued on the 31st of January 2013 by G. Gono

Table 2. The sample structure of CEOs, Auditors, Risk Managers and BAZ members

Description for CEO	Number	Percentage %
Distributed questionnaires for CEOs	22	100
Total Response of CEOs	15	68
Uncompleted questionnaires returned	4	18
Usable questionnaires	11	50
Description for Auditors	Number	Percentage %
Distributed questionnaires for Auditors	66	100
Total Response of Auditors	36	55
Uncompleted questionnaires returned	6	9
Usable questionnaires	28	42
Description for Risk Managers	Number	Percentage %
Distributed questionnaires for Risk Managers	22	100
Total Response of Risk Managers	18	82
Uncompleted questionnaires returned	2	9
Usable questionnaires	15	68
Description for BAZ members	Number	Percentage %
Distributed questionnaires for BAZ members	5	100
Total Response of BAZ members	4	80
Uncompleted questionnaires returned	1	20
Usable questionnaires	3	60

Universe

All the bank institutions which were studied have their head offices situated in one geographical area, Harare and therefore it was convenient to the researcher in contacting the survey. The targeted respondents (CEOs, Risk Managers, Auditors, Bankers’ Association of Zimbabwe (BAZ) members) of these banks were as well stationed at head offices and were selected on the basis of what they know about e-fraud.

Tools for analysis

In this study a qualitative analysis was done using content analysis of data. Content analysis involves analyzing text with respect to its content, with the factors of interest most often relating to meaning, or how many times (frequency with which) particular phrases/terms appear (Page and Meyer, 2000). Its breadth makes it a flexible and wide ranging tool that may be used as a stand-alone methodology or as a problem-specific technique (Cooper and Schindler, 2011). Once the data has been analyzed and the units categorized and measured, the researcher can then

seek to identify themes and relationships between the observed frequency, for example, of the units (Crowther and Lancaster, 2009). Graphical displays and observed frequencies were used in this study. As with descriptive statistics, the appropriate graphical analysis depends upon the measurement scale for the variable that is being analyzed (Page and Meyer, 2000).

Findings

All the 28 respondents at least had passed Ordinary level and joined their respective institutions having acquired that qualification. A number of them (86%) had passed their Advanced Levels. Few of the respondents (43%) had bank related qualifications, such as Institute of Bankers Certificate or Diploma (IOBZ), while none had professional digital forensic qualification. Out of the total respondents, 82% indicated that they had undergone an orientation course in digital forensic auditing. It was discovered that 86% of the total respondents were ex-police officers, particularly from the Serious Fraud Unit of the Criminal Investigations Department.

Table 3. Profile of Responding Auditors

Academic and Professional Qualification	Frequency (n)	%
Ordinary Levels	28	100
Advanced Levels	24	86
Professional Digital Forensic Qualification	0	0
Other Banking Qualifications	12	43
Auditing Related Qualification	10	36
Orientation Courses	23	82
Other Background Experience e.g. police	24	86

Frequency

Figure 1 and table 4 shows the response rate for the questionnaires. The questionnaires were distributed to 22 CEOs; Auditors; 22 Risk Managers and 5 BAZ board members with 57 being returned and

considered usable for analysis. Of these, 19% (11 respondents) were from CEOs; 49% (28 respondents) were from Auditors; 26% (15 respondents) were from Risk Managers and 5% (3 respondents) were from BAZ members.

Figure 1. The Response rate

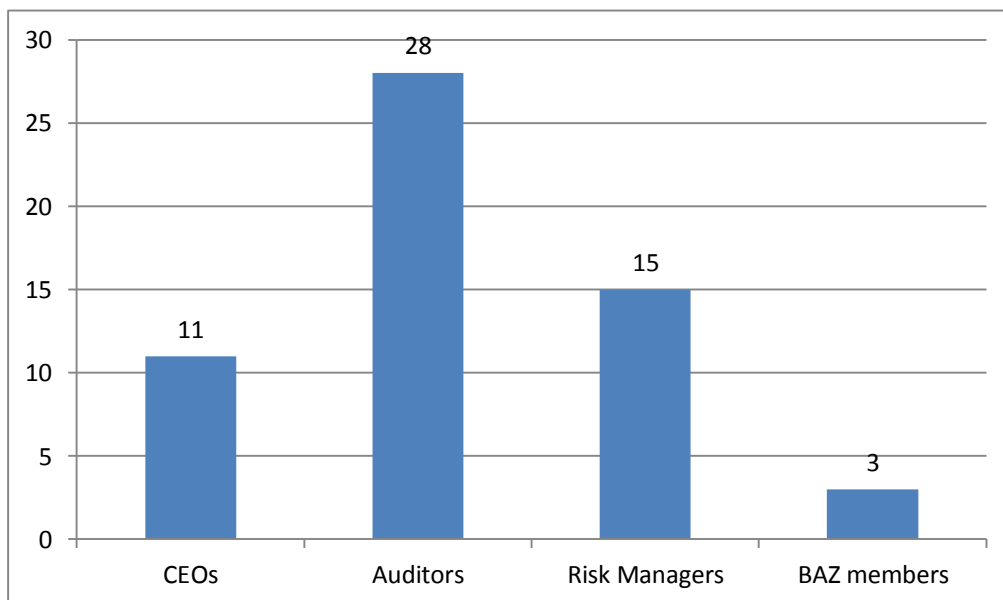


Table 4. Types of fraud experienced and prepared to be prevented

Fraud scheme	Response (%)
Accounting fraud (internal financial fraud including payroll, vendor, procurement, skimming)	76%
Money transfer (electronic funds transfer/wire transfer)	70%
Identity theft (credit/debit card fraud)	68%
Other	67%
Mobile banking	67%
Money laundering	55%
Hacking/cracking	45%
Phishing	43%
Pharming	34%
Spy software	27%
Computer virus (worms, Trojans)	17%
Scams	12%
Wire tapping	10%

Table 4 shows the response rate on each and every fraud type committed in the banking sector. From the ranking, accounting fraud is at the top with 76% indicating that the traditional ways of committing fraud are still being used but of late electronically (internal computer fraud). Followed by money transfer (70%), identity theft (68%), other (67%), mobile banking (67%) and money laundering (55%) forming the top six categories. A total of 67% of the respondents indicated that there are some other fraud types such as asset misappropriation, financial statement fraud, bribery and corruption Also being perpetrated are hacking/cracking with 45%, Phishing (43%), Pharming (34%), spy software (27%),

computer virus (17%), scams (12%) and lastly wire tapping with 10%.

Singh, et al (2013) in India Risk Survey found out top six fraud categories at global level as physical theft of assets with 25%, followed by information theft (23%), management conflict of interest (21%), vendor procurement (20%) internal financial fraud (19%), and corruption and bribery (19%). However, Kroll (2011/12) in Economist Intelligence Unit Global Fraud Survey found out and ranked fraud types as follows, information theft (50%), theft of physical assets (46%), vendor, supplier or procurement fraud (42%), IP theft (40%), internal financial fraud (38%) and money laundering (25%).

This was based on the proportion of companies describing themselves as highly or moderately vulnerable to such frauds.

Whereas Singleton, (2013) found out top five cyber-crimes (cyber fraud) ranked as follows, tax refund fraud (electronically perpetrated through phishing, personal information theft in filing the returns) at the top followed by corporate account takeover (electronic funds transfer). The third one is identity theft (credit/debit card fraud) followed by theft of sensitive data (cracking/hacking) and lastly theft of intellectual property.

In contrast to literature findings the fraud incidences in Zimbabwe are only different in terms of incurrence ranking but the nature and type of cyber frauds are almost the same.

Fraud incurrence and banks' preparedness in fighting the fraud menace

About 67% of the respondents cited "lack of oversight by line managers or senior managers on deviations from existing electronic process/controls" as one of the major cause followed by "current business pressure to meet set targets" and "difficult business scenario" as other causes for rising fraud cases. About 40% of the respondents revealed that there was collusion between employees and external parties.

The current perception of fraud and fraud incidents encountered by the banks

The retail banking sector has encountered the maximum number of fraud incidents followed by the corporate banking division. A number of the respondents who are involved in priority banking sector have also faced significant fraud cases number in this area. Cases of fraud in personal banking are attributed to "identity theft" and "misuse of power of attorney/account takeover".

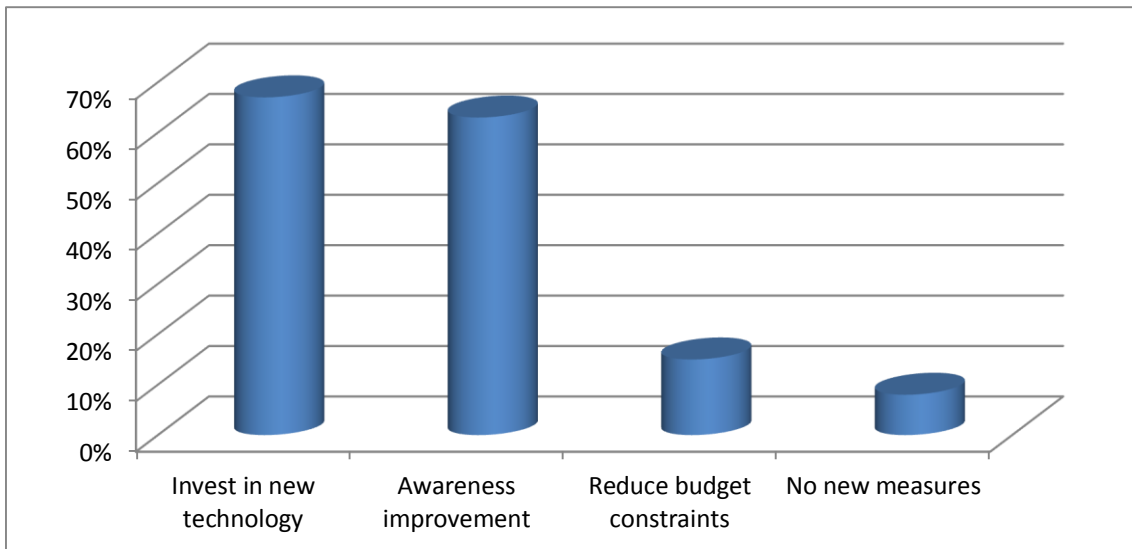
Table 5. Challenges with regard to prevention

Challenges	Response (%)
Budget constraints and personnel and lack of resources	53%
Lack of fraud detection tools and technologies	49%
Lack of awareness and education	35%
Challenge in law enforcement, legislation and crime investigation	24%

Table 5 shows a total of 53% of the respondents indicated that they lack sufficient resources, 49% showed that there is lack of fraud detection tools and technologies whilst 35% of the total respondents

indicated that a fragmented fraud prevention approach is a challenge and 24% of the respondents indicated that difficulty investigating crimes across borders is a challenge.

Figure 2. Reduction of fraud vulnerability



From Figure 2, a total of 67% of the respondents indicated that there is a need for investment in new technology. 63% said that there is a need for awareness improvement, 15% of the total respondents

revealed that increase in budget/staff should be considered and 8% of the respondents indicated that no new measures are required.

Figure 3. Adjustment of resources dedicated to fraud prevention

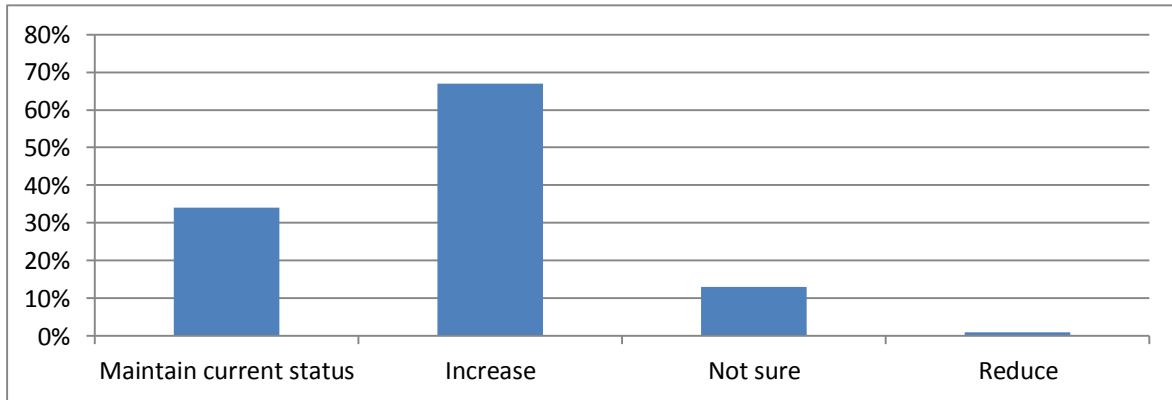


Figure 3 shows that of the total respondents, 34% indicated that there should be no change. 67% of the respondents showed that the resources should be increased for fraud prevention whilst 13% showed that there were unsure and only 1% indicated that they should be reduced.

Kritzinger & Solms (2012) found out that a number of cyber factors led Africa to becoming a cybercrime hub and identified the following challenges; lack of cyber security awareness, ineffective legislation and policies, and lack of technical cyber security measures. More over PWC (2011) in Global Economic Crime Survey found out that there is less chance of law enforcement being able to identify the perpetrator or find out where they were based when they committed and makes it harder to identify arrest and prosecute them by traditional means. The current laws are not mature enough to prosecute cyber criminals with any impact. They also found out that technological advancements are fast-paced, which means the development of cybercrime is too.

All in all, these other findings in the literature tend to corroborate the findings in the Zimbabwean context.

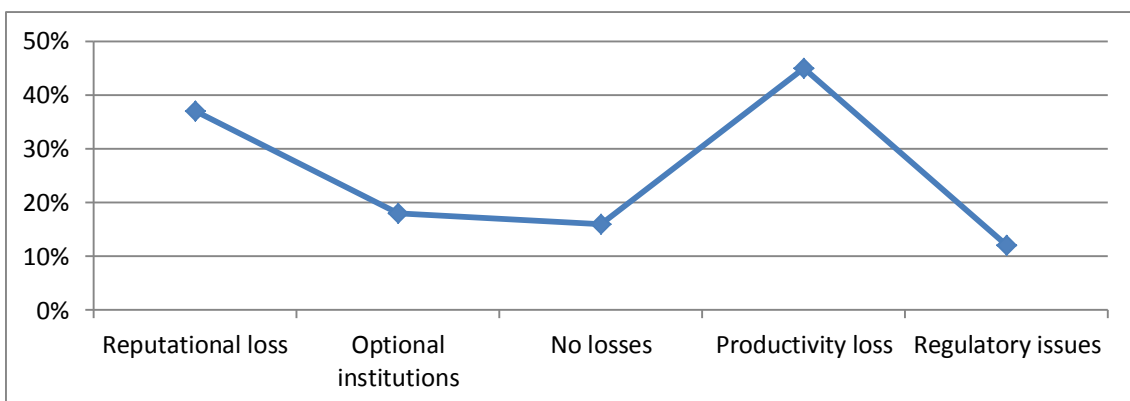
As indicated by more than 80% of the respondents, fraud risk management is being

discussed at the board level at least every quarter. About 75% of the respondents revealed that they had a fraud risk management framework in place with a chief risk officer for managing fraud risk. A total of 50% of the respondents indicated that they are moving towards implementation of digital fraud analytics solution, and 60% of these respondents appear to be more satisfied and comfortable with the move. The core issue with those who have not yet taken the move to implement digital fraud analytics tools is “data integration from current internal systems issues” or insufficiency of data.

PWC (2011) in Global Economic Crime Survey found out that organisations that have performed fraud risk assessments have detected and reported more fraud. A total of 50% of the respondents named Chief Information Officer or Technological Director with ultimate responsibility for dealing with cybercrime and 21% indicated CEO or the Board. Only 36% of respondents said the CEO and the Board review these risks at least once a year, and almost a quarter said they only review them on an ad hoc basis.

However, in Zimbabwean context the Chief Risk Officer is in charge of fraud risk management and the board sits almost four times a year.

Figure 4. Non-financial losses suffered as a result of incidents of fraud



From Figure 4, about 37% of the respondents indicated loss on corporate reputation, 18% showed that customers opted for other institutions. Furthermore, 16% of the respondents indicated that there were no losses as a result of fraud incidents, while 45% of the total respondents indicated that they suffered losses on productivity and 12% of the respondents indicated that they suffered regulatory or other compliance issues.

However, (2011) in Global Economic Crime Survey found out that 40% of the respondents indicated that apart from financial losses suffered of more than us\$5million in one in ten of those who reported fraud, reputational damage was the biggest fear. Comparing with the Zimbabwean situation most respondents put more emphasis on productivity loss.

Conclusion

From the above one can conclude that the most frequently occurring type of fraud is still the “traditional” fraud committed by employees in the banks. Identity theft also constitutes a large percentage of fraud. Other forms of fraud such as spam/scam, phishing, pharming, and money laundry represent a portion that is expected to rise, owing to the ever advancing development of technology. Retail banking has been noted as the major contributor to fraud, because retail banking is more a process, and also volume driven and decentralized. In the priority banking sector banks need to consider the risks involved in priority sector lending and develop risk mitigation strategies.

With regard to the incurrence of fraud and the preparedness of the banks to fight menace, it was noted that lack of oversight by line managers or senior managers on deviations from existing electronic process/controls was one of the major causes, followed by the “current business pressure to meet set targets” and a “difficult business scenario” as other causes of fraud cases to rise. An additional factor was the collusion between employees and external parties.

It can be concluded that inadequacy of resources to keep abreast of advanced technology and lack of knowledge and awareness on cyber fraud are major problems. In addition to that digital investigative challenges were identified coupled with lack of cyber fraud detection tools and technologies, and qualified personnel to carry out the investigations. Furthermore, it was noted that there is insufficient legislation and law enforcement to address and tackle e-fraud cases.

Recommendations

Institutions should implement shielded authentication that is not vulnerable to spoofing of web. There is need for implementation of fingerprint authentication merged with graphical models that should include

one-time authentication mechanisms which would be effective against both offline and online attacks from spoofing.

Constant educational programs for electronic banking need to be conducted to alert the users on how to always ensure secure online transactions. The Reserve Bank of Zimbabwe should further reduce electronic banking service costs as a method to cultivate increased usage by customers. If the aforementioned attributes are implemented in unison, the security strategies implementation will improve from being effective to a much more effective. This would boost the trust of clients and the confidence as well.

There is a need to have an industry wide framework on strong e-fraud governance and legislation and policies with specific emphasis on tackling electronic channel based fraud.

Organisations require a comprehensive enterprise-wide approach to fraud management that supports broader organizational compliance and risk management. The path to this approach includes an IT infrastructure that enables enterprise-wide, real time, and cross-channel monitoring and management capabilities. Bank institutions should work towards developing digital forensic auditors.

Further research

Further research should be done on digital forensics as a tool in preventing and detecting electronic fraud in the banking sector in Zimbabwe

References:

1. Ampratwum, E.F. (2009), Advance Fee Fraud “419” & Investor Confidence in the Economies of Sub-Saharan Africa (SSA), *Journal of Financial Crime*. Vol. 16 No. 1, pp. 67-79.
2. Aseef, N., Davis, P., et al. (2005), *Cyber-criminal Activity and Analysis*. White Paper.
3. Bamrara, A., Singh, G. and Bhatt, M. (2012), An Explorative Study of Satisfaction Level of Cyber-crime Victims with Respect to E-Services of Banks, *Journal of Internet Banking and Commerce*. Vol. 17 No. 3. pp.1-16
4. Bamrara, A., Singh, G. and Bhatt M., (2013), *Cyber Attacks & Defense Strategies in India: An Emperical Assessment of Banking Sector*, *International Journal of Cyber Criminology*. Vol.7(1), pp.49-61.
5. Barker, K.J., D’Amato, J. and Sheridon, P., (2008), *Credit Card Fraud: awareness and prevention*, *Journal of Financial Crime*. Vol. 15 No. 4, pp. 398-410.
6. BITS (2003), *Fraud Prevention Strategies for Internet Banking*, A Publication of the BITS Fraud Reduction Steering Committee, www.BITSINFO.ORG
7. Boateng, R., Olumide, L., Isabaliya, R.S., and Budu, J. (2011), *Sakawa – Cybercrime & Criminality in Ghana*, *Journal of Information Technology Impact*, Vol.11 No. 2, pp. 85-100.
8. Bryman, A. and Bell, E. (2003), *Business Research Methods*, Oxford University Press.

9. Chang, J.J.S. (2008), An analysis of advance fee fraud on the internet, *Journal of Financial Crime*, Vol.15 No. 1. pp. 71-81.
10. Cooper, D.R. and Schindler P.S. (2011), *Business Research Methods*, McGraw-Hill/Irwin Series
11. Crowther, D. and Lancaster, G., (2009), *Research Methods: A concise introduction to research in management and business consultancy*, Elsevier Butterworth-Heinemann.
12. Detective Assistant Inspector Tom Muleya and Superintendent Moyo Ndabazihle - <http://www.techzim.co.zw/2012/03/zim-police-join-the-cyber-warfare/>
13. Diaz-Gomez. (no date). What You Need to Know About Cybercrimes, IT Capstone-Research Paper.
14. Dube, T., Chitura, T. and Runyowa, L. (2009), Adoption and use of Internet Banking in Zimbabwe: An Exploratory Study, *Journal of Internet Banking and Commerce*, Vol. 14 No.1, pp. 1-13
15. EMC, (2013), The Current State of Cybercrime 2013: An Inside Look at the changing Threat Landscape, www.rsa.com.
16. FBI, <http://www.fbi.gov/about-us/history/famous-cases/willie-sutton>.
17. Frost & Sullivan (no date), Key IT Anti-Fraud Challenges for Banking and Financial Institutions in Latin America. White Paper, www.frost.com.
18. Geeta, D. V. (2011), Online identity theft-an Indian perspective, *Journal of Financial Crime*, Vol. 18 No.3, pp. 235-246. Emerald Group Publishing Ltd.
19. Gercke, M. (2011), Understanding Cybercrime: A Guide for Developing Countries. ICT Applications and Cybersecurity Division. Policies and Strategies Department. ITU Telecommunications Development Sector 2nd Edition, www.itu.int/ITU-D/cyb/cybersecurity/legislation.html
20. Ghauri, P. and Gronhaug, K. (2005). *Research Methods in Business Studies: A Practical Guide*. Pearson Education Limited.
21. Gono, G. (2013), Monetary Policy Statement issued in terms of the Reserve Bank of Zimbabwe Act Chapter 22:15, Section 46.
22. Ikechi, K.S. and Okay O.E. (2013), The Nature, Extent and Economic Impact of Fraud on Bank Deposits in Nigeria, *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 4 No. 9, pp. 253-265
23. Jankowicz, A.D. (2005), *Business Research Projects*, Thomson Learning.
24. Joyner, E. (2011), Detecting and Preventing Fraud in Financial Institutions. Enterprise wide Fraud Management, SAS Global Forum 2011, Paper 029-2011, www.sas.com.
25. Kabay, M.E. (2008), A Brief History of Computer Crime: An Introduction to students.
26. Kabanda, The Independent, April 12, 2012- <http://www.theindependent.co.zw/2012/04/12/the-essence-of-cyber-security-it-governance/>
27. Kadleck C. (2005), Banks battle against growth of electronic payment fraud. *Crain's Cleveland Business* 26. No.3, <http://www.craincleveland.com/>
28. Khan, A. (2011), <http://www.scribd.com/doc/71120466/The-First-Recorded-Cyber-Crime-Took-Place-in-the-Year-1820>
29. Kritzinger, E. and SH von Solms. (2012), A Framework for Cyber Security in Africa. *Journal of Information Assurance and Cibersecurity*, Vol. 2012 (2012), Article ID 322399, 10 pages.
30. Kroll. (2011/12), Global Fraud Report. Economist Intelligence Unit Survey Results. www.kroll.com
31. KPMG (2012), Cybercrimes: A financial sector overview, www.kpmg.com/in.
32. Marshall, R. (1995), Computer Fraud – What can be done about it? *The CPA Journal*; May 1995; 65, 5; Accounting & Tax pg. 30.
33. McGuire M. and Dowling, S. (2013), Cybercrime: A review of the evidence, Chapter 2: Cyber-enabled-crimes-fraud & theft, Home Office Research Report 75.
34. Mwaita, P. and Owor, M. (2013), Workshop Report on Effective Cybercrime Legislation in Eastern Africa, Dar Es Salaam, Tanzania.
35. NCPC (2012), Cybercrime, www.ncpc.org.
36. New York State, Department of Financial Services, (2014), Report on Cyber Security in the Banking Sector.
37. Njanike, K., Dube T. and Mashanyanye E. (2009), The Effectiveness of Forensic Auditing in Detecting, Investigating and Preventing Bank Frauds, *Journal of Sustainable Development in Africa*, Vol. 10 No. 4, pp. 405-425
38. Oracle (2012), Fraud Fight: Enterprise-wide Strategy Sets the Stage for Victory. Oracle Corporation, www.oracle.com.
39. Page, C. and Meyer D. (2000), *Applied Research Design for Business and Management*, McGraw-Hill Book Company Australia.
40. Prabowo, H.Y. (2011), Building our defense against credit card fraud: a strategic view, *Journal of Money Laundering Control*, Vol. 14 No. 4, pp. 371-386. Emerald Group Publishing Ltd.
41. Potter, M. (2000), Internet Banking and Fraud: making business less risky, *Community Banker* 9 No.7 JI 2000.
42. PWC (2011), Cybercrime: protecting against the growing threat. Global Economic Crime Survey, www.pwc.com/crimesurvey
43. Rajasthan, A. (2013), An Investigative Study of Banking Cyber Frauds with special Reference to Private and Public Sector Banks, *Research Journal of Management Sciences*, Vol. 2(7), pp. 22-27.
44. Reserve Bank of India, Department of Banking Supervision, Central Office, Mumbai, Guidelines on Information Security, Electronic Banking, Technology Risk Management & Cyber Frauds.
45. Schjolberg, S. (2008), ITU Global Cybersecurity Agenda (GCA), High-Level Experts Group Global Strategic Report.
46. Shinder, D.L. (2002), *Scene of the Cybercrime: Computer Forensics Handbook*, Syngress Publishing.
47. Siddique, M.I. and Rehman, S. (2011), Impact of Electronic Crime in Indian Banking Sector – An Overview. *International Journal of Business & Information Technology*, Vol. 1 No. 2.
48. Singh, G., Sharma, A., Rampal, K., Kular, R., et al. (2013), India Risk Survey 2013. Pinkerton & Federation of Indian Chambers of Commerce & Industry (FICCI)
49. Singleton, T., (2013), The Top 5 Cybercrimes. American Institute of CPAs.
50. Tam Siong Thye (2002), Money Laundering and E-commerce, *Journal of Financial Crime*, Vol. 9 No. 3, pp. 277-285. Harry Stewart Publications.
51. Tan Harry S.K. (2002), E-fraud; current trends and International developments, *Journal of Financial Crime*, Vol. 9 No. 4, pp. 347-354.

52. Tendelkur, R. (2013), Cyber-crime, securities markets and systematic risk, Joint Staff Working Paper of the IOSCO Research Department and World Federation of Exchanges
53. Transport and Communication Minister Christopher Mushowe
<http://www.newzimbabwe.com/pages/email9.14180.html> -11/12/2009
54. Usman, A.K. and Shah M.H. (2013), Critical Success Factors for Preventing e-Banking Fraud, *Journal of Internet Banking and Commerce*, Vol. 18 No. 2.
55. Williams, D.A. (2007), Credit Card Fraud in Trinidad and Tobago, *Journal of Financial Crime*, Vol. 14 No. 3.
56. Zakaria, S. (2013), The Impact of Identity Theft or Perceived Security and Trusting E-Commerce, *Journal of Internet Banking and Commerce*, Vol. 18, No.2.
57. Zimucha, T., Zanamwe N., Chimwayi K., et al. (2012), An Evaluation of the Effectiveness of E-banking Security Strategies in Zimbabwe: A Case Study of Zimbabwean Commercial Banks. *Journal of Internet Banking and Commerce*, Vol. 17 No. 3, pp. 1-16
58. 41STParameter (2013), The Growing Threats of Cybercrime, www.the41st.com

THE FUTURE OF INTERNATIONAL BANKING REGULATIONS IN RESPONSE TO THE FINANCIAL CRISIS OF 2007/2009: AFTER BASEL III THEN WHAT NEXT?

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Abstract

The financial crisis 2007-2009 will not be forgotten in a hurry because of its impact on the global financial system almost replicating the Great Depression. Major and causal factors contributed to the financial crisis, and this prompted the establishment of Basel III to contain the crisis. Basel III introduced improved capital and liquidity rules, but still could not contain the crisis. This leaves regulators with questions of how to prevent another financial crisis in the future. Evidences suggest that the financial market is evolving because of its complex and changing nature, and so are the international banking regulations (Basel I, Basel II and Basel III) that support the system in terms of maintaining economic and financial stability. It is clear that Basel III will not stop the next financial crisis even though the Basel accords continue to evolve in response to maintaining economic and financial stability, with the core purpose of preventing another financial crisis. Uncertainties lies ahead, and regulators cannot be sure of what will likely cause the next crisis, but indications suggest that the financial markets and international banking regulations in the form of Basel accords will continue to evolve.

Keywords: International Regulation, Banking, Basel, Crisis

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1. Introduction

The financial crisis dates back to Spain in the sixteenth century and France in the eighteenth. The financial crisis in Spain and France lasted a century.¹ Other nations in Latin America also experienced the financial crisis that resulted in defaults² of sovereign debts in 1820s with the exception of Argentina and Venezuela.³ In retrospect, the financial crisis is not a new episode as they have existed many times throughout history and it is as old as the market itself. This coincides with representation from the sixteenth century to the mid-twentieth century where sovereign

debtors defaulted in their debts, which evidently resulted in sovereign debt crisis.⁴

The financial crisis of 2007-2009 indicates that the financial markets has expanded, and become more difficult because banks became more radical by introducing complex financial instruments or products. The financial crisis of 2007-2009 was not as difficult as the Great Depression of 1929-1933 because of the actions taken by the Federal Reserve in the United States.⁵ Chapter one documents this including the rationality of the financial markets. The actions taken by the Federal Reserve helped to

¹ Harold James 'Deep Red – The International Debt Crisis and Its Historical Precedents' (Summer, 1987). *The American Scholar* 331, 334-336.

² Carlos Marichal 'A Century of Debt Crisis in Latin America: From Independence to the Great Depression, 1820 - 1930' (Princeton: Princeton University Press, 1989); Frank Griffith Dawson 'The First Latin American Debt Crisis' (Yale University Press, 1990)

³ For example, Venezuela had prepaid most of its debt before the Great Depression and did not default. Argentina sold of much of its gold reserves to service its national government bonds although it had to default on many of its provincial and municipal bonds.

⁴ Ross P. Buckley and Douglas W. Arner 'From Crisis to Crisis: The Global Financial System and Regulatory Failure' (2012) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1980010> accessed 28 October, 2013.

⁵ To stem the crisis the Federal Reserve lent a total of \$1.1 trillion to various financial institutions. Four major banks – Barclays Group, Citi Group, Bank of America, and Royal Bank of Scotland borrowed \$233 billion. These Federal Reserve Programs were in addition to the U.S. government's Troubled Asset Relief Programs (TARP), which allowed the U. S. Treasury to insure or buy up to \$700 billion of trouble assets. There was also the American Recovery and Reinvestment Act of 2009 of about \$800 billion.

prevent the financial crisis from exceeding or equaling that of the Great Depression. The frequency of the financial crisis from the sixteenth century until the recent crisis of 2007-2009, have suggested that bank regulators have not easily remedied the situation, or visit the underlying systemic problems effectively. In response to the financial crisis of 2007-2009, Basel III came into force and it has not helped in addressing the problem of systemic risks. This suggests that Basel III may not be sufficient or appropriate to solve another financial crisis in the future. Regulators were continuously unaware of the transformation of the banking system, which use financial instruments to remain competitive. Naturally, the transformation of the banking system should have a corresponding rule or supervision for international banking that effectively counters any financial crisis, but because of the complexity of the financial market, it is always difficult if not hard to use one rule that will reduce the causes of the financial crisis.

Taking into consideration that one direction may not be effective in stopping the growth of another financial crisis because of the complexity and evolution of the banking system, chapter two of this paper will examine the Basel Accords, especially Basel I and Basel II because this paper will be incomplete discussing Basel III without referring to them. Basel II was in the process of implementation before the financial crisis of 2007-2009, which resulted in the introduction of Basel III. Chapter three of the paper commences with the financial crisis of 2007-2009 by identifying the root-cause and other causes of the crisis, the legal implications of the crisis, and the development of the crisis and spillovers. Chapter four focuses on Basel III for strengthening the macro-prudential system by introducing new capital and liquidity requirements, which have also evolved because of the complexity and variation of the banking system. Chapter five addresses the post-financial crisis with emphasis on measures to be taken to prevent another financial crisis such as the role of central banks and integrating macro-prudential policies. This section also focuses on development of the Basel Accords in response to the financial crisis before the conclusion closes the paper in chapter six.

2. The Road of Financial Stability

The regulation of the banking system is a continuing task. 'As financial markets expand, new and innovative products continue to develop; therefore, it is always difficult if not impossible to apply a "one size fits all" formula in regulation and supervision of international financial markets and institutions.'⁶ The history of the financial crisis has depicted similar

⁶ Uzma Ashraf, Irfan Munawar Gill, and Douglas W. Arner 'The Road to Financial Stability' (2011) Global Journal of Business Research, 5(5), 71-79, p. 71.

patterns of behavior such as poor implementation of financial regulations across the board between all sovereign states and taking appropriate proactive measures to anticipate the issues instead of reactive measures in advance, and before the crisis. To better understand the history of the financial crisis, it will be sufficient to compare the financial crisis of 2007-2009 with the Great Depression of 1929-1933, including the rationality of the financial markets.

2.1 The Great Depression versus Financial Crisis 2007-2009

The financial crisis 2007-2009 started in August, 2007 and developed into the worst financial crisis in the U.S. since after the Great Depression. The crisis started with anxiety with banks because of the impact on short-term money market instruments⁷ that investors refused to renew. This forced large financial institutions to raise funds by selling assets. Asset prices dropped, and the entire banking system was in danger of meltdown. This resulted in cutbacks in bank lending, loss of confidence, solvency of counterparties, cash hoarding, and concerns about liquidity. This contributed to the freezing of the credit markets, high unemployment rate, and decrease in total investment. The way the financial crisis was looming, it appeared that another Great Depression was approaching, but central banks resorted to extraordinary efforts to stabilize the economy. These efforts have been pivotal, and the recovery has been slow. Appendix A shows the financial crisis 2007-2009 in perspective.⁸

The Great Depression of 1929-1933 witnessed unemployment rate of 25 percent and a reduction in production of about 30 percent.⁹ Even though the financial crisis of 2007-2009 is one of the worst crises in the U.S. history, it was not as difficult as the Great Depression. The financial crisis 2007-2009 was not as difficult as the Great Depression because of the extraordinary actions taken by the Federal Reserve.¹⁰ The actions taken by the Federal Reserve helped in preventing the crisis from exceeding or equaling the Great Depression.

2.2 Rationality of the Financial Markets

Financial regulations have evolved from the time of the Great Depression to the financial crisis 2007-2009, and it will continue to grow, but perceived that financial regulations are largely dependent on the principles of self-correcting and fair trade principles.

⁷ In particular, sale and repurchase agreements and asset-backed commercial paper.

⁸ Lee E. Ohanian 'The Economic Crisis from a Neoclassical Perspective' (2010) Journal of Economic Perspectives, 24, 45-66.

⁹ Gary Gorton and Andrew Metrick 'The Financial Crisis of 2007-2009' (2012) SSRN <<http://ssrn.com/abstract=2003388>> accessed 28 October 2013.

¹⁰ *ibid* (n 5).

Financial regulations over the past few decades supported the hypothesis that markets are highly effective in allocating resources, self-correcting, self-policing, and rational.¹¹ However, the frequencies of the crisis from the Great Depression to the financial crisis 2007-2009 have witnessed the failure of this theory suggesting that markets offer symmetric information and thus act rationally.

The failure of this theory also proved that non-regulated and unregulated free markets can cause catastrophic threats on the smooth functioning of financial markets, and so warranting the need to have regulated frameworks.¹² For example, regulatory frameworks such as Basel I and Basel II were subject to this interpretation. Basel I failed to differentiate the risks under way for risk-weighting categories, and it failed to recognize risks through diversification. Basel II underestimates the risks in opportune times while overestimating them for nefarious times. 'It is often the carried forward mistakes and lapses in proper responses that serve as the breeding grounds for the next crisis.'¹³ In essence, most of the underlying causes of the financial crisis 2007-2009 that arose from the last crisis dated back to the reform of the U.S. financial regulatory system during the Great Depression. This further suggests that global regulatory approaches failed in laying foundations to avoid the next crisis but addressed the issues of the financial crisis 2007-2009 at a minimum. The frequency of the financial crisis indicates that financial regulators have failed in addressing the key systemic problems. This suggests that economic strength will continue to be an illusion because of the likely reoccurrence of another financial crisis.

3. Basel Accords – Historical Evidence

The collapse of the Bretton Woods International Monetary System after the World War II relates to the extraordinary development of the global financial markets. The economic growth and developments made banks more vulnerable, and interconnected with each other. This was obvious with the establishment of subsidiaries and branches on a global scale. This also resulted in the collapse of the fixed interest rate policy and the rapid liberalization of capital flows in the West.¹⁴ The global financial markets adopt new uncertainties emanating from interest rate risks, new capital and hybrid transactions as a result of increases in cross-border capital flows and floating exchange rates. This follows with excessive lending and

borrowing, which resulted in the interest rate hikes in U.S., characteristic that systemic risk is a factor which can cause systemic crisis. This intensified the collapse of large financial institutions such as Bankhaus Herstatt in Germany, and Franklin National Bank in the United States. The "Basel Committee on Banking Supervision hosted by the Bank of International Settlements (BIS), was constituted to fill in these gaps by G-10 Central Bank Governors for setting standards for global financial markets."¹⁵ The Basel Committee provided recommendations, and introduced the capital accords with the purpose of preventing another failure in the global financial markets.

3.1 Basel I

The Basel Committee approved the Basel Capital Accord under Basel I in 1998.¹⁶ Basel I determined average capital requirements for international banks and it provided for a tiered concentration of banks' capital, a risk development process and a minimum capital ratio of 8 percent to total risk weighted assets that banks had to stay in their balance sheets.¹⁷ The aim of the Basel Committee by introducing Basel I include strengthening the capital base of international banks. This will help in maintaining stability of the global banking network with a convergence of capital adequacy for international banks. The Basel I gained widespread appeal and confidence because of its lowest costs and relative ease.

Under the Basel I capital rules banks were to maintain at least 8 percent of the marriage of their risk weighted assets.¹⁸ The components of the capital accord are commission Tier 1 and Tier 2 capital requirements, and it is necessary to be conversant with the technicalities because Tier 2 has proven to be extraordinarily difficult. Appendix B provides the desired tier elements of the capital accord.¹⁹ 4 percent, which, is half of the total minimum capital requirement is the core capacity and is a picture of the Tier 1 component. The capital requirement is straight forward as 'risks were weighted according to a certain level of a relative riskiness of counterparties assets or off-balance sheet items.'²⁰

¹⁵ G-10 Central Bank Governors (1974) 'Communique' September, 1974.

¹⁶ 1998 was an important year in the supervision and regulation of the international financial markets.

¹⁷ Zoltan Sarkany 'The New Basel III Rules and Recent Market Developments' (2011) SSRN <<http://ssrn.com/abstract=2155112>> accessed 28 October 2013.

¹⁸ The 8 percent minimum capital of the aggregate of risk weighted assets was required after the Capital Accord full implementation since 1993.

¹⁹ Basel Committee on Banking Supervision 'International Convergence of Capital Measurement and Capital Standards' (1988) BIS <<http://www.bis.org/publ/bcbs04a.pdf>> accessed 28 October 2013.

²⁰ *ibid* (n 17), at 15. Five categories of assets riskiness were introduced: 0%, 10%, 20%, 50% and 100% depending on whether the counterparty was an OECD member (sovereign

¹¹ Heidi M. Schooner and Michael Taylor 'Global Banking Regulation: Principles and Policies' (2010) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1853714> accessed 28 October 2013.

¹² Damian Paletta & Kara Scannell 'Ten Questions for Those Fixing the Financial Mess' (2009) *The Wall Street Journal* <<http://online.wsj.com/article/SB123665023774979341.html>> accessed 28 October 2013.

¹³ *ibid* (n 6), at 72.

¹⁴ *ibid*.

The recommendations of the Basel I accord were unable to stop the Asian financial crisis in 1997-1998, which historically laid the foundations for the unprecedented financial crisis of 2007-2009. In response to the Asian financial crisis, the Basel Committee introduced amendments to the capital accords by incorporating management and market risks. At this time, the Basel Committee including banking regulators realized that banks practiced more of universal banking because of the interdependence and connectedness of the operations of the financial markets on a global scale. This made them decide that the runs of one bank in one part of the world could cause the failure of other financial institutions in the rest of the world.

The loss-absorbency of capital in the case of bank's failure is more of the vital benefits of Basel I, and this feature to increase the banks' capital above the ordinary share capital.²¹ Despite this vital benefit of Basel I in terms of its capital assessment, it was not faultless, and this resulted in increased criticism. The Basel I was under attack even though the rules focus more on counterparty default and credit risk. The operational and market risk were lacking because of non-allocation with any weighting calculation for the minimum capital ratios for any bank.²² In summary, the Basel I under attack because (1) operational risk was lacking; (2) the risk weighting was mostly involving; (3) absence of collateralization was a bit of sense palliation, and (4) national supervisory authorities had broad discretionary powers.²³ These lapses, or gaps in Basel I resulted in the amendment through the Risk Amendment in 1996 (following the collapse of Barings) as it relates to market risk analysis such as prospects for off-balance sheet items and its adaptation to the operation and structure of financial markets. The Basel Committee did not stop its regulatory attempts here but started working on more adaptable-to-change mechanism, and risk sensitive approach that resulted in the introduction of more complicated rules known as Basel II.²⁴

3.2 Basel II

The introduction of Basel II by the Basel Committee in 2004 is as a result of its continued efforts to succeed in the lapses or gaps of Basel I²⁵ in the

regulation, and supervision of the financial markets with the purpose of improving the soundness and safety of the financial system. Basel II operated on three pillars; (1) capital adequacy, (2) market discipline, and (3) supervisory review through regular disclosures.²⁶ The changes of Basel II required implementation by the end of 2006, and the deadline for its implementation of the most advanced component was in 2007 respectively. The U.S. had difficulties in implementing the Basel II accord because it created distinguished capital assessments.²⁷ The reason of this paper is not to explain the details of Basel II but to identify the key elements that contributed to the introduction of Basel III during the financial crisis 2007-2009.

The Basel II rules are sensitive to high risk, and more risk premiums are useful in calculating the minimum capital requirements. The new operational risk component of the accord helps to close the gap because of the failure of internal control system, processes and staff corruptions. This further complements the supervisory analysis module and the market disclosure requirements of the Basel II accord. In general, the Basel II rules 'was kept flexible, innovative and adaptable to changing banking structures, operations and products,'²⁸ because the Basel Committee accorded banks with two basic approaches for calculating their capital requirements for credit risk. The approaches include a Standardized Approach. This method is useful in measuring credit risk with the assistance of external credit assessments, and the Internal Rating-based (IRB) approach, and this are subject to the approval of the bank's supervisors.²⁹ The IRB contains risk components such as exposure at default, effective maturity, probability of default, and loss given default.³⁰ The IRB approach is risk sensitive because banks can only estimate the creditworthiness of the borrower within their credit portfolio or business. Basel II is a function of Tier 1, and Tier 2, a supplementary Tier 3 capital to assert short-term debt, to meet suitably the capital requirements of the market risk as part of the regulatory capital. Basel II also created the study of securitization and this was lacking in Basel I.

proposal was internationally discussed later on. The third consultative paper on Basel II was introduced in April 2003 and stated the final modification for the proposed capital adequacy framework.

²⁶ *ibid* (n 22). Pillar I of Basel II concerns three types of risks (1) market risk, (2) credit risk, and (3) operational risk. Pillar II creates the supervisory review process and Pillar III includes market discipline. The capital requirements remained not less than 8 percent under the Basel II.

²⁷ George Walker 'International Banking' (Study Material, Queen Mary University of London, 2010).

²⁸ *ibid* (n 6), at 74.

²⁹ Stephen Valdez & Philip Molyneux 'An Introduction to Global Financial Markets' (Palgrave Macmillan, 2010), p. 40

³⁰ See Basel Committee on Banking Supervision 'International Convergence of Capital Measurement and Capital Standards. A Revised Framework' (2004) BIS <<http://www.bis.org/publ/bcbs107.pdf>> accessed 28 October 2013.

or a central bank or non-OECD entity) and the category of on/off balance sheets (for example cash, claims on central banks, claims on domestic public-sector entities).

²¹ Andrew McKnight 'The Law of International Finance' (Oxford University Press, Oxford, 2008), p. 63.

²² George Walker 'International Banking Regulation – Law, Policy and Practice' (Kluwer Law, 2001).

²³ Phillip Wood 'Law and Practice of International Finance' (Thomas Reuters (Legal) Limited, London, 2008), p. 409.

²⁴ *ibid* (n 6).

²⁵ In January 2000 the Basel Committee stressed the importance of an internal-rating based approach to the regulatory capital and a detailed guidance on disclosure proposal. In January 2001 the second consultative paper was prepared with new capital adequacy regime and the

Appendix C shows the difference between Basel I and Basel II as it applies to the minimum capital requirements. The arbitrary distinction between Basel I and Basel II is that the risk weight credit under the former depended on the category of counterparty, whereas the latter depended on credit quality.³¹

Evidently Basel II failed to prevent the financial crisis of 2007-2009 and its rules were under attack, especially for its complexity and for not covering the emerging markets in its scope.³² The structure of Basel II is weak because 'it remained ineffective in devising binding international standards in the regulations of financial markets and banks.'³³ On a positive note Basel II worked extraordinarily well advancing general agreement on the application of minimum standards in the regulation, and supervision of the financial markets. Though the standards were in place, it was not sufficiently harmonized across the boards suggesting that it lacked enforcement. These lapses or gaps in implementing Basel II, and insight in the adoption of supervisory guidelines contributed to the outbreak of the financial crisis 2007-2009. The financial crisis of 2007-2009 was a litmus test for Basel II, and the Basel Committee including banking regulators concluded that it was weaker than believed because it could not contain the crisis. Another factor that has hampered the effectiveness of Basel II is pro-cyclicality, which is one of the factors that exacerbated the financial crisis 2007-2009. Furthermore, the gaps and lapses of Basel II made it a short rule during the financial crisis because of the vigorous national credit risk suffered by the banks, which created pro-cyclicality, including the need to fix the quality and quantity of capital requirements.³⁴

Since Basel II could not contain the financial crisis 2007-2009 the Basel Committee including policy makers engaged in the modifying, and configuring both regulatory and supervisory structures of the financial market. This will guarantee across the board adoption, and enforcement, transparency and accountability by upgrading from

Basel II to Basel III. This paper will be incomplete without discussing the financial crisis 2007-2009 that led to the introduction of Basel III.

4. Financial Crisis 2007-2009

The financial crisis 2007-2009 cannot be forgotten in a hurry because of the harshness and relative size of the crisis including factors and events, which created aggregates of effects that contributed to the most devastating global financial crisis till date.³⁵ 'The crisis generally is considered to have begun in 2007, reached a critical point in 2008, and continues in 2009.'³⁶ The successive factors and events which created the aggregates of adverse effects as stated by the Basel Committee³⁷ is as a result of the excessive building up of on, and off balance sheet leverage in the financial markets. On a broad scope, this resulted in the reduction of the quantity and quality of capital. For this purpose of this paper, it is necessary to understand the financial crisis of 2007-2009 in order to avert another crisis in the future, or rather a prolonged memorable event. The relative debate of the financial crisis 2007-2009 will last for some time, with mixed reactions regarding the various causes.³⁸

The causes of the current economic crisis can be linked to both common factors that affected the last crisis and unknown factors that contributed to the recent crisis. The distinction between past crisis and the current crisis include the opaqueness of the financial markets and the severity of lack of financial information. Other distinctions include 'the greater financial complexity, and more interconnection among asset classes and part of the financial system, including increased international financial integration, and heightened importance of global financial players.'³⁹ This made financial institutions resort to increased leverage. This led to using short term funding sources, which created liquidity issues that relate to the evolution of the financial crisis. To have a better understanding of the contributing factors of

³¹ Irina Molostova 'Introduction to the Internal Rating Based Approach under Basel II' (2008) *Journal of International Banking and Financial Law*, 23. According to the author 'Risk weighting of credit exposures under Basel I depended on the category of counterparty, rather than its credit quality. Thus sovereign bonds were 0 percent risk weighted while all corporate loans were 100 percent risk weighted. This created arbitrage opportunities for maximizing return on capital by disposing of more expensive exposures to highly rated corporates and acquiring cheaper exposures to lower-rated sovereign.'

³² John Hawke, US Comptroller of Currency, 27th February, 2003. He stated that 'in my view the complexity generated in Basel II goes beyond what is reasonably needed to implement sensible capital regulation.'

³³ *Ibid* (n 6), at 74.

³⁴ Marianne Ojo 'Basel III and Responding to the Recent Financial Crisis: Progress Made by the Basel Committee in Relation to the Need for Increased Bank Capital and Increased Quality of Loss Absorbing Capital' (2010) SSRN <<http://ssrn.com/abstract=1680886>> accessed 28 October 2013.

³⁵ Marianne Ojo 'Preparing for Basel IV (Whilst Commending Basel III): Why Liquidity Risks Still Present a Challenge to Regulators in Prudential Supervision (Part II)' (2011) SSRN <<http://ssrn.com/abstract=1732304>> accessed 28 October 2013.

³⁶ Task Force on the Causes of the Financial Crisis 'The Financial Crisis of 2007-2009: Causes and Contributing Circumstances' (2009) SSRN <<http://ssrn.com/abstract=1647082>> accessed 28 October, 2013.

³⁷ Basel Committee on Banking Supervision 'Basel III: A Global Regulatory Framework for More Resilient Banks and Banking System' (2010) BIS <<http://www.bis.org/publ/bcbs189.pdf>> accessed 28 October, 2013.

³⁸ Charles W. Calomiris 'Subprime Turmoil: What is Old, What's New, What's Next,' paper presented at the Federal Reserve Bank Kansas City's Symposium 'Maintaining Stability in a Changing Financial System' (2008).

³⁹ Stijn Claessens 'The Financial Crisis and Financial Nationalism' (2009) CEPR <<http://www.cepr.org/meets/itm/2407/Claessens.pdf>> accessed 28 October 2013, p. 3.

the financial crisis 2007-2009, it will be worthy to describe the root-cause and other causes of the crisis, the legal implications of the crisis, and the development of the financial crisis and spillovers.

4.1. The Root-Cause of the Financial Crisis

To find the answer to any problem, it is best to resolve the root-cause, and this will also lead to other contributing factors to the original problem. The root-cause of the financial crisis 2007-2009 can be linked to mispricing in the giant credit default swaps, which was unregulated because the transactions were mostly over the phone.⁴⁰ This fundamental difference led to other causes of the financial crisis. 'Credit default swaps were actually fairly simple instruments in concept, merely mandating that one party paying a periodic fee to another to insure the debts of some entity (such as a specified corporation) against default for a particular amount of time like 5 years.'⁴¹ In essence, credit default swaps are debt security policies imposed on insurance contracts that escape regulation. This contributed to the astronomical growth of the unregulated market from \$900 billion in 2000, to over \$50 trillion in 2008 following the enactment of the state gaming laws by Congress in 2000.⁴²

One of the lapses of the credit default swaps or bond insurance contract is that it did take into account the systematic risk premium and default risk premium. The credit swaps only took into consideration the credit risk because there is no initial investment in debt by the insuring party. There are proper ways of calculating risk premiums⁴³ but many practitioners find it more comfortable, and convenient to use abstract mathematical models to estimate, and evaluate credit risk premiums. The importance of regular mathematical theories in estimating and evaluating credit risk does not take into account

human judgment, which relies on sensitive information despite that it helps in building historical data extremely well. These mathematical theories affect the investment decisions of the banking industry, and analysts consider them as the 'worse and useless'⁴⁴ particularly because the results have been devastating for financial institutions that adopt this approach. For example, AIG, which was a significant insurer for debts through credit default swaps, placed 'blind faith in financial risk models'⁴⁵ and this contributed to a large proportion of losses despite the event the company generated substantial profits in the earlier years preceding its collapse. Investors that invested in debt securities also relied on the credit ratings of rating agencies, such as Standard & Poors (S&P), and Moody's, and the mathematical models they use to determine, and evaluate confidence. Mathematical models do not take into account other items and possible factors. They use statistics to determine past relationship between debt defaults, and other variables. In essence, pure statistical approach does not factor in all possible factors relevant for a decent credit score, and any attempt to factor in more relevant variable may increase the likelihood of other modeling errors.

The mathematical risk model for most financial institutions has 'a tendency to underestimate the possibility of sudden large events,'⁴⁶ that are relevant for the financial markets. The tail of distribution is ideal for forecasting the defaults that have little resulting abilities of reoccurrence. The mathematical model does not take into account inter-related systemic risks⁴⁷ and they tend to make assumptions of market equilibrium, which is unrealistic. Financial institutions resort to statistical models that forecasted the future because of its accuracy in forecasting the past. This made financial institutions ignore the reality of the world, which links to human judgment.

Human judgment can blend so many variables, which is just an approximation of using generated and subconsciously effective algorithms.⁴⁸ This will help in reducing the tendencies of errors created by mathematical theories on the basis of unrealistic assumptions, 'that take into consideration only a subset of all the relevant variables, and that may be affected by recent spurious relationships which may not apply in future environments.'⁴⁹ Some

⁴⁰ Austin Murphy 'An Analysis of the Financial Crisis 2008: Causes and Solutions' (2008) SSRN <<http://ssrn.com/abstract=1295344>> accessed 28 October 2013. According to the author 'The pricing of credit default swaps, whose principal amount has been estimated to be \$55 trillion by the Securities and Exchange Commission (SEC) and may actually exceed \$60 trillion (or over 4 times the publicly traded corporate and mortgage U. S. debt they are supposed to insure). See also Ellen Simon 'Meltdown 101: What are Credit Default Swaps?' USA TODAY <http://usatoday30.usatoday.com/money/economy/2008-10-21-2778456512_x.htm> accessed 28 October 2013.

⁴¹ Austin Murphy 'An Analysis of the Financial Crisis 2008: Causes and Solutions' (2008) SSRN <<http://ssrn.com/abstract=1295344>> accessed 28 October 2013, p. 3.

⁴² PIA Connection 'Congress Exempted Credit Default Swaps from State Gaming Laws in 2000' (2008) PIA <<http://www.pianet.com/news/insurance-news/2008/congress-exempted-credit-default-swaps-from-state-gaming-laws-in-2000>> accessed 28 October 2013.

⁴³ Joe Callaghan and Austin Murphy 'An Empirical Test of a Stochastic Cash Flow Theory of Evaluating Credit' (1998) *Advances in Financial Planning and Forecasting* 8, 31-51.

⁴⁴ *ibid* (n 41), at 4.

⁴⁵ Gretchen Morgenson 'Behind Insurer's Crisis, Blind Eye to a Web of Risk' (September 27, 2008) NY TIMES <http://www.nytimes.com/2008/09/28/business/28melt.html?pagewanted=all&_r=0> accessed 28 October 2013 para. 11.

⁴⁶ Mark Buchanan 'Crazy Money' (July 19, 2008) NEW SCIENTIST <<http://www.newscientist.com/article/mg19926680.100-crazy-money.html>> accessed 28 October 2013.

⁴⁷ *ibid* (n 41).

⁴⁸ Gerd Gigerenzer 'Gut Feelings: The Intelligence of Unconscious' (Viking, New York, 2007).

⁴⁹ For example, soft information about borrower's capacity to repay that is difficult to communicate in mathematical model to the final investors of securitized loans is subject to

commentators have also stressed the fact that human judgment is subject to manipulation and biases, but obviously with or without human judgment, financial models of credit risk will still be subject to manipulation either fraudulently or legally. In retrospect, human judgment is more effective in detecting, and avoiding biases in a standard controlled financial institution than mathematical theories that are subject to manipulation.

4.2 Other Causes and Contributing Factors of the Financial Crisis

The causes of the financial crisis 2007-2009 vary. To a large extent, there is no one reason to be blamed. Rather, the crisis was a buildup of contributing factors and interrelated causes that evolved in complex ways and linked to the financial history before the crisis.⁵⁰ The causes of the financial crisis include root causes as well as aggravating circumstances or factors that led to the crisis.

The mispricing of credit default swaps largely influenced the current mortgage crisis. The subprime mortgage crisis that triggered the financial crisis was not enormous thereby resulting in house prices rising.⁵¹ As house prices stopped escalating, the mortgages obtained by investors experienced losses, because of securitization.⁵² The lack of emotional judgment and the substantiation of the model inputs also contributed to the mortgage crisis. Mortgage brokers were more motivated by commissions they earn from the loan origination that they offer investors, or owners who used collateralized debt obligations or CDOs.⁵³ Investors accepted the mortgage backed securities because of its protection

manipulation by lenders seeking origination income. The modeling predictions at the credit rating agencies themselves (such as S&P and Moody's) have, at least recently, been biased toward granting higher ratings than merited in order to compete for revenues from the debtors who pay to be rated, and the result has been a colossal failure. See Uday Rajan, Amit Seru & Vikrant Vig 'The Failure of Models that Predict Failure: Distance, Incentives and Defaults' (2010) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1296982> accessed 28 October 2013. Treasury Secretary Timothy Geithner stated, 'No crisis like this has a simple or single cause,' Wall Street Journal, March 23, 2009. Geithner added, to sum up the situation, 'but as nation we borrowed too much and let our financial system take on irresponsible levels of risk.'

⁵⁰ Treasury Secretary Timothy Geithner stated, 'No crisis like this has a simple or single cause,' Wall Street Journal, March 23, 2009. Geithner added, to sum up the situation, 'but as nation we borrowed too much and let our financial system take on irresponsible levels of risk.'

⁵¹ *ibid* (n 9). This crisis was connected to the subprime mortgages, a relatively new kind of mortgage that was designed to make home ownership available to lower-income people, but which depended on house prices rising for its efficacy. See Gary Gorton 'Slapped by the Invisible Hand: The Panic of 2007' (Oxford University Press, 2010).

⁵² Securitization means the pools of mortgages had been sold into the capital markets through bond linked to the pools.

⁵³ *ibid* (n 46).

against losses from the default by insurers like AIG through credit default swaps despite its uncertainties.⁵⁴ Since investors did not undertake any type of risk, most mortgages were subject without proof of income or with no deposit.⁵⁵

Other factors contributed to the financial crisis, including regulatory gaps, and lapses in supervisory oversight, a global credit gap, and low interest rates⁵⁶ and the interconnectivity and complexity of financial institutions. Others include excessive leveraging by consumers⁵⁷ and financial institutions,⁵⁸ market-to-market accounting rules that misconstrued the balance sheet of banks in a pro-cyclical way, and substandard risk management, and corporate governance within financial institutions. Other underlying causes were running related, and they include government forces, and social and economic policies that contributed to the unforeseen factors that created the financial crisis.⁵⁹

The factors that led to the financial crisis embody a series of events of direct causes, and occurrences. The main causes and occurrences of the financial crisis include too many loans with blemished credit standards,⁶⁰ subprime and innovative mortgages,⁶¹ unregulated mortgage originators,⁶² securitization of mortgages,⁶³

⁵⁴ *ibid* (n 45).

⁵⁵ *ibid* (n 46).

⁵⁶ Investors, home buyers and home owners were encouraged with low interest rates to refinance and borrow against their properties and this resulted in excess credit flows into the U.S. economy and developing countries including oil exporting nations with excess savings. The Monetary Policy introduced by the Federal Reserve could not counterbalance the effect of excess credit.

⁵⁷ Consumer protection laws made consumers comfortable with consumer loans while government programs made consumer credit cheap, affordable, and accessible, encouraging increased levels of consumer debt and spending.

⁵⁸ Investment banks were among the largest purchasers of mortgage-backed securities and the most leveraged. The largest firms Lehman Brothers and Bear Stearns leveraged their capital 30 to 1 or more.

⁵⁹ *ibid* (n 36).

⁶⁰ The most central cause of the financial crisis was the approval of too many mortgages that with imperfect unrealistic assumptions and credit underwriting about the taking into account the rising home prices and repayment.

⁶¹ Many mortgages were approved with subprime credit or without appropriate credit analysis or proper documentation to support the loan. During the 2000-2007, subprime mortgages grew by 800 percent and, by the end of this period, 80 percent of these mortgages were being securitized. See Garry B. Gorton 'The Subprime Panic' (2008) National Bureau of Economic Research Working Paper No. 14398.

⁶² Many of the mortgage firms that originated these loans operated free of Federal Reserve oversight and engaged in practices not generally permitted for federally regulated lenders.

⁶³ The securitization process transferred most of the risk of mortgage lending from loan originators to investors who bought securities backed by the loans.

government policies encouraging borrowing,⁶⁴ mortgage fraud and abuse,⁶⁵ and the need for mortgage-backed securities.⁶⁶ Other likely causes and occurrences include imperfect credit ratings,⁶⁷ complex financial products,⁶⁸ moral hazard, and uncertainty and anxiety,⁶⁹ amongst others. The financial crisis had time factors as well as the unforeseen factors that did not contribute to the crisis.

4.3. Causal Factors that did not contribute to the Crisis

Evidently the bank regulatory framework did not contribute to the financial crisis. 'As noted, above, there were weaknesses in the prudential oversight of the banking organization that, along with other factors, undoubtedly contributed to the severity of the crisis.'⁷⁰ The absence of systemic administration enclosing all sectors of the financial markets obstructed the regulator's ability to prepare beforehand and respond to the financial crisis effectively. In essence, it will be safe to report that the weakness of the bank regulatory framework did not cause the financial crisis.

Taking a closer look, the bank regulators did not anticipate all the unforeseen factors that contributed to the crisis, but instead they took measures to respond to the causes that they could call. For example, regulators in the U.S. introduced the promulgation of real estate lending standards, which was not authoritative and efficient as the regulators anticipated or timely enough.⁷¹ In essence, the underlying factors that contributed to the financial crisis include banking policies the supervisors had no control over. In the same vain, banking supervisors did not have control over global economic forces at work or competitive factors in the financial markets.

⁶⁴ Government policies were designed to encourage borrowers to take out mortgages to subsidize the availability of mortgage credit and to expand home ownership.

⁶⁵ Mortgage fraud occurred by borrowers who falsified credit qualifications and mortgage brokers who engaged in fraudulent and predatory lending practices in violation of consumer protection laws.

⁶⁶ Mortgage-backed securities were in demand by investors because they carried a yield higher than what was obtainable on Treasury Bills in the low interest rate environment and they were considered safe.

⁶⁷ The credit rating agencies relied largely on mathematical risk models and assumptions that later proved inaccurate, and did not take liquidity risk into account.

⁶⁸ The government's rescue and subsequent takeover of Freddie Mac and Fannie Mae created uncertainty and further moral hazard.

⁶⁹ Uncertainty and panic in the financial markets was extensive and buried counterparties of large financial institutions with substantial exposures to mortgage-related assets.

⁷⁰ *ibid* (n 36), at 34.

⁷¹ The Federal Deposit Insurance Corporation Improvement Act of 1991(12 U.S.C § 1831p; see also, 12 U.S.C. § 1828(o)) required the banking regulators to adopt rules for bank real estate lending but regulators adopted standards instead. The standards did not apply to mortgages originated for sale. See for example, 12 CFR, Part 34, App. A (OCC).

The duty of the Federal Reserve is to control monetary policy, and it is not the responsibility of the bank to govern the financial markets.

Another factor that did not cause the financial crisis is regulatory arbitrage. 'Arbitrage from one banking regulator to the other did not cause the crisis.'⁷² For example, regulatory arbitrage would have been possible when Countrywide converted from a national bank to a savings association. Countrywide's principal business model functions as an aggressive funding of mortgages with credit lines and short-term commercial paper, which later became systematically harmful before it converted to a savings association rules in March 2007.⁷³ The collapse of Countrywide started in August, 2007. The task force responsible for Countrywide's investigation found that the banking institution was still a national bank in the beginning of 2004. During this time, the idea engaged in diversifying its financial products into more risky models, and became deeply buried in the subprime lending.⁷⁴ It was clear that arbitrage did not cause the collapse of Countrywide. Recent years have witnessed the change from state bank to national banks by many banks.⁷⁵

Money market mutual funds also did not cause the financial crisis. Money market funds remained strong during the financial crisis, and provided a means of introducing liquidity to the commercial paper market. The financial crisis subverts provisionally the money market funds, and this necessitated the need for liquidity from the government to raise funds. In addition, insurance activities did not cause the financial crisis even though insurance companies such as AIG participated in credit default swaps without charge and adequate capital. The credit default swaps and not the insurance increased the severity of the financial crisis.

⁷² *ibid* (n 36), at 35.

⁷³ See OCC Conditional Approval No. 900 (April 23, 2009), p. 4 (describing Countrywide's charter history); Office of Thrift Supervision, Order 2007-08 dated March 5, 2007, approving Countrywide's conversion from a national bank to savings associations.

⁷⁴ *ibid*. Countrywide's adjustable rate mortgages, which had accounted for 21 percent of the company's loan production in 2003, accounted for 52 percent of loans made in 2004. Origination of the subprime loans increased from 4.6 percent in 2003 to 11 percent in 2004. The subprime loans were much more profitable to the company, with profit margins on subprime loans of 3.64 percent versus 0.9 percent for prime loans in 2004. The introduction of these new products, along with relaxed lending standards, enabled Countrywide to become the nation's largest mortgage lender by the end of 2004, originating 12.7 percent of all mortgage loans; by 2006 its market share had increased to 16 percent.

⁷⁵ For example, in 2006 Citigroup converted \$174 billion in assets from two its thrift subsidiaries into its national bank.

4.4 How the Financial Crisis Could Have Been Averted

It will be difficult to discover whether the response by the government could have averted the financial crisis. The outcome of the financial crisis would have been different if government responded to the crisis on time with greater regulatory and legal protections, such as stricter credit underwriting standards, regulation of mortgage markets, greater transparency and investor power, and extensive systemic administration.⁷⁶

More effective enforcement and monitoring of the mortgage credit underwriting standards may have prevented the financial crisis right at its source. This would have prevented mortgage originators and banks from making so many loans based on insufficient documentation or overly optimistic repayment assumptions. In essence, this would also protect against borrowers that could not realistically meet their repayment obligations. This would have reduced the housing bubble during the financial crisis.

The financial crisis may not have occurred if the regulation of the mortgage markets were under the ambit of a coordinated national strategy that supervise, and watch all mortgage markets.⁷⁷ The coordinated national system would have enforced stricter credit underwriting standards on mortgage originators and buyers. This strategy will also help in regulating mortgage banking sales practices uniformly, and this would also help in disclosing and identifying the risks related to securitization of mortgage loans. 'A national mortgage regulatory scheme also could have mitigated subprime lending, and other forms of irregular lending not suitable for certain borrowers.'⁷⁸

The immense transparency in the location, and the nature of risks associated with mortgage-backed securities including related financial products may have led to more constrained investor demand for subprime mortgage, and better risk assessment. This will also help enhance investor rule, and this would have prevented the realization of the financial markets and the collapse of financial institutions. Sound management of federal credit agencies would have led to improved credit score that required a more severely accurate information and analysis of the basis of ratings designated to mortgage-backed securities, and other complex securities. This will also help boost investor rule. This discipline would have also extended to banks by preventing them from purchasing risky securities for themselves and their customers, and encouraging them to engage in a thorough credit analysis.

A comprehensive systemic management system enclosing the financial system would have helped in

providing more appropriate responsive measures and adequate warnings of the financial crisis. 'No single government entity had the ability to obtain appropriate information from the full range of financial services firms and to analyze it on a consolidated, systemic basis.'⁷⁹ A comprehensive systemic supervision system will help the regulator in taking appropriate responsive measures and better predict the crisis. This would have provided an early warning signal leading to the buildup of the severe systemic risks that led to the financial crisis.

4.5. Measures Taken During the Financial Crisis

Government interventions in response to the financial crisis include emergency measures such as government bail-outs, central bank financing, and macroeconomic measures.⁸⁰ Government bail-outs, mainly of banks includes taking over of troubled banks by stronger banks,⁸¹ capitalization of banks,⁸² outright nationalization,⁸³ funding guarantees,⁸⁴ asset insurance,⁸⁵ establishment of asset purchase companies,⁸⁶ and deposit guarantees.⁸⁷ The bail-out measures introduced by government came with a cost to taxpayers, the competing policies of preventing moral hazard, and legal problems relating to shareholder rights.

The central bank provided funding to the bank and other financial institutions, usually supported by collateral. Banks offered facilities for longer term, and this created a broader difference between security, and the type of banks eligible for such facility.

The micro-economic measures taken include the reduction of short-term interest rates by the central

⁷⁹ *ibid.* For example, the Federal Reserve, which considers systemic oversight part of its responsibility, failed to anticipate the scale of the housing bubble or the looming consequences for the global financial system.

⁸⁰ Phillip R. Wood 'Legal Impact of the Financial Crisis: A Brief List' (2009) *Capital Markets Law Journal* 4(4), 436-450.

⁸¹ Government grants official authorization, official encouragement and arm-twisting. They also provide government finance, competition law obstacles, and waiver of state aid to facilitate the takeover of troubled banks.

⁸² Government subscription is used to capitalize banks by converting subordinated debt or equity, or preference shares.

⁸³ Government acquires the share of the bank, either under existing legislation or under new emergency legislation.

⁸⁴ Government guarantees issues of debt securities by banks. Often the bond issues would be up to three years and would be zero-rated under Basel II for banks who invested in them.

⁸⁵ Government agrees to insure classes of loan assets to be of doubtful recoverability. In this case, the government typically charged a fee and imposed management controls. The bank typically had to bear some portion of the losses.

⁸⁶ The banks transfer distressed loans to the asset purchase companies established by government. The transfers may be paid for by the issue of government securities to the selling bank which improves the bank's liquidity.

⁸⁷ In this case, government guarantees that banks would pay depositors.

⁷⁶ *ibid* (n 36).

⁷⁷ *ibid.*

⁷⁸ *ibid* (n 36), at 38.

bank,⁸⁸ quantitative easing by increasing the supply or amount of money,⁸⁹ foreign exchange intervention,⁹⁰ fiscal stimuli,⁹¹ and central bank currency swaps.⁹²

4.6. Evolution of the Financial Crisis and Spillovers

Underlying casual factors, and conditions that intensified the crisis underpin the financial crisis from history. The factors that intensified the crisis are the mortgage markets and overextending homes in the US. The source of the crisis is the US subprime mortgages, which extended into the US housing market and spilled over into the US financial markets, such as the asset-backed securities. The phase of the spillover on the global scale commenced with an astonishing amount of speed. The first phase of the spillover witnessed the banks with direct exposure to the US financial markets including other selected commercial markets subvert, in terms of liquidity runs. The second phase of the spillover witnessed the international transfer of spillovers through the stock market declines, freezing of credit markets⁹³ and liquidity shortages, and this affected other financial markets such as the Swiss Franc, UK Sterling, and Euro.⁹⁴ The third phase of the spillover started in October 2008. This witnessed solvency problems affecting leading global financial institutions that were systematically moving. This resulted into the risk of a financial meltdown that led to massive selloffs. The fourth phase of the spillover resulted in economic slowdowns around the globe, intensified in part by financial downsizing.

The evolution of the financial crisis relates to the growth of banks in the financial markets and the development of the mortgage markets. The history of the financial crisis shows the evolution of banks in response to technological innovations and

competitive influences. These influences contributed to the complexity and interconnectedness of banks, which made them run on complex financial products and also serving traditional banking customers at the same time. The growth of banks was a natural result of the response of commercial banks to the competitive challenges from insurance companies and securities firms to feed into an established customer base of the banking industry, thereby competing for market share. For example, in the 1970's securities firms were offering attractive alternatives to business loans and deposits.⁹⁵ The insurance services extended their service offering into financial products⁹⁶ and these evolutions made banks offer similar competitive financial products, with the permission of banking regulators.⁹⁷ This made banks maintain their regular customers, and their fair share in the banking industry. The financial crisis 2007-2009 proved that regulators and banks were too optimistic about their ability to pull off the shift from traditional banking activities to complex financial institutions, operating in non-regulated markets. The crisis came about at the evolution of the banking system in partnership with the evolution of the mortgage markets contracted by affordable and secure home financing through innovative and complex financial product. The evolution incites the goal of government home ownership policies with the purpose of expanding the home financing company and making it possible for more Americans to own homes.

The causal factors of the financial crisis are interrelated with housing finance, which puts into perspective the rise of the mortgage markets to understand the main causes of the financial crisis. The evolution of the mortgage market witnessed changes such as the replacement of the traditional "originate-to-hold" model with the "originate-to-distribute" design and the securitization of mortgages.⁹⁸ The originate-to-distribute model depended on and led to the securitization of loans. Securitization accorded

⁸⁸ Interest rates in some countries reduced to zero or near zero and sometime have in effect been negative.

⁸⁹ This is equivalent to printing of money. Technically, the central bank can increase the supply of money by telling the banks that the central bank owes them a few billion, just like that, but normally the main method followed is for the central bank to buy securities and pay for them by crediting the seller with the purchase price created out of nothing.

⁹⁰ The central bank buys its own currency with its reserves of foreign currency in order to maintain the value of the national currency.

⁹¹ These programs involves guarantees of funding businesses, tax reductions, subsidies, loans to businesses, increases in government expenditure, and improvement of unemployment protection.

⁹² Central banks swaps their currency for other national currencies so that other central banks would have more reserves in desired foreign currencies in order to prop up their banks.

⁹³ During this time, the financial markets were so panicked that the credit system froze, disrupting the flow of funds into the economy. Banks refused to lend to each other in the overnight federal funds markets and began cancelling or limiting previous approved credit lines to customers.

⁹⁴ *ibid* (n 39).

⁹⁵ Securities brokers offered money market funds and securities brokerage accounts with checking account features paying market rates in return whereas banks were prohibited from paying any interest on checking accounts or selling securities. The securities industry developed a secondary private placement market for commercial paper which allowed companies to raise operating funds directly into the capital markets more easily and cheaply than through bank loans.

⁹⁶ Insurance companies offered fixed and variable annuities that became competitive with bank certificates of deposit as a means of savings.

⁹⁷ Banking regulators permitted banks to expand into broader insurance and securities markets with wider geographic reach, sometimes relying on new legal theories.

⁹⁸ *ibid* (n 36). The originate-to-hold model relied on the holding of 30-year, fixed-rate mortgages primarily by savings and loans associations which funded these long-term assets with short-term liabilities – a formula that ended the disaster with the collapse of the thrift industry in the late 1980's. The originate-to-distribute model avoided this problem primarily by separating mortgage origination from mortgage risk and by offering mortgage products with flexible maturities and other terms.

banks the ability to attract other assets including loans off their balance sheets to trusts, and other vehicles that issued securities or unit trusts to investors. 'Securitization essentially transferred the risk of mortgage lending from banks to investors.'⁹⁹ Securitization also became revenue generating strategy for banks, and other financial institutions that participated in lending activities. Non-bank mortgage companies also participated in securitization by earning loan origination fees without taking into account the possibility of the mortgages created, which apparently transfers to the purchasers of the mortgages. The originate-to-distribute version introduced new mortgage products such as home equity loans, adjustable rate mortgages, and payment option including other mortgages with flexible terms. The design of these new products reduces the risk in mortgage lending while making it cheap and accessible.

The future of the banking system aligns with the future of mortgage markets with uncertainties ahead. For example, banks are becoming more complex and interconnected, and mortgage companies will continue to provide mortgages to creditworthy homebuyers. The only part of the evolution of the mortgage market that will change is the lack of a prevailing structure for the supervision of non-bank mortgage products, providers and activities. The mortgage markets have evolved without government supervision, and federal regulatory oversight. This is likely to change in the future. The evolution of the banking system and the mortgage markets did justify the need for regulators to establish the Basel III Accord, following the financial crisis 2007-2009.

5. Basel III

The continuing evolution of the banking industry has necessitated the introduction of more regulatory frameworks, after Basel I and Base II. In particular, the 2007-2009 financial crisis, witnessed the introduction of Basel III to help prevent more financial stress in the future by revising many banking standards, after the failure of Lehman Brothers. The failure of Lehman Brothers prompted the variety of different group of experts to investigate and identify the causes of the crisis and the possible solution to manage the crisis by tightening the markets. It was now clear that the financial crisis of 2007-2009 exposed the shortcomings of Basel I and Basel II frameworks.

The introduction of Basel III was in the last words issued by the Basel Committee on Banking Supervision (BCBS) on December 16, 2010, which represents the International Regulatory Framework for Banks. This final text contains global regulatory standards on bank liquidity and capital adequacy. The Basel III framework increases the quantity and

quality of capital standards with improved measures to promote the accumulation of capital that is accessible in times of stress. The process also introduces two liquidity standards, better risk coverage, and leverage ratios as a block to the risk-based requirements. The objective of Basel III is to increase the risk coverage of banks' capital for securitization, derivate-related counterparty credit risk exposure, trading books, and off-balance sheet vehicles. The adoption of the Basel III framework was successful at the November 2010 G-20 Summit in Seoul, South Korea by the G-20 leaders.¹⁰⁰

The contents of Basel III includes increasing the quality and quantity of capital,¹⁰¹ an added capital conversation buffer,¹⁰² countercyclical capital buffer,¹⁰³ additional loss-absorbing capacity for systemically prominent banks,¹⁰⁴ global liquidity standards,¹⁰⁵ risk-weighted assets,¹⁰⁶ and containing leverage.¹⁰⁷

¹⁰⁰ Oshani Perera "Basel III: To What Extent will it Promote Sustainable Development?" (2012) The International Institute for Sustainable Development (IISD) <<http://www.iisd.org/pdf/2012/basel3.pdf>> accessed 28 October 2013.

¹⁰¹ The Tier I capital requirements, which include common equity and a range of other, more strictly defined instruments have been increased from 4% to 6%. Also the minimum requirement for common equity, the higher form of absorbing capital was increased from 2% to 4.5% after the applications of regulatory adjustments.

¹⁰² Basel III introduces an additional capital conversation buffer of 2.5% that is to be financed through common equity. When this buffer falls below 2.5% in times of stress, banks are curtailed in their ability to pay dividends to shareholders and discretionary bonuses to employees until the buffer is restored.

¹⁰³ The Basel III introduces rules for the disbursement and establishment of countercyclical buffer ranging between 0 and 2.5%, financed through other risk-absorbing capital or common equity, according to national circumstances. See Bank of International Settlements 'Basel III: International Framework for Liquidity: Frequently Asked Questions' (2011) BIS <<http://www.bis.org/publ/bcbs199.pdf>> accessed 28 October 2013.

¹⁰⁴ The BCBS introduced a methodology for globally assessing systematically important banks, the additional required capital and the arrangements by which they will phased. The assessment methodology us based on an indicator-based approach designed to increase the resilience of globally systemically important banks and create incentives for them to reduce their systemic importance over time. See Bank of International Settlements 'Measures of Globally Important Banks Agreed by the Group of Governors and Heads of Supervision' (2011) BIS <<http://www.bis.org/press/p110625.htm>> accessed 28 October 2013.

¹⁰⁵ The Basel III makes for a global liquidity coverage ratio that will require banks to have sufficiently high-quality assets to withstand a 30-day stressed funding scenario. That ratio is to be implemented in 2015. The Basel III also makes provision for a net stable funding ratio – a longer-term structural ratio designed to address liquidity mismatches. The purpose of this standard is to complement the global liquidity coverage ratio by covering the entire balance sheet and providing an incentive for banks to use longer-term sources of funding.

¹⁰⁶ Basel III contains measures go increase the capital requirements by adjusting the risk weight of re-securitization exposures in relation to securitization exposures, by

⁹⁹ *ibid* (n 36), at 7.

The scholars and commentators meet the new Basel III rules with different concerns and reactions, especially about the cost of implementing the rules by the entire banking industry. The introduction of the new Basel III will bring significant 'changes across the global banking industry, and even change their core business models and financial system.'¹⁰⁸ The concerns for costs have received a wide undertaking even though they are still expressing concern on the time provided to implement the structural changes.¹⁰⁹ Scholars and commentators are also expressing concern on the effectiveness of the new standard in qualifying another financial crisis and preventing banks against failure. Commentators also agree that the Basel III represents complex technical and legal rules.

5.1. Effects of Basel III on Retail, Corporate and Investment Banking

The requirements for higher liquidity and capital standards of Basel III will affect both retail, corporate and investment banking.¹¹⁰ For example, retailing banking is usually under the impact of rules pertaining to the quality of the capital base. In essence, the new Basel III rules on capital requirements will affect many traditional retail banking products with an increase in financing costs. Furthermore, retail banks with lower capital ratios may find themselves under considerable pressure. The cost of short-term retail loans will increase because of the increase in concentration ratios with relatively high risk weights, long-term funding needs and higher liquidity. Retail banks may decide to move on the costs to customers, but for sure consumer finance segments, re-pricing may pose a challenge.

The increase in the capital plan ratios significantly affect corporate bank products with relatively high risk-weight, such as unsecured loans or structured finance. In essence, long-term asset based investment and long-term corporate loans will experience an increase in funding costs. These costs will affect corporate banks especially in business finance, and specialized lending because of the new capital standard ratio. In terms of business finance, which is ideal for lending between banks, Basel III increases the risk weights for banks by some 20

harmonizing some credit conversion factors for specific liquidity facilities.

¹⁰⁷ Basel III provides a non-risk based leverage ratio that includes off-balance sheet exposures to complement the risk based capital requirements. This requirement makes banks to limit their total assets to 33 times their equity capital. The objective is to contain the system-wide build-up of leverage that triggered the 2007-2009 financial crisis.

¹⁰⁸ *ibid* (n 100), at 1.

¹⁰⁹ Commentators are also expressing concern about the loopholes for regulatory arbitrage as a result of the paces of implementing Basel III across jurisdictions.

¹¹⁰ Anca Elena Nucu 'The Challenges of Basel III for Romanian Banking System' (2011) *Theoretical & Applied Economics*, 18(2), 59-70, pp. 63-64.

percent to 30 percent. Trade finance commitments come into conflict with the new leverage ratio. The new liquidity rules set reserves also off-balance sheet liquidity lines such as business guarantees and letters of credit.

The capital markets through investment banking supports the changes of new capital ratios under Basel III, but it affects over-the-counter OTC derivatives market because Basel III requires banks to maintain a higher level of capital to fund counterparty credit risk and market risk. Cash trading will decrease because of the increase in costs of holding inventories, particularly the matched funding requirements on lower-rated assets. The three amendments to the Basel capital structure (CRD II, CRD III and CRD IV) affect securitizations, and this would raise capital requirements by a factor of up to ten.¹¹¹

5.2. Implications of Basel III

It is not clear whether or not Basel III will help increase security across the global financial sector and contain systemic risk. The studies of the Macro Assessment Group of the International Banks of Settlements on the basis of models covering 17 industrialized countries provide this evidence. The results of their findings suggest that the average estimated increase in the lending growth will be 15 basis points by 2015, subject to one percent point increase in the target capital ratio for four years.¹¹² Another study by the Institute of International Finance with a focus on Japan, Europe, and the United States indicates a two percent advantage increase in the target capital ratio. This results in an increase of average lending spread by 132 basis points during 2011-2015.¹¹³ Both studies indicate an increase in both liquidity and capital standards. The

¹¹¹ Phillip Harle, Erik Luders, Theo Papanides, Sonja Pfetsch, Thomas Poppensieker, & Uwe Stegemann 'Basel III and European Banking: Its Impact, How Banks Might Respond, and the Challenges of Implementation' (2010) MCKINSEY <www.mckinsey.com/~/media/26_Basel_III_and_European_banking.pdf> accessed 28 October 2013. CRD II forces investors to ensure that before they buy a piece of new securitization they must ensure that the originator has complied with rule that requires banks to hold at least 5% of the securitization they create at all times. CRD III introduces market risk charges and increased charges for securitization. CRD IV replaces a risk weighting on securitizations with a lower ratings of 1,250 percent. In combination with the newly increased capital ratio, this translates to substantially higher capital requirements.

¹¹² Bank of International Settlements 'Group of Governors and Heads of Supervision Announces Higher Global Minimum Standards' (2010) BIS <<http://www.bis.org/press/p100912.pdf>> accessed 28 October 2013.

¹¹³ Institute of International Finance 'Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework' (2010) IIF <http://www.ebf-fbe.eu/uploads/10-Interim%20NCI_June2010_Web.pdf> accessed 28 October 2013.

Banking Committee must also meet the initiative to improve the implementation phase of capital ratios to 2019 indicating the uncertainties and complexities unpinning the implementation of Basel III.

The new capital requirements of Basel III come with a cost because equity is significantly more expensive than debt as a source of funding. The new capital requirement will require banks to repurchase or unwind financial instruments that the new Basel III rules makes unsuitable for the purposes of regulatory capital, issue different types of the medium and offer additional capital. This will increase borrowing costs because of the rising demand for equity capital, which should increase the proper use and expenses on assets in the short term.

The new liquidity requirements will reduce the chances of the earning yield of the banking sector because banks will have to keep low-yielding assets and thereby deprive less liquid, higher-yielding assets. On the other hand, if Basel III succeeds to make banking sector more resilient, it will help cut down risk premiums across the sector and reduce the need for public sector bailouts. Furthermore, reducing bulk and interbank funding costs and risk sensitive deposit insurance premium levels will help reduce leverage in banks.¹¹⁴ Basel III will also cause changes to how banks will continue, and identify risk because the bank's liability and asset base represents where danger can reduce. 'The augmented capitals requirements are also likely to develop more efficient use of all bank capital, which will inherently include changes in the management of risk.'¹¹⁵ In essence, the liquidity rules of Basel III will affect banks to adopt risk management practices. This will help improve the management and analysis of liquidity risks as well as, business, and credit risks. Adopting risk management practices will also affect banks to improve risk indicators that serve as an early warning signal for managing counterparty trust and bilateral exposures, assessing the risk of intraday liquidity, and trading in complex securities, which improve the management of risk across the banking sector.¹¹⁶ Commentators and scholars have different opinions on the implications of liquidity, and capital rules of Basel III. Majority agree that both rules are evolving as the financial markets evolve, and become more involved.

5.3. Evolution of Capital Requirements

Basel III and Basel II share similar methods of operation, in particular for assessing the relative risks of different types of assets. The major change between both frameworks is that Basel III focuses on the increase in the bank's equity capital requirements.

¹¹⁴ Peter Went 'Basel II Accord: Where do we go from here?' (2010) SSRN <<http://ssrn.com/abstract=1693622>> accessed 28 October 2013.

¹¹⁵ *ibid* (n 100), at 5.

¹¹⁶ *ibid* (n 114).

This confirms the development of capital requirements in the Basel accords, which have also contributed in the changing perceptions of policy makers in terms of the level of financial stability risks and how these risks can be assessed relative to one another. 'The emphasis is a reflection of the conclusion drawn from the crisis: that bank fragility is more prevalent than previously thought and that the motivation for governments to assist banks in poor financial condition is exceptionally strong during the crisis.'¹¹⁷ In essence, the fundamental reason for minimum capital requirements is a familiar tale.¹¹⁸ This also suggests that minimum capital requirements has evolved through the Basel accords because of the enormous risks bank's profit, which have led to widespread costs through the bailout of failed institutions or blanket insurance payouts.

Capital requirements have been a reoccurring phenomenon. For example, the regulators in the United States have enforced legal industry-wide capital requirements only since 1981 in response to the loan-liquidity problems during the stagflation of the past 1970s and the recession of the early 1980s. Before this enforcement, regulators required banks to raise capital on a case-by-case basis or when bank examination by the regulators warranted the need to raise capital. This resulted in uncertainty on whether regulators could influence or force banks to raise capital. Congress resolved the issue with the introduction of the International Lending Supervision Act in 1983, which gave power to regulators to enforce and impose capital requirements.¹¹⁹ Few years following the introduction of the Act, regulators expressed concerned that the treating of all capital ratios did not capture differences in risks among different bank assets, thus giving banks an incentive to favor high-yielding, riskier assets. This concern resulted in enforcing minimum and setting minimum capital requirements as the Basel accords evolved from Basel I to Basel III. For example, Basel I imposed an 8 percent minimum capital requirements in accordance with the risk adjustments of assets.

¹¹⁷ Huberto M. Ennis and David A Price 'Basel III and the Continuing Evolution of Bank Capital Regulation' (2011) THE FEDERAL RESERVE BANK OF RICHMOND <http://www.richmondfed.org/publications/research/economic_brief/2011/pdf/eb_11-06.pdf> accessed 28 October 2013.

¹¹⁸ The Basel committee provides some basic guidelines for computing and adjusting the countercyclical component. See Rafael Repullo and Jesus Saurina 'The Countercyclical Capital Buffer of Basel III: A Critical Assessment' (2011) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1794894> accessed 28 October for a detailed discussion of the issues.

¹¹⁹ For more on the early history of U.S. capital requirements see Karyn Mitchell 'Capital Adequacy at Commercial Banks' (1984) Federal Reserve Bank of Kansas City, Economic Review, pp. 17-30; Herbert L. Baer and John N. McElravey 'Capital Shocks and Bank Growth - 1973 to 1991' (1993) Federal Reserve Bank of Chicago, Economic Perspectives, 17(4), 2-21.

Basel II addressed the failure of Basel I by dealing with operational risk and offering banks with the methods of estimating credit risk.

The implementation of the Basel II capital standards was not complete in the United States by the date the financial crisis 2007-2009 started¹²⁰, but in reality, the effectiveness of Basel II was not an indication of the United States' experience during the financial crisis. Basel II relied more on credit ratings to distribute assets in categories and the financial crisis of 2007-2009 reinforced lack of internal risk modeling of banks, which is an essential element of the IRB approach introduced by the framework. This suggests that Basel II focuses on making capital requirements more sensitive to risk, and Basel III focuses on increasing the capital requirements for banks. This indicates that increasing the minimum capital requirements under Basel III is an experiment indicative of a possible increase in the future (Appendix D shows Basel III capital standards). The expected value is a banking sector with a larger buffer against losses, and better incentives to manage risk-taking thereby resulting in less potential for systemic crisis and fewer bank failures.

Uncertainties still lies in the macro-economic effects of increasing capital requirements because of the potential costs of raising Tier 1 capital. Banks that have challenges meeting this requirement may choose not to issue new equity, but rather focus on liquidating bank-specific valuable assets or reduce lending. This also makes it unclear the extent to which future costs of raising capital will transfer banking activities to unregulated areas of the financial sector, or make the investment intermediation by banks costlier. These implications will be dangerous for the stability of the financial sector. Furthermore, tradeoffs experience fixing capital requirements because capital is costly and it seems unlikely that the risk of bank failures will go down to zero in accordance with an optimal level of regulatory capital. In essence, regulators cannot prove the point at which they can reduce the chances of bank failures to the point where the benefits of fresh lowering of such risk outweigh the cost of increasing capital.

5.4 Evolution of Liquidity Risks

Regulators deem liquidity levels and access to adequate funding required for the long-term stability of the banking sector.¹²¹ Before the financial crisis of

2007-2009 following the introduction of Basel III, international banking regulators did not carry comprehensive liquidity standards. The financial crisis exposed banks with limited liquid assets despite their practical minimum capital requirements. The financial crisis revealed that banks failed to realize liquid assets, which led to the mismanagement of liquidity risk.¹²² The Basel committee introduced a framework for banks to manage their liquidity prudently through Basel III.¹²³

The liquidity framework introduces two main minimum liquidity ratios namely: (1) Liquidity Coverage Ratio (LCR) and (2) Net Stable Funding Ratio (NSFR). The rationale behind the introduction of these ratios is to make the bank's liquidity risk more resilient by complementing its short-term requirements with the (LCR) and medium-term to long-term requirements with the (NSFR).¹²⁴

The (LCR), to be implemented in 2015, guarantees that banks should maintain high quality liquid assets that are not hindrances. In essence, the asset can be quickly converted into cash at no loss of value. The assets should be convertible into cash within 30 calendar days to allow the bank maintain adequate liquidity treatment for most stress conditions. Banks must maintain balance of stocks of high quality asset to total net cash outflows over 30 calendar days that are similar, or more than 100 percent. Strengthening liquidity rules will prevent banks from relying on bailouts from central banks for liquidity support, even though one of the duties of the central bank is to provide liquidity to meet liquidity rules.

The liquidity rules are a function of Level 1 assets (assets that are not subject haircut, and held at market value), and Level 2 assets (assets subject to haircuts, and held in stocks). Some jurisdictions, such as Australia have limited benefits for Level 1 assets preserved in their own money, because of the scarcity of used domestic bond.¹²⁵ Other commentators, such as Turner question if long term investments may cause maturity transformation through a bank balance sheet with the possibility of

institution-specific nature and that which affects markets as a whole.' See Bank of International Settlements 'Principles of Sound Liquidity Risk Management and Supervision' (2008) BIS < <http://www.bis.org/publ/bcbs144.pdf>> accessed 28 October 2013.

¹²² George Walker 'Liquidity Risk Management – Policy Conflict and Correction' (2009) *Capital Markets Law Journal*, 4(4), 451-461.

¹²³ The liquidity framework was adopted by the Basel committee with the minimum capital framework on 16th December 2010 under. See Bank of International Settlement 'Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring' (2010) BIS < <http://www.bis.org/publ/bcbs188.pdf>> accessed 28 October, 2013.

¹²⁴ *ibid* (n 34).

¹²⁵ Joseph Cotterill 'Basel Liquidity Rules, Going Neo - Medieval' (2010) FT ALPHAVILLE <<http://ftalphaville.ft.com/2010/12/20/439811/basel-liquidity-rules-going-neo-medieval/>> accessed 28 October 2013.

¹²⁰ Prior the crisis the plan had been for them to take effect in April 2008, and even then they were generally to be mandated only for banks with at least \$250 billion consolidated total assets or at least \$10 billion of on-balance sheet foreign exposure.

¹²¹ *ibid* (n 114). Basel Committee defines liquidity as 'the ability of bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. The fundamental role of banks in the maturity transformation of short-term deposits into long-term loans makes banks inherently vulnerable to liquidity risk, both of an

creating the possibility of liquidity runs.¹²⁶ The concurrent selling of long-term commitments through liquid markets may develop into gyrating result of falling prices typical of a collapse in liquidity.

The (NSFR), to be implemented in 2018, guarantees that banks should maintain a minimum acceptable amount of sound liquid assets of on-and-off balance sheet for a period of one year.¹²⁷ The (NSFR) will increase the competition among banks in taking deposits because of the favorable retaining treatment. The (NSFR) relies more on defining the behavior of investors in terms of what is unpredictable and secure during a stressful situation for banks. The OECD argues that the management of liquidity should be the responsibility of the markets. They also argue that supervisors of banks should be responsible for dealing with oversight of banks when it arises.¹²⁸ All these pointers suggest that liquidity of risk will continue to evolve into the future bearing in mind the complexity of liquidity and capital rules and the phases of their implementation.

The complexity and prolonged period of implementation remains the biggest disadvantage of the Basel III framework, with full implementation by the end of 2018, the risk of regulatory arbitrage, and change for regulators in terms of the changing conditions in risk weighting. These poses some uncertainties on how the banking sector hopes to solve these problems as liquidity risks continue to grow.

5.5 Why Basel III Failed

The new Basel III framework is becoming extremely difficult, and policy-makers should be able to add more clarity by cutting some of the dead wood out of earlier versions of the Basel accords.¹²⁹ It is clear that financial stability or soundness of the banks will not be easy to overcome because of the conflicting implementation deadlines and the multitude of key ratios. This suggests that it is not sure when banks will effectively be Basel III-compliant. The implementation of the new Basel III rules commences from 2013 onwards over an extended conversion with

full implementation to become effective from 2019 onwards. (Appendix E shows the Basel III ratios and deadlines). The missing links in the new Basel III rules include a surcharge for large systematically relevant financial institutions (SIFIs)¹³⁰ and recalibration of risk-weight of assets. This makes Basel III more complicated than Basel II.

Commentators and scholars have proposed global banks should have another debt absorbing level in order to overcome moral hazard and negative externalities, which could be posed by complex financial institutions, such as the (SIFIs). Global banks need to comply with higher CET1 capital in reference to the capital requirements documented in chapter four. This estimate between 1-2.5 percent of risk weighted assets ('RWA') depending on their systemic importance. A surcharge of additional 1% of RWA may come into play if such bank increases its importance. The OECD argues that derivatives, capital surcharge should not be applied to RWA because it does not efficiently deal with risk interconnectedness and excessive leverage.¹³¹ Many scholars argue that the higher capital ratios for international banks will affect about 20 key players in the banking sector because of the problems of the (SIFIs). The problems include the problems associated to resolution and crisis management, the problem of definition, and problems with effective supervision and regulation.¹³² Even though the definition problem is subject to limited defeat, the definition problem leaves room for more discussion by commentators because the definition of SIFI today may not necessarily be systemic tomorrow.

A better resilient, and capitalized banking sector are a combined effect of minimum capital requirements, a risk-weighted lowest common equity, minimum leverage ratio, and capital buffer. Some important deficiencies of Basel II remain to be addressed before the introduction of Basel III. For example, the use of external credit rating agencies has not been critically examined in the rating-based method to determine the risk weights, and risk-weights have not been reviewed. Even though the use

¹²⁶ Adair Turner 'Leverage, Maturity Transformation and Financial Stability: Challenges beyond Basel III' (2011) FSA <http://www.fsa.gov.uk/pubs/speeches/031611_at.pdf> accessed 28 October 2013.

¹²⁷ According to the Basel liquidity framework 'the NSFR is defined as the amount of available amount of stable funding to the amount of required stable funding. This ratio must be greater than 100%. "Stable funding" is defined as the portion of those types of amounts of equity and liability financing expected to be reliable sources of funds over a one-year time horizon under conditions of extended stress.'

¹²⁸ Adrian Blundell-Wignall and Paul Atkinson 'Thinking beyond Basel III: Necessary Solutions for Capital and Liquidity' (2010) OECD Journal of Financial Market Trends Issue 1 <<http://www.oecd.org/finance/financial-markets/45314422.pdf>> accessed 28 October 2013.

¹²⁹ Karel Lannoo 'The Forest of Basel III Has Too Many Trees' (2011) CEPS < www.ceps.eu/ceps/dld/4186/pdf> accessed 28 October 2013.

¹³⁰ There are so many problems associated with complex financial groups commonly known as Systematically Important Financial Institutions ("SIFIs"). The Basel Committee and the Financial Stability Board (FSB) have agreed on certain characteristics of the SIFIs, These are institutions whose disorderly failure would cause significant disruption to the wider financial system because of their size, complexity or interconnectedness. See Financial Stability Board 'Reducing the Moral Hazard Posed by Systematically Important Financial Institutions' (2010) FSB < http://www.financialstabilityboard.org/publications/r_101111a.pdf> accessed 28 October 2013.

¹³¹ Adrian Blundell-Wignall and Paul Atkinson 'Global SIFIs, Derivatives and Financial Stability' (2011) OECD Journal: Financial Market Trends. Retrieved from <<http://www.oecd.org/finance/financial-markets/48299884.pdf>> accessed 28 October 2013.

¹³² Rosa Maria Lastra 'Systemic risk, SIFIs and Financial Stability' (2011) Capital Markets Law Journal, 6(2), 197-213.

of internal assessment is reassuring, the financial crisis brought about the scrapping of self-regulation.

One of the problems of Basel III apart from its complex nature is the foundation of when banks will be Basel-III compliant. This has resulted in inconsistent claims. The conflicting claims may include complying with all ratios at the same day or complying with minimum levels of common equity, capital buffer, and leverage ratio or referring to ratios under different components in Tier 1 and Tier 2. This poses confusion for depositors and investors alike. The leverage ratio is only available to outsiders, and information relating to the subdivision of assets to risk weights is not available to outsiders, thus making market discipline a defective part of the Basel III accord.

6. Post-Financial Crisis

Evidence from economics suggests that people respond to incentives. Preventing another financial crisis will require regulators and banks to learn from experience by identifying the sources of incentives that contributed to the crisis, in terms of making investment decisions. In essence, regulators should identify the root causes and not rely on private actions such as poor credit rating and paying high bonuses to bankers for placing securitized loans. The probability of another financial crisis can be mitigated by identifying conditions for fair incentives, and by bearing in mind that the causes of the financial crisis is a function of structural and cyclical factors.

The structural factors include poor supervisory and regulatory framework for intermediaries. 'The prevailing regulatory rules probably contributed to the high leverage and large maturity mismatch taken on by banks and other financial institutions that ended in the widespread counterparty mistrust, liquidity shortages, and contagion to other markets.'¹³³ In essence, the bank's exposure to risk became a solution because it took many assets off their balance sheets. The inadequacy of regulatory rules stems from capitalization and liquidity crisis because the rules were not successful in averting the crisis. Commentators prescribe stronger amount of capital and liquidity requirements that are sufficiently broad in scope. This will help prevent another financial crisis by generating responsible behavior in the financial sector.¹³⁴

Recommendations for capitalization include narrowing the definition of capital to include only loss-absorbing components such as common equity. This will require differentiating the different weights with the specifics of the assets and not by the type of asset. For example, a mortgage for a high-risk customer should not utilize the same capital for that

of a low-risk customer. In practice, this procedure may prove difficult because it largely depends on judgment; this requires seeking a combination effect of improving ethical standards of capital relative to non-risk weighted assets that include off-balance sheet exposures to give the total leverage ratio. Also converting contingent debt into equity for tail risk situations and buffers for inappropriate times is particularly relevant to prevent another crisis.¹³⁵ Recommendations for liquidity rules with an exceptional circumstances of fixed maturity mismatch between the bank's assets and liabilities requires banks to hold more current, and flexible use of full reserve banking for retail deposits that promote the payment system.¹³⁶

Evidently Basel III has not proven to be sufficient to prevent the financial crisis because of the inclusions of components of lesser quality than traditional equity in Tier 1 capital, and their relatively small margin values. Bank regulators need to overcome these limitations considering the limited records of the Basel accords in preventing the financial crisis in the past.¹³⁷

The "too powerful to fall" system that applies to SIFIs create moral hazards that promote risk-taking with different incentives and socially shared sacrifice. The only solution to this problem is to remove the policy. 'To counter possible externalities coming from the failure of any institution, a variable surcharge on capital may be imposed based on an index of significant variables such as size, and interconnectedness.'¹³⁸ Furthermore, liquidity rules must be easy to keep solvent institutions on the part of the lender of last resort. The rules will be essential

¹³⁵ For more details on the contingent debt conversion proposal see Squam Lake Working Group on Financial Regulation 'An Expedited Resolution Mechanism for Distressed Financial Firms: Regulatory Hybrid Securities' (2009) Council on Foreign Relations Working Paper (April).

¹³⁶ Kotlikoff (2010) proposes a "limited purpose banking" framework in which banks only offer checking accounts and shares of mutual funds. Checking deposits have 100 percent reserves and mutual funds serve the lending purpose and do not have maturity mismatch. In such an arrangement, there cannot be bank runs or wild swings in the money multiplier. Laurence J. Kotlikoff 'Jimmy Stewart is Dead' (2010, John Wiley, NJ).

¹³⁷ King (2010) points out that Basel III may not avoid crisis because capital requirements are insufficient, risk weights are computed from past experience, and considerations of liquidity structures are omitted. Mervyn King 'Banking: From Bagehot to Basel, and Back Again' (2010) The Second Bagehot Lecture Buttonwood Gathering, New York City BANK OF ENGLAND <<http://www.bankofengland.co.uk/publications/Documents/speeches/2010/speech455.pdf>> accessed 28 October 2013. Demircuc-Kunt and Detragiache (2010) find no evidence of a robust statistical relationship between compliance with Basel Core Principles and improved bank soundness. Asli Demircuc-Kunt and Enrica Detragiache 'Basel Core Principles and Bank: Does Compliance Matter?' (2010) IMF Working Paper WP/10/81 <<http://www.imf.org/external/pubs/ft/wp/2010/wp1081.pdf>> accessed 28 October 2013.

¹³⁸ *ibid* (n 133), at 527.

¹³³ Manuel Sanchez 'Financial Crises: Prevention, Correction, and Monetary Policy' (2011) *Cato Journal*, 31(3), 521-534, p. 525

¹³⁴ *ibid*.

components of a stronger regulatory process by providing efficient bankruptcy laws, living wills, and expedient resolution mechanism, which are essential components of a stronger regulatory framework.

Cyclical factors such as credit targets for banks, fiscal subsidies for borrowers, and government guarantees on loans envelopes policies aimed at promoting the development of lending. The financial crisis has proven that the monetary policy should not become the source of problems because of the inefficient incentives that they provide. In essence, economic policies that assist credit expansion and go beyond optimal rules should be avoided.

6.1. The Need for Corrective Measures

It is clear that the underestimation of risks was the cause of the financial crisis because regulators overestimate the likelihood of risks in response to early warnings of a potential financial disaster. It is counterproductive for regulators because there is a lag between their inability to detect incipient problems, and the time it takes for any economic system to take effect.¹³⁹ In essence, this restricts the scope of remedial measures. Even if regulators were able to identify the possibility of another crisis, they may be reluctant to implement policies to counter it. The need for corrective measures such as requirements for operational systemic supervisor, enhancing supervision, integrating micro and macro prudential components, and enhancing cross-border event is coming.

Regulators should be able to create a systemic risk overseer. This person will be in charge of assessing evolving risks based on well-defined methodologies to make this concept operational. Regulators can also complement this requirement with the advice of independent experts.¹⁴⁰ Tools such as severe loan origination standards, lower loan-to-value ratios, higher liquidity and capital requirements, and limits to lending concentrations should help improve the supervisory and regulatory framework and maximize the effectiveness with the least possible distortions. These tools will serve as potential indicators for the crisis offering better prescriptions in

alignment with conditional rules in advance before the crisis.

'Weaknesses in conducting supervision also contributed to the crisis.'¹⁴¹ Regulators relied more on the myopic assumption that the market "knows best" resulting in the lax of enforcing and implementing existing regulations indicative of a steady drift towards more hands-off supervisory approach.¹⁴² This requires enhancing control through cross-border cooperation, integration of micro and macro components, and implementation. The implementation of appropriate care requires the willingness and ability to perform – both of which are the missing link in the run-up to the crisis. The financial crisis endorsed the need for proper supervision, which should be easy to follow through, adaptive, intensive, proactive, skeptical and detailed.¹⁴³ Furthermore, supervisory agencies should be held accountable and have the ability to carry out their tasks by providing them with resources and mandate. This is an invaluable addition to Basel III and a key requirement for its implementation.¹⁴⁴ Supervision is a central pillar of the economic reform agenda and the June 2010 Toronto G-20 Summit gave a definite order to improve it, but this site has made little progress.

Financial regulation should be a function of the integration of its micro and macro prudential components. For example, in the UK, a new Financial Policy Committee (FPC) under the ambit of the Bank of England is responsible for controlling macro-prudential tools. Also in the USA, the July 2010 Wall Street Reform and Consumer Protection Act established the Financial Stability Oversight Council (FSOC) with the aim of bringing the power of federal banking regulators, insurance experts and state regulators together. In the European Union, a new European System of Financial Supervision under the sponsorship of the European Central Bank as the European Systemic Risk Board (ESRB) has broader legal powers and mandate of identifying risk in the financial system. 'The creation of these entities charged with the task of identifying macro vulnerabilities may help supervisors in calibrating

¹³⁹ For example, reviewing the financial stability reports of 47 central banks published in 2006, in the wake of the crisis, Cihak finds that 'virtually all (97 percent) started off with a positive overall assessment of the domestic system.' Martin Cihak 'Central Banks and Financial Stability: A Survey of Financial Stability Reports' (2006) Seminar on Current Developments in Monetary and Financial Law IMF <<http://www.imf.org/external/np/seminars/eng/2006/mfl/mc.pdf>> accessed 28 October 2013.

¹⁴⁰ For example, Tarullo proposes the creation of an advisory committee that would assess macro prudential evaluations. Daniel K. Tarullo 'Involving Markets and the Public in Financial Regulation: A Speech at the National Bankers Association Foundation Financial Literacy Summit Reception, Washington, D.C., April 13, 2010' (2010) FEDERAL RESERVE <<http://www.federalreserve.gov/newsevents/speech/tarullo20100413a.htm>> accessed 28 October 2013.

¹⁴¹ Alessandro Giustiniani and John Thornton 'Post-crisis Financial Reform: Where Do We Stand?' (2011) Journal of Financial Regulation and Compliance, 19(4), 323-336, p. 327.

¹⁴² Laura Kodres and Aditya Narain 'Redesigning the Contours of the Future Financial System' (2010) IMF <<http://www.imf.org/external/pubs/ft/spn/2010/spn1010.pdf>> accessed 28 October 2013.

¹⁴³ Jose Vinals, Jonathan Fiechter, Aditya Narain, Jennifer Elliot, Ian Tower, Pierluigi Bologna and Michael Hsu 'The Making of Good Supervision: Learning to Say "No"' (2010) IMF <<http://www.imf.org/external/pubs/ft/spn/2010/spn1008.pdf>> accessed 28 October 2013.

¹⁴⁴ For example, it remains to be determined how the conversation buffer mechanism will be implemented in practice; how firm supervisory agencies will be in restricting banks from distributing their earnings.

specific aspects of Basel III, such as the counter-cyclical buffer.¹⁴⁵ For example, the FSOC and ESRB have no absolute enforcement powers as they can only provide recommendations and warnings, and the ability to take actions based on the warnings and recommendations rests on their respective agencies. On the other hand, FPC is prudent to maintain control over macro-prudential tools.

The importance of the close coordination and cooperation between host and home supervisors is as a result of the increase in cross-border business activities and institutions. The operation of the consolidated supervision of a cross-border existence stems from the home supervisor, based on the information received from host supervisors on domestic activities. This has also contributed to the establishment of supervisory colleges for large and international intermediaries by the International Association of Insurance Supervisors, the Basel Committee on Banking Supervision (BCBS), and the Financial Stability Board.¹⁴⁶ The European Union has also followed suit. To enhance cross-border cooperation, supervisory authorities need to develop effective communication channels for the proper exchange of information based on their own understanding. They will also need to work with a common goal and supervisory system to manage and improve the monitoring of the key risks facing the financial sector.

6.2. The Role of Central Banks

There continues to be a debate amongst commentators on the ways in which central banks can contribute to financial stability. Commentators have recommended that 'monetary policy should attempt to control directly financial booms that may lead to a crisis.'¹⁴⁷ In essence, central banks can increase their policy interest rates to twinge asset bubbles because of the relationship between applicable interest rates and asset prices. Central banks take into consideration the importance of interest rates because asset prices provide relevant information relating to the future state of the economy. Central banks can also generate less absorbing activities that will not only reduce tax

¹⁴⁵ *ibid* (n 141), at 328.

¹⁴⁶ In general, "supervisory colleges" refer to multilateral working groups of relevant supervisors that are formed for the collective purpose of enhancing effective supervision of international banking group on a consolidated and solo basis. Colleges are not intended to be decision-making bodies but to provide a framework to enhance cooperation, coordination, and information sharing among relevant supervisors. The BCBS is to provide some enhance principles to improve the working of supervisory colleges by clearly outlining expectations regarding objectives, governance, communication and information as well as potential areas for collaborative work. See Basel Committee on Banking Supervision 'Good Practice Principles on Supervisory Colleges' (2010) BIS <<http://www.bis.org/publ/bcbs170.pdf>> accessed 28 October 2013.

¹⁴⁷ *ibid* (n 133), at 529.

burdens on tax payers and reduce the potential of excessive risks financial institutions require, but will increase monetary policy actions in preventing the decline in the value of assets.¹⁴⁸ The problems of monetary policy are the possibility of the policy conflicting with other objectives proposed to policy makers. This results in pursuing other goals by deviating from one side leading to lack of accountability and potential conflict of the goals. Monetary policy can also reduce trading signals and promote moral hazard because of price fluctuations. In essence, monetary policy should focus on the primary purpose of pursuing price stability by using previous cited supervisory and regulatory tools to point source of problems, such as excessive bank leverage and unsecured credit standards that threaten the financial system.

The "new central bank paradigm" as a result of the financial crisis claims that central banks have failed to recognize signs leading to the crisis because their focus on price stability instead of implementing measures to prevent it.¹⁴⁹ Central banks use faulty economic models that do not take into account key aspects of the financial sector. The solution to this failure is the amendment to the mandate of the central bank to secure price stability in addition to financial stability, and in some countries, full employment, making central banks responsible for all these objectives. Central banks should make augmented economic models control policy decisions.

The central banks of developed countries, particularly the United States adopted unprecedented expansionary monetary policy following the failure, and this had its own implications.¹⁵⁰ This contributed to investors assuming more risk because their quest for higher yields as inflation risks surfaces. This made it difficult to implement effective exit strategies. In this situation, investors move capitals, which raise the prices of certain assets, and the currencies of emerging market economies. The central banks have implemented measures to inhibit the growth of their currencies by including capital controls and interventions in foreign exchange markets. Capital controls make black markets and impede the transfer of funds for efficiency and modernization improvements thereby lessening investor confidence. Currency interventions impose economic losses on central banks and are hardly effective. The greatest threat of these actions is 'a widespread movement toward protectionism that could hamper the sustained recovery of the world economy.'¹⁵¹ It will be best for central banks to avoid implementing these measures.

¹⁴⁸ Marianne Ojo 'The Role of Monetary Policy in Matters Relating to Financial Stability: Monetary Policy Responses Adopted during the Most Recent Financial Crisis' (2010) <<http://mpira.uni-muenchen.de/26925/>> accessed 28 October 2013.

¹⁴⁹ *ibid* (n 133).

¹⁵⁰ *ibid*.

¹⁵¹ *ibid*, at 531.

The financial crisis exposed the gaps and weaknesses in managing complex financial institutions, especially those that rely on cross-border activities. This has also created a tension between augmenting transnational financial institutions and general economic stability and settlement arrangements to a convenient place where a change is imminent. To reduce moral hazard and guarantee financial stability central banks should implement an effective bank resolution framework with both domestic and international dimensions. 'At the national level, the legal, institutional, and regulatory framework should provide the national authorities with the appropriate tools to deal with all types of distressed financial institutions in an orderly manner.'¹⁵² This will contribute to retaining financial stability including a settlement and payment system that is reliable and predictable, service intermediation functions, and the protection of depositors. This will reduce the impact of a disaster or obligation on the financial system as well as reducing the reliance on taxpayers' resources. In essence, the key approach should include features such as the establishment of a regulatory threshold enabling the activation of proceeding before the distressed financial institution becomes balance sheet insolvent, and judicial review limited to the constitutionality of acts and not their merits. Others include initiation and implementation of the resolution measures under the banking authorities, and the creation of a particular procedure different from corporate insolvency. This will assist in resolving the domestic financial sector in an integrated fashion.¹⁵³

6.3. The Future of Basel III Accord

It is clear that the global financial reforms started long before the financial crisis 2007-2009, which led to the introduction of Basel III. Basel III is one of the most significant reforms to emerge in response to the financial crisis.¹⁵⁴ Basel III is the most popular international agreement as of today to ensure financial stability amongst banks. The reforms of Basel III introduce stricter liquidity and capital requirements with the goal of reducing the risk of bank failure. Attaining financial stability has been a more complicated issue because financial institutions increase in difficulty as they evolve. For example, the first launch of Basel capital accord in 1998 is 30 pages long whereas as of today, the Basel rulebook extends to 616 pages.¹⁵⁵ This demonstrates the evolution of the Basel accords from Basel I, Basel II,

and finally the current Basel III, with the purpose of introducing stricter capital and liquidity requirements.

Basel I pronounced the roots of modern risk-based capital requirements and as of the time of its inception in 1998, it was better than any amendment that came before it because it had powerful, simple, risk weights. Basel I do as a reference point for the establishment of Basel II. The introduction of Basel II was in 2004 but became effective in 2008 because of the factors Basel I failed to address, such as risk management and financial restructuring. Commentators criticized Basel II because it was pro-cyclical and it allowed banks to manage the risk that essentially added to the buildup of financial stability. Basel II was under attack for immediate implementation, and it had just been implemented when the financial crisis 2007-2009 began. The financial crisis 2007-2009 resulted in the introduction of Basel III. The objective of Basel III is promoting financial safety by making the financial system safer. This will save taxpayers from covering future costs of business failures. The evolution of the Basel reforms does not only represents its addition to hundreds of pages, but it also represents a vertiginous number of calculations that focus on risk-weighted assets for personal bank and each bank's own set of businesses.¹⁵⁶

The evolution of the Basel accords has prompted policy makers to promote economic growth and financial stability at the same time. Also, 'the shift from complex risk-weighting toward absolute minimum capital levels suggests that Basel III will look [decidedly] different in just a few years' time.'¹⁵⁷ This has resulted in a major rethink, in the areas of implementation, and the power of the financial resources to protect struggling economies to recover from the activity of downsizing. The response to any financial crisis tends to institute measures that minimize taxpayer costs and improve financial stability. The more the financial crisis detached itself from the past, there also other factors emerge, and this relates to Basel III and where the future of the Basel accords transcends. The shortcomings of Basel III can give way for the introduction of another Basel consensus following another financial crisis. The history of the Basel accords indicates that it will continue to grow, and there is every chance that Basel III is not the end of regulatory reforms ahead. One of the pointers is the common mistake made by regulators in the transition of Basel II when the move to complex, model-based risk weightings started. This also suggests that the next part of repeating the Basel rules will encourage the shift away from difficult risk-weighting towards certain minimum capital levels. This will involve using models to understand the needs higher minimum capital

¹⁵² *ibid* (n 141), at 331.

¹⁵³ For example, the Wall Street Reform and Consumer Protection Act envisage the use of living wills but regulation needs to be prepared.

¹⁵⁴ Gemma Varriale 'The Basel Reforms Dissected' (2013). *International Financial Law Review*, 31(11), 59-59.

¹⁵⁵ *ibid*.

¹⁵⁶ *ibid*.

¹⁵⁷ Richard Reid 'The Year is 2020. Basel 6: How Did We Get Here? - Opinion' (2012) *International Financial Law Review*, 31(10), 61-61, p. 61.

requirements. These rules guarantee the possibility of another embodiment of the Basel accords as Base III evolves to Basel 3.5 or even Basel 4 or higher in the future.

It is clear that Basel III will not prevent another global financial crisis and neither will Basel III prevent another bank failure, such as that experienced by Northern Rock.¹⁵⁸ The failure of Northern Rock was not because it lacked capital but because its business model did not align with the drying up of the wholesale funding market. The thing that will cause the next financial crisis cannot be ascertained because the economic reforms continue to evolve to handle complex financial products, which continue to evolve with management of risk as the underlying factor.

7. Conclusion

In conclusion, the financial crisis is as old as the financial market, and the financial crisis 2007-2009 taps into that history with a partial resemblance with the Great Depression. The complex nature and development of the financial markets is a vital denominator for the current financial crisis, and this prompted the establishment of Basel III because Basel II, which was already in force, could not contain the crisis. This also suggests that the regulation of the banking system will be a continuous process because financial institutions continue to develop innovative, and new financial products that contribute to its expansion. The implementation of financial regulations in alignment with the history of the financial crisis has been ineffective so far, even though financial regulations have continued to evolve leading to the current financial crisis. This shortcoming of financial regulations leading to current financial crisis help determine the notion that regulators have failed in addressing key systemic problems, which is indicative of a likely reoccurrence of another financial crisis if not more.

The Basel accords illustrate the evolution of international financial regulations from Basel I, Basel II and to the current Basel III with the core objective of maintaining financial stability and preventing the likely occurrence of another financial crisis. These regulations have continued to fail to contain the crisis as both capital and liquidity requirements have continued to evolve to meet the needs of a complex and more innovative financial system. The lapses of Basel I resulted in the introduction of Basel II. Basel II could not contain the financial crisis 2007-2009 and this led to the introduction of Basel III.

The financial crisis 2007-2009 left its mark in the financial history because of its relative size, and harshness with contributing factors from the previous

financial crisis and other unknown factors. The deciding factor that contributed to the financial crisis 2007-2009 includes mispricing in credit default swaps, which was unregulated. This largely influenced the mortgage crisis resulting in house price rising and securitization. These led to other contributing factors, and they include regulatory gaps, a global credit gap, excessive leverage by financial institutions and consumers, and low interest rates among others. Casual factors such as bank regulatory framework, regulatory arbitrage, and money market mutual funds did not contribute to the crisis. Regulators would have been able to avoid the financial crisis by monitoring and enforcing of mortgage credit underwriting standards, regulation of the mortgage markets, and an extensive systemic management approach. Governments responded to the crisis through fiscal measures, central bank financing and bail-outs. The intensity of the principal and causal factors of the crisis through the mortgage markets and the overextending homes spilled over into the US financial markets through asset-backed securities. The spill overs extended into other financial markets on a global scale through banks with exposure to the US financial markets leading to massive selloffs, economic slowdowns, and downsizing. The evolution of the financial crisis aligns with the development of the mortgage markets and expansion of the financial markets, with uncertainties ahead. In particular, the mortgage markets have evolved lacking federal regulatory oversight and government control indicative of these uncertainties. These uncertainties prompted regulators to establish Basel III in response to the financial crisis.

Basel III introduces two new liquidity rules and increases the quality and quantity of capital with the purpose of ensuring financial stability by increasing the risk-coverage of bank's capital for securitization, trading books, counterparty credit risk exposure, and off-balance sheet vehicles. The lapses of Basel III still remain in terms of the cost of implementation and if it would be able to accommodate another financial crisis in the future. The improved liquidity and capital rules will hit retail, corporate and investment banking. For example, new capital requirements come with a cost and the new liquidity requirements will reduce the chances of the earning yield of the banking sector. Capital requirements continue to be a reoccurring event pointing toward its evolution. The two liquidity rules under Basel III demonstrate the evolution of liquidity risks because as financial institutions become more complex, it becomes more difficult for banks to acquire liquid asset. These results, in the mismanagement of liquidity risk. A major problem of Basel III is its implementation time resulting in the surcharge of SIFIs and recalibration of risk-weight assets.

It is clear that regulators will have learnt from experience by identifying the sources of incentives

¹⁵⁸ Nick Goodway 'New Bank Capital Rules Won't Stop the Next Financial Crisis' (2010) EVENING STANDARD <<http://www.standard.co.uk/business/markets/new-bank-capital-rules-wont-stop-the-next-financial-crisis-6513008.html>> accessed 28 October.

that contributed to the crisis including the root-causes instead of relying on poor credit rating, or paying high bonuses for placing securitized loans. Regulators should examine the financial crisis from structural and cyclical contexts. From the structural context, regulators should establish stronger liquidity and capital requirements that are sufficiently broad in scope, and narrowing the definition of capital to include only loss-absorbing components such as common equity. From a cyclical context, regulators should avoid economic policies that assist credit expansion. Corrective measures include establishing a systemic risk overseer, enhancing cross-border corporation, and integrating micro and macro prudential frameworks. Central banks also have a responsibility to play in preventing another financial crisis by increasing policy interest rates to twinge asset bubbles, develop less-absorbing activities that will reduce tax burdens and excessive risks on financial institutions.

Evidence points to the evolution of the financial system and international banking regulations in response to the financial crisis with the purpose of promoting both economic and financial stability. There still remain uncertainties ahead indicative of another financial crisis, which Basel III will not be able to accommodate because there is every chance that Basel III is not the end of the international regulatory reforms. Regulators may likely observe another Basel accords in the form of Basel 3.5, Basel 4 or even higher in response to future financial crisis because the cause of the next financial crisis is uncertain. It is obvious that the financial system will continue to evolve to accommodate the changing complex and innovative financial products, which will justify the evolution of capital and liquidity requirements in response to the evolution of the financial crisis to maintain financial and economic stability in the long run.

APPENDIX A

The 2007-2009 Recession in Perspective

Panel A: US, Postwar Recessions vs. 2007-2009 Recession

	Output	Consumption	Investment	Employment
Average postwar recessions	-4.4	-2.1	-17.8	-3.8
2007-09 recession (2007:4 to 2009:3)	-7.2	-5.4	-33.5	

Panel B: 2007-2009 Recession, US vs. Other High Income Countries

	Output	Consumption	Investment	Employment
US	-7.2	-5.4	-33.5	-6.7
Canada	-8.6	-4.6	-14.1	-3.3
France	-6.6	-3.4	-12.6	-1.1
Germany	-7.2	-2.9	-10.2	0.1
Italy	-9.8	-6.6	-19.6	-3.0
Japan	-8.9	-3.6	-19.0	-1.6
United Kingdom	-9.8	-7.7	-22.9	-2.9
Average other high income countries	-8.5	-4.8	-16.4	-2.0

Panel A reveals that the 2007-2009 financial recessions was much worse than the average post-World War II crisis. This does not come as a surprise because the other financial crisis did not have systemic financial crisis. Panel B compares the

financial crisis in the US with those of other countries (Canada, France, Germany, Italy, Japan, and the United Kingdom). Panel B reveals that US sustained high declines in employment (-6.7) and investment (-33.5).

Source: Lee E. Ohanian 'The Economic Crisis from a Neoclassical Perspective' (2010) *Journal of Economic Perspectives*, 24, 45-66.

APPENDIX B

Distinguishing between Tier 1 and Tier 2

A. Capital Elements

Tier 1 (a) Paid-up share capital/common stock
(b) Disclosed reserves

Tier 2 (a) Undisclosed reserves
(b) Asset revaluation reserves
(c) General provisions/general loan-loss reserves
(d) Hybrid (debt/equity) capital requirements
(e) Subordinated debt

The sum of Tier 1 and Tier 2 element will be eligible for inclusion in the capital base, subject to the following limits.

B. Limits and Restrictions

(i) The total of Tier 2 (supplementary) elements will be limited to a maximum of 100% of the total of Tier 1 elements;

(ii) Subordinated term debt will be limited to a maximum of 50% of Tier 1 elements;

(iii) Where general provisions/general loan-loss reserves include amounts reflecting lower valuations of asset or latent but unidentified losses present in the balance sheet, the amount of such provisions or reserves will be limited to a maximum of 1.25 percent points, or exceptionally and temporarily up to 2.0 percentage points, of risk assets;

(iv) Asset revaluation reserves which take the form of latent gains on unrealized securities will be subject to a discount of 55%.

Source: Basel Committee on Banking Supervision 'International Convergence of Capital Measurement and Capital Standards' (1988) BIS <<http://www.bis.org/publ/bcbs04a.pdf>> accessed 28 October 2013.

APPENDIX C

Difference between Basel I and Basel II Capital Requirements

Basel I

$$\frac{\text{Total Capital}}{\text{Credit Risk (old) + Market Risk}} = \text{The bank's capital ratio (minimum 8\%)}$$

Source: Bank for International Settlements, 2001

Basel II

$$\frac{\text{Total Capital (unchanged)}}{\text{Credit Risk (new) + Market Risk + Operational Risk}} = \text{The bank's capital ratio (minimum 8\%)}$$

Source: Bank for International Settlements, 2001

Source: Zoltan Sarkany 'The New Basel III Rules and Recent Market Developments' (2011) SSRN <<http://ssrn.com/abstract=2155112>> accessed 28 October 2013.

APPENDIX D

Basel III Capital Standards

Basel III Capital Standards

	2013	2014	2015	2016	2017	2018	2019
Minimum Common Equity Capital	3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital Conservation Buffer				0.625	1.25	1.875	2.5
Minimum Common Equity + Capital Conservation Buffer	3.5	4.0	4.5	5.125	5.75	6.375	7.0
Countercyclical Buffer Regime				0 - 0.625	0 - 1.25	0 - 1.875	0 - 2.5
Minimum Tier 1 Capital	4.5	5.5	6.0	6.0	6.0	6.0	6.0
Minimum Tier 1 Capital + Capital Conservation Buffer	4.5	5.5	6.0	6.625	7.25	7.875	8.5
Minimum Total Capital	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Total Capital + Capital Conservation Buffer	8.0	8.0	8.0	8.625	9.25	9.875	10.5

Note: All dates are as of January 1.

Source: Bank for International Settlements

Source: Huberto M. Ennis & David A Price 'Basel III and the Continuing Evolution of Bank Capital Regulation' (2011) *THE FEDERAL RESERVE BANK OF RICHMOND* <
http://www.richmondfed.org/publications/research/economic_brief/2011/pdf/eb_11-06.pdf> accessed 28 October 2013.

APPENDIX E

Basel III Ratios and Deadlines

Basel III ratios and deadlines

Ratios	Basel II	Basel III	Deadline
Minimum Tier 1 leverage	n.a.	3%	2018
Risk-weighted ratios:			
1. Minimum Common Equity Capital	n.a.	4.5%	2015
2. Capital Conservation Buffer	n.a.	2.5%	2019
1+2=	n.a.	7%	2019
3. Minimum Tier 1	4%	6%	2015
4. Minimum Tier 1+2	8%	8%	2013
Countercyclical capital buffer	n.a.	0 - 2.5%	2019
Liquidity coverage	n.a.		2015
Net stable funding ratio	n.a.		2018
Deductions from common equity	n.a.		2018

Source: Karel Lannoo 'The Forest of Basel III Has Too Many Trees' (2011) CEPS <
www.ceps.eu/ceps/dld/4186/pdf> accessed 28 October 2013

References:

1. Adair Turner 'Leverage, Maturity Transformation and Financial Stability: Challenges beyond Basel III' (2011) FSA <http://www.fsa.gov.uk/pubs/speeches/031611_at.pdf> accessed 28 October 2013.
2. Adrian Blundell-Wignall & Paul Atkinson 'Thinking Beyond Basel III: Necessary Solutions for Capital and Liquidity' (2010) OECD Journal: Financial Market Trends Issue 1 <<http://www.oecd.org/finance/financial-markets/45314422.pdf>> accessed 28 October 2013.
3. Adrian Blundell-Wignall & Paul Atkinson 'Global SIFIs, Derivatives and Financial Stability' (2011) OECD Journal: Financial Market Trends. Retrieved from <<http://www.oecd.org/finance/financial-markets/48299884.pdf>> accessed 28 October 2013.
4. Alessandro Giustiniani & John Thornton 'Post-crisis Financial Reform: Where Do We Stand?' (2011) Journal of Financial Regulation and Compliance, 19(4), 323-336.
5. Anca Elena Nucu 'The Challenges of Basel III for Romanian Banking System' (2011) Theoretical & Applied Economics, 18(2), 59-70.
6. Andrew McKnight 'The Law of International Finance' (Oxford University Press, Oxford, 2008).
7. Asli Demirguc-Kunt and Enrica Detragiache 'Basel Core Principles and Bank: Does Compliance Matter?' (2010) IMF Working Paper WP/10/81 <<http://www.imf.org/external/pubs/ft/wp/2010/wp1081.pdf>> accessed 28 October 2013.
8. Austin Murphy 'An Analysis of the Financial Crisis 2008: Causes and Solutions' (2008) SSRN <<http://ssrn.com/abstract=1295344>> accessed 28 October 2013.
9. Bank of International Settlements 'Principles of Sound Liquidity Risk Management and Supervision' (2008) BIS <<http://www.bis.org/publ/bcbs144.pdf>> accessed 28 October 2013.
10. Bank of International Settlement 'Basel III: International Framework for Liquidity Risk Measurement, Standards and Monitoring' (2010) BIS <<http://www.bis.org/publ/bcbs188.pdf>> accessed 28 October, 2013.
11. Bank of International Settlements 'Group of Governors and Heads of Supervision Announces Higher Global Minimum Standards' (2010) BIS <<http://www.bis.org/press/p100912.pdf>> accessed 28 October 2013.
12. Bank of International Settlements 'Measures of Globally Important Banks Agreed by the Group of Governors and Heads of Supervision' (2011) BIS <<http://www.bis.org/press/p110625.htm>> accessed 28 October 2013.
13. Bank of International Settlements 'Basel III: International Framework for Liquidity: Frequently Asked Questions' (2011) BIS <<http://www.bis.org/publ/bcbs199.pdf>> accessed 28 October 2013.
14. Basel Committee on Banking Supervision 'International Convergence of Capital Measurement and Capital Standards' (1988) BIS <<http://www.bis.org/publ/bcbs04a.pdf>> accessed 28 October 2013.
15. Basel Committee on Banking Supervision 'International Convergence of Capital Measurement and Capital Standards. A Revised Framework' (2004) BIS <<http://www.bis.org/publ/bcbs107.pdf>> accessed 28 October 2013.
16. Basel Committee on Banking Supervision 'Basel III: A Global Regulatory Framework for More Resilient Banks and Banking System' (2010) BIS <<http://www.bis.org/publ/bcbs189.pdf>> accessed 28 October, 2013.
17. Basel Committee on Banking Supervision 'Good Practice Principles on Supervisory Colleges' (2010) BIS <<http://www.bis.org/publ/bcbs170.pdf>> accessed 28 October 2013.
18. Carlos Marichal 'A Century of Debt Crisis in Latin America: From Independence to the Great Depression, 1820 - 1930' (Princeton: Princeton University Press, 1989).
19. Charles W. Calomiris 'Subprime Turmoil: What is Old, What's New, What's Next,' paper presented at the Federal Reserve Bank Kansas City's Symposium 'Maintaining Stability in a Changing Financial System' (2008).
20. Damian Paletta & Kara Scannell 'Ten Questions for Those Fixing the Financial Mess'(2009) The Wall Street Journal <<http://online.wsj.com/article/SB123665023774979341.html>> accessed 28 October 2013.
21. Daniel K. Tarullo 'Involving Markets and the Public in Financial Regulation: A Speech at the National Bankers Association Foundation Financial Literacy Summit Reception, Washington, D.C., April 13, 2010' (2010) FEDERAL RESERVE <<http://www.federalreserve.gov/newsevents/speech/tarullo20100413a.htm>> accessed 28 October 2013.
22. Ellen Simon 'Meltdown 101: What are Credit Default Swaps?' USA TODAY <http://usatoday30.usatoday.com/money/economy/2008-10-21-2778456512_x.htm> accessed 28 October 2013.
23. Financial Stability Board 'Reducing the Moral Hazard Posed by Systematically Important Financial Institutions' (2010) FSB <<http://www.financialstabilityboard.org/publications/r101111a.pdf>> accessed 28 October 2013.
24. Frank Griffith Dawson 'The First Latin American Debt Crisis' (Yale University Press, 1990)
25. G-10 Central Bank Governors (1974) 'Communique' September, 1974.
26. Garry B. Gorton 'The Subprime Panic' (2008) National Bureau of Economic Research Working Paper No. 14398.
27. Gary Gorton 'Slapped by the Invisible Hand: The Panic of 2007' (Oxford University Press, 2010).
28. Gary Gorton and Andrew Metrick 'The Financial Crisis of 2007-2009' (2012) SSRN <<http://ssrn.com/abstract=2003388>> accessed 28 October 2013.
29. Gemma Varriale 'The Basel Reforms Dissected' (2013). International Financial Law Review, 31(11), 59-59.
30. George Walker 'Liquidity Risk Management – Policy Conflict and Correction' (2009) Capital Markets Law Journal, 4(4), 451-461.
31. George Walker 'International Banking Regulation – Law, Policy and Practice' (Kluwer Law, 2001).
32. George Walker 'International Banking' (Study Material, Queen Mary University of London, 2010).

34. Gerd Gigerenzer 'Gut Feelings: The Intelligence of Unconscious' (Viking, New York, 2007).
35. Gretchen Morgenson 'Behind Insurer's Crisis, Blind Eye to a Web of Risk' (September 27, 2008) NY TIMES <<http://www.nytimes.com/2008/09/28/business/28melt.html?pagewanted=all&r=0>> accessed 28 October 2013.
36. Harold James 'Deep Red – The International Debt Crisis and Its Historical Precedents' (Summer, 1987). *The American Scholar*, 331, 334-336.
37. Heidi M. Schooner and Michael Taylor 'Global Banking Regulation: Principles and Policies' (2010) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1853714> accessed 28 October 2013.
38. Herbert L. Baer and John N. McElravey 'Capital Shocks and Bank Growth – 1973 to 1991' (1993) Federal Reserve Bank of Chicago, *Economic Perspectives*, 17(4), 2-21
39. Huberto M. Ennis & David A Price 'Basel III and the Continuing Evolution of Bank Capital Regulation' (2011) THE FEDERAL RESERVE BANK OF RICHMOND <http://www.richmondfed.org/publications/research/economic_brief/2011/pdf/eb_11-06.pdf> accessed 28 October 2013.
40. Institute of International Finance 'Interim Report on the Cumulative Impact on the Global Economy of Proposed Changes in the Banking Regulatory Framework' (2010) IIF <http://www.ebf-fbe.eu/uploads/10-Interim%20NCI_June2010_Web.pdf> accessed 28 October 2013.
41. Irina Molostova 'Introduction to the Internal Rating Based Approach under Basel II' (2008) *Journal of International Banking and Financial Law*, 23.
42. Joe Callaghan and Austin Murphy 'An Empirical Test of a Stochastic Cash Flow Theory of Evaluating Credit' (1998) *Advances in Financial Planning and Forecasting* 8, 31-51.
43. John Hawke, US Comptroller of Currency, 27th February, 2003.
44. Jose Vinals, Jonathan Fiechter, Aditya Narain, Jennifer Elliot, Ian Tower, Pierluigi Bologna & Michael Hsu 'The Making of Good Supervision: Learning to Say "No"' (2010) IMF <<http://www.imf.org/external/pubs/ft/spn/2010/spn1008.pdf>> accessed 28 October 2013.
45. Joseph Cotterill 'Basel Liquidity Rules, Going Neo - Medieval' (2010) FT ALPHAVILLE <<http://ftalphaville.ft.com/2010/12/20/439811/basel-liquidity-rules-going-neo-medieval/>> accessed 28 October 2013.
46. Karel Lannoo 'The Forest of Basel III Has Too Many Trees' (2011) CEPS <www.ceps.eu/ceps/dld/4186/pdf> accessed 28 October 2013.
47. Karyl Mitchell 'Capital Adequacy at Commercial Banks' (1984) Federal Reserve Bank of Kansas City, *Economic Review*, pp. 17-30.
48. Laura Kodres and Aditya Narain 'Redesigning the Contours of the Future Financial System' (2010) IMF <<http://www.imf.org/external/pubs/ft/spn/2010/spn1010.pdf>> accessed 28 October 2013.
49. Laurence J. Kotlikoff 'Jimmy Stewart is Dead' (2010, John Wiley, NJ)
50. Lee E. Ohanian 'The Economic Crisis from a Neoclassical Perspective' (2010) *Journal of Economic Perspectives*, 24, 45-66.
51. Manuel Sanchez 'Financial Crises: Prevention, Correction, and Monetary Policy' (2011) *Cato Journal*, 31(3), 521-534.
52. Mark Buchanan 'Crazy Money' (July 19, 2008) NEW SCIENTIST <<http://www.newscientist.com/article/mg19926680.100-crazy-money.html>> accessed 28 October 2013.
53. Marianne Ojo 'Basel III and Responding to the Recent Financial Crisis: Progress Made by the Basel Committee in Relation to the Need for Increased Bank Capital and Increased Quality of Loss Absorbing Capital' (2010) SSRN <<http://ssrn.com/abstract=1680886>> accessed 28 October 2013.
54. Marianne Ojo 'The Role of Monetary Policy in Matters Relating to Financial Stability: Monetary Policy Responses Adopted during the Most Recent Financial Crisis' (2010) <<http://mpa.ub.uni-muenchen.de/26925/>> accessed 28 October 2013.
55. Marianne Ojo 'Preparing for Basel IV (Whilst Commending Basel III): Why Liquidity Risks Still Present a Challenge to Regulators in Prudential Supervision (Part II)' (2011) SSRN <<http://ssrn.com/abstract=1732304>> accessed 28 October 2013.
56. Martin Cihak 'Central Banks and Financial Stability: A Survey of Financial Stability Reports' (2006) Seminar on Current Developments in Monetary and Financial Law IMF <<http://www.imf.org/external/np/seminars/eng/2006/mf1/mc.pdf>> accessed 28 October 2013.
57. Mervyn King 'Banking: From Bagehot to Basel, and Back Again' (2010) The Second Bagehot Lecture Buttonwood Gathering, New York City BANK OF ENGLAND <<http://www.bankofengland.co.uk/publications/Documents/speeches/2010/speech455.pdf>> accessed 28 October 2013.
58. Nick Goodway 'New Bank Capital Rules Won't Stop the Next Financial Crisis' (2010) EVENING STANDARD <<http://www.standard.co.uk/business/markets/new-bank-capital-rules-wont-stop-the-next-financial-crisis-6513008.html>> accessed 28 October.
59. Oshani Perera "Basel III: To What Extent will it Promote Sustainable Development?" (2012) The International Institute for Sustainable Development (IISD) <<http://www.iisd.org/pdf/2012/basel3.pdf>> accessed 28 October 2013.
60. Peter Went 'Basel II Accord: Where do we go from here?' (2010) SSRN <<http://ssrn.com/abstract=1693622>> accessed 28 October 2013.
61. Phillip Harle, Erik Luders, Theo Papanides, Sonja Pfetsch, Thomas Poppensieker, & Uwe
62. Stegemann 'Basel III and European Banking: Its Impact, How Banks Might Respond, and the Challenges of Implementation' (2010) MCKINSEY <www.mckinsey.com/~/media/26_Basel_III_and_European_banking.pdf> accessed 28 October 2013.
63. Phillip R. Wood 'Law and Practice of International Finance' (Thomas Reuters (Legal) Limited, London, 2008).

64. Phillip R. Wood 'Legal Impact of the Financial Crisis: A Brief List' (2009) *Capital Markets Law Journal* 4(4), 436-450.
65. Richard Reid 'The Year is 2020. Basel 6: How Did We Get Here? - Opinion' (2012) *International Financial Law Review*, 31(10), 61-61.
66. Rosa Maria Lastra 'Systemic risk, SIFIs and Financial Stability' (2011) *Capital Markets Law Journal*, 6(2), 197-213.
67. Ross P. Buckley and Douglas W. Arner 'From Crisis to Crisis: The Global Financial System and Regulatory Failure' (2012) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1980010> accessed 28 October, 2013.
69. Stijn Claessens 'The Financial Crisis and Financial Nationalism' (2009) CEPR <<http://www.cepr.org/meets/ltm/2407/Claessens.pdf>> accessed 28 October 2013.
70. Stephen Valdez & Philip Molyneux 'An Introduction to Global Financial Markets' (Palgrave Macmillan, 2010).
71. Squam Lake Working Group on Financial Regulation 'An Expedited Resolution Mechanism for Distressed Financial Firms: Regulatory Hybrid Securities' (2009) Council on Foreign Relations Working Paper (April).
72. Task Force on the Causes of the Financial Crisis 'The Financial Crisis of 2007-2009: Causes and Contributing Circumstances' (2009) SSRN <<http://ssrn.com/abstract=1647082>> accessed 28 October, 2013.
73. The Federal Deposit Insurance Corporation Improvement Act of 1991.
74. Uday Rajan, Amit Seru & Vikrant Vig 'The Failure of Models that Predict Failure: Distance, Incentives and Defaults' (2010) SSRN <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1296982> accessed 28 October 2013.
75. Uzma Ashraf, Irfan Munawar Gill, and Douglas W. Arner 'The Road to Financial Stability' (2011) *Global Journal of Business Research*, 5(5), 71-79
76. Zoltan Sarkany 'The New Basel III Rules and Recent Market Developments' (2011) SSRN <<http://ssrn.com/abstract=2155112>> accessed 28 October 2013.

STOCK MARKET AND FOREIGN DIRECT INVESTMENT IN ZIMBABWE

*Kunofiwa Tsaurai**

Abstract

This study investigates the causality relationship between stock market and foreign direct investment. The subject has been contentious in recent years with three theoretical rationales emerging. The first being that FDI net inflows boost stock market by increasing the amount of funds into the host country's economy. The second suggests that FDI inflows forces the host country government to embrace market friendly policies, regulations and controls that end up boosting stock market. The third theoretical rationale mentions that well-developed and functioning stock markets attracts FDI as multinational firms perceive such a market as a friendly environment whose government is more open to the international community. Using the bi-variate causality test framework, this study discovered that there exists a long run relationship between stock market and FDI net inflows in Zimbabwe. However, the direct causality relationship from either stock market to FDI or from FDI to stock market development could not be found. This implies that stock market development and FDI net inflows in Zimbabwe are indirectly related to each other via some factors whose investigation should be a subject of another research.

Keywords: Zimbabwe, Stock Market Development, Foreign Direct Investment, Co-Integration Testing Approach

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1. Introduction

This research investigates the relationship between stock market development and foreign direct investment (FDI). Quite a number of researchers seem not to agree on the directional causality relationship between stock market development and FDI and these are not limited to Soumare and Tchana (2011), Desai et al (2006) and Henry (2000). Kholdy and Sohrabian (2008) and Rajan and Zingales (2003), Ncube (2007) and Claessen and Laeven (2003).

Ncube (2007) and Claessen and Laeven (2003), suggested that well-developed stock markets are better able to increase foreign capital productivity through allocating financial resources to projects with high rate of return. Furthermore, developed stock markets attract more FDI by providing better risk reduction and diversification mechanisms, argued Ncube (2007). Guiso et al (2004) weighed in by mentioning that developed stock markets enable individuals and companies easy access to external funds at a low cost apart from attracting FDI.

Bartels et al (2009) argued that stock markets avails cheaper information to potential foreign investors thereby contributing to the decline in the level of asymmetric information that normally curtail

international capital mobility. According to Levine (1997a), well developed stock markets boost liquidity hence enabling faster trading of financial instruments and settlement. According to Antras et al (2007), weak stock markets forces the scaling down of foreign firms activities as they will be over depending on capital flows from the parent company. A study carried out by Korgaonkar (2012) revealed that stock market development as measured by stock market capitalization and total value traded influenced FDI. Soumare and Tchana (2011) found out that FDI initially boost stock market growth due to FDI related spillover investment opportunities and then a well-developed stock market attract more FDI inflows in return.

For a small country like Zimbabwe characterized by a weak and thin stock market, the role of stock market development in attracting FDI and vice-versa become very crucial. It is against this backdrop that the current research dwells on analyzing the causality relationship between FDI and stock market development in the context of Zimbabwe. Findings from this research will definitely assist the Zimbabwean government not only in devising stock market related strategies of attracting more FDI but also ways of harnessing FDI to

strengthen and solidify stock market development. The research will also contribute towards enrichment of the general body of knowledge in the field of FDI and stock market development.

This study used time series data ranging from 1988 to 2012 to find out the directional causality relationship between stock market development and foreign direct investment. Stationarity investigation of both stock market development and FDI data is done first in order to determine the extent of data volatility. The second procedure is to determine if long run relationship between stock market development and FDI exists. If a long run relationship exists between stock market development and FDI, then a Granger causality test is done to determine the causality direction between the two variables. The research employs FDI (% of GDP) as a measure of

FDI and stock market capitalization (% of GDP) as a measure of stock market development. The rest of the study is arranged as follows. Part 2 gives an in depth overview of stock market development and FDI in Zimbabwe whilst part 3 looks at both theoretical and empirical literature review. Part 4 deals with research methodology, part 5 concludes the study whilst part 6 provides the list of references used in the study.

2. Stock Market Development and Foreign Direct Investment in Zimbabwe

The relationship between stock market development and FDI in Zimbabwe has been characterised by ups and downs during the period 1980 to 2012 (see Figure 1).

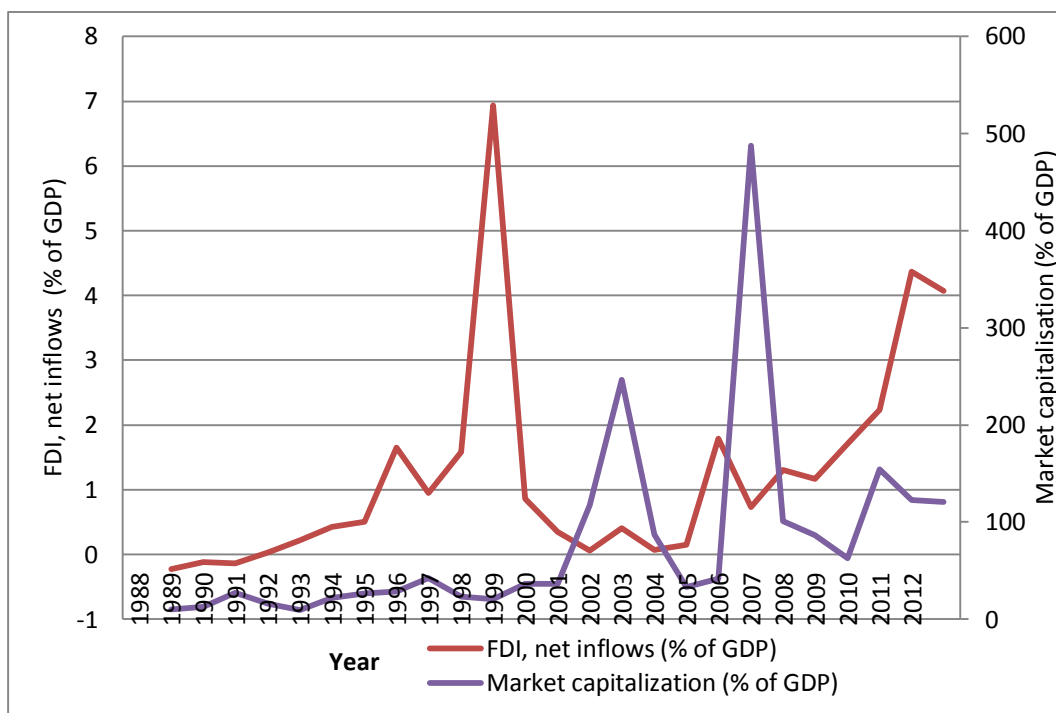


Figure 1. Stock market development and FDI trends in Zimbabwe

Source: World Bank (2012)

According to the World Bank (2012), FDI net inflows (% of GDP) into Zimbabwe went up by 0.11 percentage points from -0.23% in 1988 to -0.12% in 1989, whilst stock market capitalization (% of GDP) increased from 9.90% to 12.91% during the same period (see Figure 1). The period from 1990 to 1995 saw FDI net inflows (% of GDP) surging by 1.79 percentage points, from -0.14% to 1.66%. The same period saw stock market capitalization (% of GDP) slightly going up by 1.34 percentage points from 27.32% in 1990 to 28.66% in 1995. The subsequent five-year period recorded another decline in FDI net inflows (% of GDP) in Zimbabwe from 1.66% in 1995 to 0.35% in 2000 whilst stock market

capitalization (% of GDP) further increased from 28.66% to 36.36% during the same period. FDI net inflows (% of GDP) went up by 1.44 percentage points between 2000 and 2005, before experiencing another marginal increase of 0.45 percentage points, from 1.79% in 2005 to 2.23% in 2010. On the other hand, stock market capitalization (% of GDP) went up by 5.37 percentage points, from 36.36% in 2000 to 41.73% in 2005. Moreover, stock market capitalization (% of GDP) moved up from 41.73% in 2005 to 154.39% in 2010, representing a massive increase by 112.66 percentage points. The period 2010 to 2012 saw FDI net inflows (% of GDP) going up by 1.84 percentage points whilst stock market

capitalization (% of GDP) nosedived by a massive 33.85 percentage points. Stock market capitalization (% of GDP) went up from 2.23% in 2010 to 4.08% in 2012 whilst FDI net inflows (% of GDP) declined from 154.39% in 2010 to 120.54% in 2012.

The percentage changes of FDI net inflows (US\$) and stock market capitalisation (US\$) in Zimbabwe between 1988 to 2012 is characterised by many fluctuations (see Figure 2).

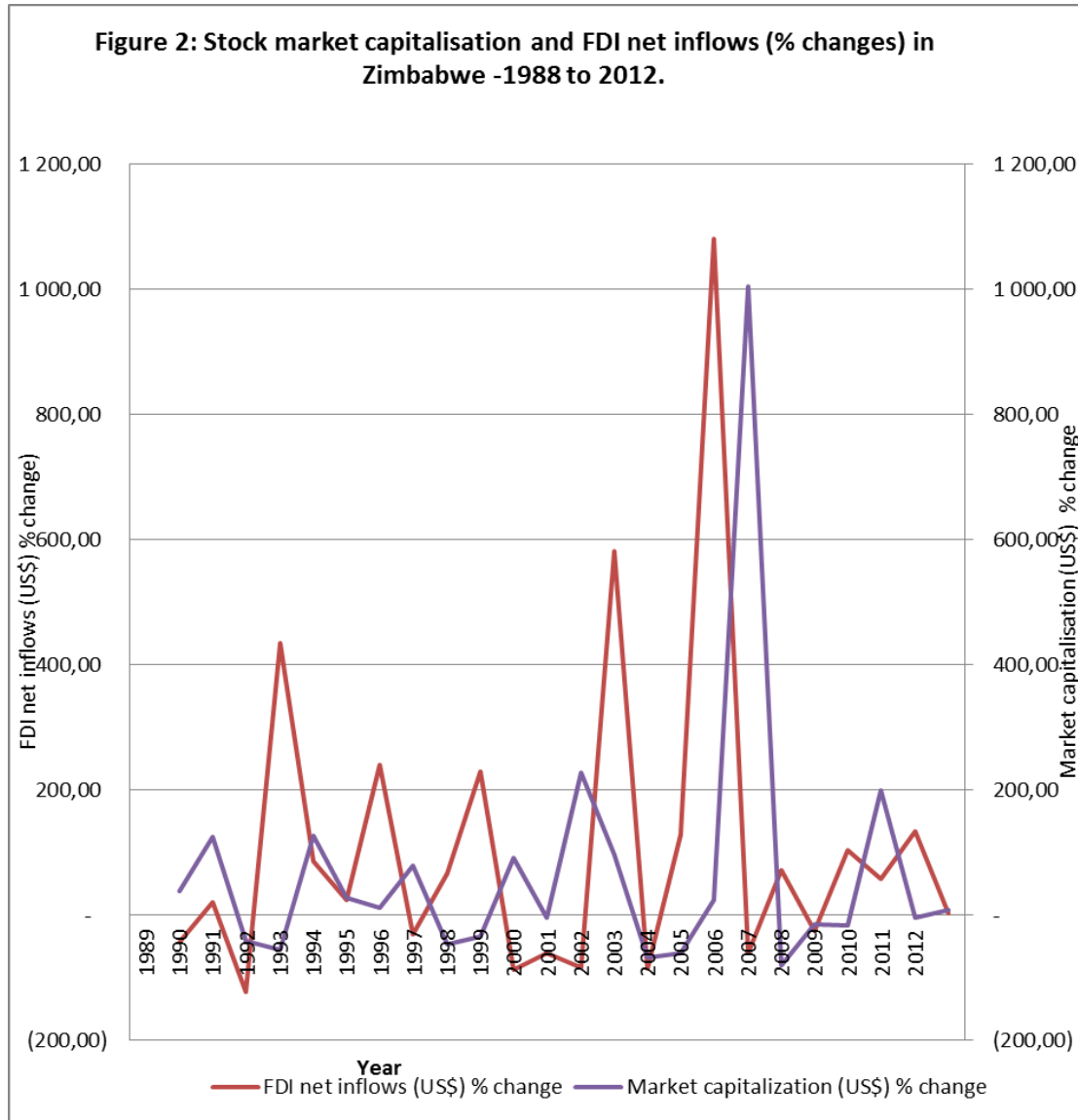


Figure 2. Stock market capitalization and FDI net inflows (% changes) in Zimbabwe (1988-2012)
 Source: World Bank (2012)

According to World Bank (2012), the period from 1990 to 1995 saw FDI net inflows into Zimbabwe shrinking by 32.32%, from -US\$18.03 million in 1988 to - US\$12.21 million in 1990. During the same period, stock market capitalisation surged by 210%, from 774US\$ million in 1988 to 2.4US\$ billion in 1990. The subsequent five year period saw FDI net inflows into Zimbabwe going up by a massive 1 064%, from -US\$12.21million in 1990 to US\$117.70 million in 1995. During the same period, stock market capitalisation in Zimbabwe went down by 15.08%, from US\$2.4 billion in 1990 to

US\$2.038 billion in 1995. Stock market capitalisation experienced a rebound by 19.35% during the period 1995 to 2000 whilst FDI net inflows into Zimbabwe took a knock by 80.29% during the same period. FDI net inflows into Zimbabwe increased by a massive 343.10%, from US\$23.20 million in 2000 to US\$102.80 million in 2005 whilst stock market capitalisation decreased by a mere 1.26% during the same period (from US\$2.432 billion in 2000 to US\$2.402 billion in 2005).

Both FDI net inflows and stock market capitalisation registered impressive growth between

2005 and 2010 with the former going up by 61.38% whilst the latter gained 377.85% during the same period. FDI net inflows actually went up from US\$102.80 million in 2005 to US\$165.90 million in 2010 whilst stock market capitalisation increased from US\$2.402 billion in 2005 to US\$11.476 billion in 2010. However, the period from 2010 to 2012 saw FDI net inflows into Zimbabwe going up by 140.81% whilst stock market capitalisation only registered a slight increase of 2.96%. Stock market capitalisation was US\$165.90 million in 2010 and went up to US\$399.50 million in 2012 whilst stock market capitalisation jumped from US\$11.476 billion in 2010 to US\$11.816 billion in 2012.

3. Review of Related Literature

There are three theoretical rationales that explain the direct causality relationship between FDI and stock market development (Soumare and Tchana, 2011). The first being that FDI net inflows boost stock market development by increasing the amount of funds in the host country's economy.

The proponents of this category argue that there are high chances that multinational firms that bring FDI inflow end up listing their shares on the stock exchange of the host country. Studies whose views are consistent with this category include but are not limited to Desai et al (2006) and Henry (2000). The second theoretical rationale referred to as the political economy argument suggests that FDI inflows forces the host country government to embrace market friendly policies, regulations and controls that end up boosting stock market development. Studies whose findings concur with this category were undertaken by Kholdy and Sohrabian (2008) and Rajan and Zingales (2003), among others.

The third theoretical rationale mentions that a well-developed and functioning stock markets attracts FDI as multinational firms perceive such a market as a friendly environment whose government is more open to the international community. Studies that are consistent with this view were undertaken by Desai et al (2006), among others. Due to high competition, a well-functioning and developed stock market is more liquid and reduces the cost of capital thus making the country more attractive to FDI inflows, argued Desai et al (2006). Ezeoha and Cattaneo (2011) suggested that the impact of FMD on stock market development can be divided into three views which include the allocative channel view, economic efficiency view and the liquidity easing view. Proponents of the allocative channel view who include Ncube (2007) and Claessen and Laeven (2003), among others argue that well developed stock markets are better able to increase foreign capital productivity through allocating financial resources to projects with high rate of return. Apart from this allocative efficiency argument, well developed stock markets attract more FDI by providing better risk reduction and

diversification mechanisms, argued Ncube (2007) and Claessen and Laeven (2003). According to Guiso et al (2004), well-functioning stock markets are well known not only for attracting FDI but for enabling individuals and companies easy access to external funds at a low cost.

Proponents of the economic efficiency view argue that well developed stock markets have got better capacity to ease information flow and reducing transaction costs thereby easily attracting FDI inflow. Bartels et al (2009) pointed out that stock markets provide cost-cutting information for the industries to potential foreign investors thereby contributing to the decline in the level of asymmetric information that normally curtail international capital mobility. Other studies whose findings are consistent to the economic efficiency view include those undertaken by Meon and Weill (2010), Levine (1997a) King and Levine (1993) and Gordon and Bovenberg (1996), among others.

The liquidity easing view argue that well developed stock markets boost liquidity hence enabling faster trading of financial instruments and settlement (Levine (1997a). Antras et al (2007), another proponent of the liquidity easing view argued that weak stock markets forces the scaling down of foreign firms activities as they will be over depending on capital flows from the parent company.

Many empirical studies whose findings can be grouped into two views have examined the relationship between FDI and stock market development. The first view maintains that FDI promotes stock market development. Studies that support this view were undertaken by Sultana and Pardhasaradhi (2012), Zafar et al (2013), Abzari et al (2011), Omran and Bolbol (2013) and Saibu (2012) among others. The second view mentions that stock markets development promotes FDI. Studies that support this view were undertaken by Korgaonkar (2012), Hailu (2010), Anyanwu (2012), Hussain and Kimuli (2012), Nasser and Gomez (2009), Omran and Bolbol (2003) and Seghir (2009), among others.

Stock market development as measured by stock market capitalization and total value traded and banking sector development as measured by central bank deposits and deposit money bank assets variables influenced FDI, revealed Korgaonkar (2012). Soumare and Tchana (2011) found out that FDI initially boost stock market growth due to FDI related spillover investment opportunities and then a well-developed stock market attract more FDI inflows in return.

The study by Aqeel et al (2004) revealed that stock market index played a negligible role in attracting FDI inflows into Pakistan. On the contrary, a study by Baker et al (2009) suggested the existence of a positive relationship between FDI inflows into the host country and the value of the stock market in the home country. Furthermore, Dhiman and Sharma (2013) found out a positive causality relationship

running from FDI inflows to Indian stock market development. A bullish trend on the Indian stock market was also found to have been closely and directly linked to FDI inflows into the Indian economy (Dhiman and Sharma, 2013). Using both the coefficient of correlation and regression analysis, the study by Dhiman and Sharma (2013) proved beyond reasonable doubt that FDI inflows positively influenced the Indian stock market.

A study by Henry (2000) concluded that financial markets liberalization increased FDI inflows and private investment in developing countries. Stock market liberalization reduced operational risks and cost of capital of foreign companies hence boosting FDI inflows into developing countries, revealed Henry (2000). Desai et al (2006) concurred with Henry (2000) and further revealed that liberalizing capital controls accelerate growth in the local activities of foreign companies thereby boosting FDI inflows. By not liberalizing capital controls, multinational firms incur high interest rates, organizational and regulatory costs. Liberalizing capital controls reduces these costs and attract more FDI inflow into the host country, argued Desai et al (2006). According to Levine (1997b), removing impediments to foreign investors boost host country stock market development index by facilitating its integration with other world stock markets.

4. Research Methodology

a) Data

For the purposes of this study, time series data which ranges from 1988 to 2012 was used. Stock market capitalisation and FDI net inflows data variables were extracted from the World Development Indicators. Stock market capitalisation (% of GDP) was used as a proxy for stock market development whilst FDI net inflows (% of GDP) was used as a proxy for FDI. Both stock market capitalisation and FDI net inflows data were auto correlated at level. However, the auto-correlation for both data variables was dealt away with at 1st difference.

b) Unit root tests

Stock market capitalisation and FDI data sets were tested for stationarity using the Augmented Dickey Fuller (ADF), Philips-Perron (PP) tests and the Dick-Fuller GLS. Unit root tests discovered that FDI data was not stationary at level because the test statistic was found to be greater than the critical values. Stock capitalisation data was found to be stationary at level because the test statistic was lower in value as compared to the critical values at both 1% and 5% (see Table 1).

Unit root test was then done at first difference to examine the stationarity of both sets using the Augmented Dickey Fuller (ADF), Philips-Perron (PP) tests and the Dick-Fuller GLS (see Table 2).

Table 1. Stationarity Tests of Variables in Levels

Variable	ADF /PP Test Statistic – Trend & Intercept	Critical Values	
Stationarity Tests of Variables on levels - Augmented Dickey-Fuller - Test			
FDI	-3.363722	-4.394309*	-3.612199**
SCAPT	-4.953835	-4.394309*	-3.612199**
Stationarity Tests of Variables on levels – Phillips-Perron (PP) Test			
FDI	-3.363722	-4.394309*	-3.612199**
SCAPT	-5.690433	-4.394309*	-3.612199**
Stationarity Tests of Variables on levels – Dickey-Fuller GLS (ERS) Test			
FDI	-3.534825	-3.770000*	-3.190000**
SCAPT	-5.174174	-3.770000*	-3.190000**

Note: 1) * and ** denote 1% and 5% levels of significance, respectively. 2) * MacKinnon critical values for rejection of hypothesis of a unit root. 3) The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.

Table 2. Stationarity Tests of Variables on first Difference

Variable	ADF /PP Test Statistic – Trend & Intercept	Critical Values	
Stationarity Tests of Variables on first Difference - Augmented Dickey-Fuller - Test			
DFDI	-6.753217	-4.416345*	-3.622033**
DSCAPT	-6.312294	-4.467895*	-3.644963**
Stationarity Tests of Variables on first Difference – Phillips-Perron (PP) Test			
DFDI	-8.559776	-4.416345*	-3.622033**
DSCAPT	-15.67991	-4.416345*	-3.622033**
Stationarity Tests of Variables on levels – Dickey-Fuller GLS (ERS) Test			
DFDI	-7.070906	-3.770000*	-3.190000**
DSCAPT	-6.690870	-3.770000*	-3.190000**

Note: 1) * and ** denote 1% and 5% levels of significance, respectively. 2) * MacKinnon critical values for rejection of hypothesis of a unit root. 3) The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.

As can be seen in Table 2, both stock market capitalisation and FDI data were found to be stationary at first difference. This was confirmed by the test statistic values that were lower than the critical values at 1% and 5% significance level.

c) Johansen Co-integration Testing Procedure

After removing the auto-correlation and ensuring stationarity in both the stock market capitalization and FDI data sets, the existence of a long run cointegration relationship between stock market and FDI variables was examined using the recently developed ARDL-bounds testing approach which is expressed as follows (see Tsaurai and Odhiambo, 2013).

$$\Delta \ln SCAPT_t = a_0 + \sum_{i=1}^n a_{1i} \Delta \ln SCAPT_{t-i} + \sum_{i=0}^n a_{2i} \Delta \ln FDI_{t-i} + a_3 \ln SCAPT_{t-1} + a_4 \ln FDI_{t-1} + \mu_t \dots \dots \dots (1)$$

$$\Delta \ln FDI_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln FDI_{t-i} + \sum_{i=0}^n \beta_{2i} \ln SCAPT_{t-i} + \beta_3 \ln y_t / N_{t-1} + \beta_4 \ln FDI_{t-1} + \mu_t \dots \dots \dots (2)$$

Where: lnFDI = FDI; lnSCAPT = Stock Market Capitalisation Ratio; Δ = first difference operator.

The optimal order of lags was found to be 2 for both stock market capitalisation and FDI net inflows first differenced variables in equations (1) and (2). The order of lags was established using the Akaike Information Criterion (AIC) and the Schwartz-Bayesian Criterion (SBC). This procedure must be

performed whenever the long run relationship between variables is being investigated under the ARDL-bounds testing procedure. Table 3 shows the co-integration results between the two variables under study.

Table 3. Unrestricted Cointegration Rank Test (Trace)

Eigenvalue	Trace Statistic	5% Critical Value	Hypothesized No. of CE(s)
0.626536	37.99896	15.49471	None *
0.523978	16.33039	3.841466	At most 1*

* Denotes rejection of the hypothesis at the 5% levels.
Trace test indicates 2 co-integrating equation at 5% level.

Table 4. Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Eigenvalue	Max-Eigen Statistic	5% Critical Value	Hypothesized No. of CE(s)
0.626536	21.66857	14.26460	None *
0.523978	16.33039	3.841466	At most 1*

* Denotes rejection of the hypothesis at the 5% levels.
Max-eigenvalue test indicates 2 co-integrating equation at 5% level.

We reject the null hypothesis that there is no significant long run relationship between stock market and FDI net inflows since Eigen value is lower than the critical values. The results show that there is a significant long run relationship between the two variables.

d) Granger causality tests

The next procedure after establishing the existence of a long run relationship between stock market and FDI net inflows would be to determine the directional causality between the two variables. This was done by performing Granger causality tests (see Table 5).

Table 5. Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Probability
Stock market capitalisation does not Granger cause FDI net inflows	23	0.00134	0.9712
FDI net inflows does not Granger cause stock market capitalisation		0.53559	0.4728

According to the results in Table 5, the author cannot reject the null hypothesis which says that stock market development does not Granger cause

FDI and FDI does not Granger cause stock market development. This is confirmed by the probability values that are greater than 0.05 and the F-statistic

that is less than 4. The study therefore reveals that whilst there is a long run relationship between stock market development and FDI, there is no direct causality from stock market development to FDI net inflows and vice versa in Zimbabwe. This confirms that the long run relationship between stock market development and FDI in Zimbabwe is via a set of indirect group of factors.

5. Conclusion

This study investigated the causality link between FDI and stock market development in Zimbabwe using data spanning from 1988 to 2012. Three theoretical rationales and three views of the relationship between these two variables were extensively discussed. The first theoretical rationale suggested that FDI net inflows boost stock market development through increasing the amount of funds in the host country's economy. The second theoretical rationale known as the political economy argument suggests that FDI inflows forces the host country government to embrace market friendly policies, regulations and controls that end up boosting stock market development. The third theoretical rationale mentions that a well-developed stock markets attract FDI as multinational firms perceive such a market as a friendly environment whose government is more open to the international community.

Three views of the relationship between stock market development and foreign direct investment encompass the allocative channel view, economic efficiency view and the liquidity easing view (Ezeoha and Cattaneo, 2011). Proponents of the allocative channel view argue that well developed stock markets are better able to increase foreign capital productivity through allocating financial resources to projects with high rate of return. Proponents of the economic efficiency view argue that well developed stock markets have got better capacity to ease information flow and reducing transaction costs thereby easily attracting FDI inflow. The liquidity easing view theorists argue that well developed stock markets boost liquidity hence enabling faster trading of financial instruments and settlement. The investigation used the Phillips-Perron, ADF and the Dickey-Fuller GLS unit-root tests to examine the order of integration.

Using the bi-variate causality test framework, this study discovered that there exists a long run relationship between stock market development and FDI net inflows in Zimbabwe. However, the direct causality relationship from either stock market development to FDI or from FDI to stock market development could not be found. This implies that stock market development and FDI net inflows in Zimbabwe are related via some factors whose investigation should be a subject of another research. The study therefore urges Zimbabwe to concentrate on addressing factors that can help FDI net inflows to

boost stock market development or to implement policies that can help stock market of Zimbabwe to attract more FDI net inflows into the country.

References:

1. Abzari, M. Zarei, F and Esfahani, S.S. (2011). Analysing the link between financial development and foreign direct investment among D-8 group of countries. *International Journal of Economics and Finance*, Vol. 3(6), pp. 148-156.
2. Antras, P. Desai, M.A and Foley, C.F. (2007). Multinational firms, FDI flows and imperfect capital markets. *National Bureau of Economic Research, Working Paper 12855*.
3. Anyanwu, J.C. (2012). Why does foreign direct investment go where it goes?: New evidence from African countries. *Annals of Economics and Finance*, Vol. 13(2), pp. 425-462.
4. Aqeel, A. Nishat, M. and Bilquees, F (2004). The determinants of foreign direct investment in Pakistan. *The Pakistan Development Review*, Vol. 43(4), pp. 651-664.
5. Baker, M. Foley, C.F. and Wurgler, J. (2009). Multinationals as Arbitrageurs: The effect of stock market valuations on foreign direct investment. *The Review of Financial Studies*, Vol. 22 (1), pp. 337-369.
6. Bartels, F.L. Alladina, S.N. and Lederer, S. (2009). Foreign direct investment in Sub-Saharan Africa: Motivating factors and policy issues. *Journal of African Business*, Vol. 10(2), pp. 141-162.
7. Claessens, S. and Laeven, L. (2003). Financial development, property rights and growth. *Journal of Finance*, Vol. 58(6), pp. 2401-2436.
8. Desai, M.A. Foley, C.F. and Hines, J.R. (2006). Capital controls, liberalizations and foreign direct investment. *The Review of Financial Studies*, Vol. 19(4), pp. 1433-1464.
9. Dhiman, R. and Sharma, P. (2013). Impact of flow of FDI on Indian capital market. *European Journal of Business and Management*, Vol. 5(9), pp. 75-80.
10. Ezeoha, A.E. and Cattaneo, N. (2011). FDI flows to Sub-Saharan Africa: The impact of finance, institution and natural resource endowment. Department of Economics and Economic History, Rhodes University, South Africa. *Paper submission for the CSAE Conference 2011: Economic Development in Africa*.
11. Gordon, R.H. and Bovenberg, A.L. (1996). Why is capital so immobile internationally? Possible explanations and implications for capital income taxation? *American Economic Review*, Vol. 86(5), pp. 1057-1075.
12. Guiso, L. Sapienza, P. and Zingales, L. (2004). Does local financial development matter? *Quarterly Journal of Economics*, Vol. 119(3), pp. 929-969.
13. Hailu, Z.A. (2010). Demand side factors affecting the inflow of foreign direct investment to African countries: Does capital market matter?. *International Journal of Business and Management*, Vol. 5(5), pp. 103-112.
14. Henry, P.B. (2000). Do stock market liberalizations cause investment booms?. *Journal of Financial Economics*, Vol. 58(1), pp. 301-334.
15. Hussain, F. and Kimuli, C.K. (2012). Determinants of foreign direct investment flows to developing countries. *SBP Research Bulletin*, Vol. 8(1), pp. 13-31.

16. Kholdy, S. and Sohrabian, A. (2008). Foreign direct investment, financial markets and political corruption. *Journal of Economic Studies*, Vol. 35(6), pp. 486-500.
17. King, R.G. and Levine, R. (1993). Finance, entrepreneurship and growth: Theory and evidence. *Journal of Monetary Economics*, Vol. 32(3), pp. 513-542.
18. Korgaonkar, C. (2012). Analysis of the impact of financial development on foreign direct investment: A data mining approach. *Journal of Economics and Sustainable Development*, Vol. 3(6), pp. 70-78.
19. Levine, R.N. (1997a). Financial development and growth: Views and agenda. *Journal of Economic Literature*, Vol. 35(2), pp. 688-726.
20. Levine, R.N. (1997b). Stock markets, economic development and capital control liberalisation. *Investment Company Institute Perspective*, Vol. 3(5), pp. 1-8.
21. Meon, P. and Weill, L. (2010). Does financial intermediation matter for macro-economic performance?. *Economic Modelling*, Vol. 27(3), pp. 296-303.
22. Nasser, O.M. and Gomez, X.G. (2009). Do well functioning financial systems affect the FDI flows to Latin America?. *International Research Journal of Finance and Economics*, Vol. 29 (5), pp. 60-75.
23. Ncube, M. (2007). Financial services and economic development in Africa. *Journal of African Economies*, Vol. 16(1), pp. 13-57.
24. Newey, W.K. and West, K.D. (1987) 'A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix', *Econometrica*, Vol. 55(3), pp.703-708.
25. Omran, M and Bolbol, A. (2003). Foreign direct investment, financial development and economic growth: Evidence from the Arab countries. *Review of Middle East Economics and Finance*, Vol. 1(3), pp. 231-249.
26. Rajan, R.J. and Zingales, L. (2003). Saving capitalism from the capitalists: Unleashing the power of financial markets to create wealth and spread opportunity, Princeton University Press, Princeton, NJ.
27. Saibu, M.O. (2012). An analysis of causal nexus between foreign direct investment, exchange rate and financial market development in Nigeria (1970 to 2009). *African Journal of Economic and Sustainable Development*, Vol. 1(1), pp. 95-102.
28. Seghir, S. (2009). Does foreign direct investment impact the financial stability or conversely: The case of Tunisia? A gravity model approach. *Investment Management and Financial Innovations*, Vol. 6(1), pp. 96-100.
29. Soumare, I. and Tchana, F.T. (2011). Causality between foreign direct investment and financial market development: Evidence from emerging markets. MPRA Paper No. 31328.
30. Sultana, S.T.S and Pardhasaradhi, S. (2012). Impact of flow of FDI & FII on Indian stock market. *Finance Research*, Vol. 1(3), pp. 4-10.
31. Tsauroi, K. and Odhiambo, N.M. (2013). Government expenditure and economic growth in Zimbabwe: An ARDL-bounds testing approach. *International Journal of Economic Policy in Emerging Economies*, Vol. 6(1), pp. 78-90.
32. World Bank (2012). World Development Indicators published by the World Bank, Washington D.C.
33. Zafar, H. Qureshi, T.M. and Abbas, Z. (2013). Does foreign direct investment influence development of stock market of host country? Evidence from Pakistan. *African Journal of Business Management*, Vol. 7(9), pp. 678-687.

THE EVOLUTION OF PUBLIC AND PRIVATE INVESTMENT IN ZIMBABWE

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Abstract

This paper aims to put the spotlight on the evolution of both public and private investment in Zimbabwe, as they responded to the economic policies implemented from 1965 through to 2011. With the adopted inward-looking policy in 1965, the massive core of infrastructural growth in public investment became a catalyst to the high level of private investment growth. The perpetuated market-intervention policy in 1980 later resulted in the growth of public investment. Despite the adoption of a market economy in the 1990s, the envisaged cut in public investment did not occur. Very few State enterprises had been privatised by the year 2000; and there was a reversal to the market-intervention strategy during the period 2000 to 2011. Notwithstanding the government's efforts to boost both private and public investment in Zimbabwe, the country still faces a number of challenges, as do many other African countries. These challenges include, amongst others: (i) The high national debt overhang; (ii) low business confidence; (iv) liquidity constraints; (v) low industrial competitiveness; and (vi) an inadequate infrastructure.

Keywords: Public, Private, Investment, Zimbabwe

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1. Introduction

While both policy-makers and economists agree that investment has a positive effect on economic growth, the optimal balance in the split between public and private investment is still an unresolved matter. The empirical questions that still need to be answered are: (i) What is the relative impact of public and private investment on the rate of economic growth? And (ii) what is the relationship between the two components of investment (Nazmi and Ramrez, 1997).

On the one hand, there are views that suggest that public sector investment in the State-owned enterprises (SOEs) – which are highly subsidized, but inefficient – in energy, agriculture, transport, manufacturing, and financial services – has marginalized the private sector from profitable business opportunities; and it still retards the long-run economic growth rates.

On the other hand, there are those who believe that public investment could complement private investment, when this is limited to the economic activities that ensure the full working of a market economy: For instance, public investment in economic and social facilities promotes private sector growth (Ghali, 1998).

There are a number of empirical studies that have been conducted on the relationship between public and private investment; and their relative effects on economic growth which have given rise to mixed findings. For example, the empirical work by Aschauer (1989); Erenburg and Woher (1995); Odedokun (1997); and Pereira (2001, 2003) all suggest that public investment in the basic infrastructural provision complements private investment.

However, the findings of Monadjemi (1993); Zou (2003a, b); Graham (2002); Naraya (2004) all concluded that public investment is a substitute for private investment.

Zimbabwe is a typical economy where the public and private investments have played changing roles in its growth process. The colonial period, 1965 to 1980, was marked by a rise in public investment in activities that complemented private sector growth. Economic growth was high, averaging 6.7%, although it decelerated towards 1980 (Government of Zimbabwe, 1982). Although the private sector vibrancy was maintained during the 1980 to 1990 period, public investment grew rapidly through the acquisition and the creation of the new SOEs.

Initially, the economic growth rates were impressive; but as the effect of the high debt burden and the inefficiency of the SOEs set in, growth rates were reduced to negative values by the end of the 1980s (Government of Zimbabwe, 1991a).

This resulted in the government of Zimbabwe adopting the International Monetary Fund (IMF) backed privatization programme during the 1991 to 2000 period. The aim was to enhance economic efficiency, by cutting back on the SOEs portfolios; however, it did not produce impressive results due to the poor implementation of this exercise. A reversal to the State's economic emphasis was registered during the economic meltdown of the 2000 to 2008; and later, during the 2009 to 2012 period, which resulted in the retention and consolidation of a great number of SOEs (Government of Zimbabwe, 2004; R.B.Z, 2013).

Although both public and private investments have changed roles over time in Zimbabwe, their importance in shaping the current Zimbabwean economy cannot be overstated.

Despite their indispensable roles in the growth process in Zimbabwe, research work on the growth dynamics and the link that exists between public and private investment, is limited (Dailami and Walton, 1989; Jenkins, 1998; Masunungure and Zhou, 2006). The aim of this paper is to put under the spotlight, the evolution of the two components of investment. This will be done by documenting their origin, and by highlighting the relationship that has existed between them in their growth process in the period from 1965 through to the 2011.

2. Tracing Public Investment in Zimbabwe – both before and after the Unilateral Declaration of Independence in 1965

The foundation of public investment in Zimbabwe can be traced from before the Unilateral Declaration of Independence (UDI) in 1965 through to 1980 – during the period of UDI. Initially, before the 1965 UDI, there was a surge in public investment by the colonial government. This was against a background of investment in power generation, railway lines and road construction, the establishment of an iron and steel State company, and the creation of a few marketing boards.

The guiding principle in the rise of public enterprises was to have State investment in those sectors, which were vital to the economy, but unattractive to the private investors. The economic system was also fashioned by the use of market controls and subsidies to the public enterprises. This provided a downstream stimulus growth in private investment in different sections of the economy. For example, by taking advantage of the availability of

power and the railway lines, private investment in the manufacturing industry grew rapidly (Government of Zimbabwe, 1982).

From 1965 to 1980, there was the emergence of the new economic era that shaped public investment. This was a period marked by economic sanctions imposed on the colonial government, following its UDI in 1965. The colonial government, subsequently, developed the economic system that was interventionist and protectionist in nature in the spirit of an import substitution strategy.

2.1. The rise of Public Sector Investment in Zimbabwe: 1980-1990

The new Zimbabwean government at the dawn of independence in 1980 extended the market-intervention economic growth strategy that had been characteristic of its predecessor, the colonial government. This economic strategy was motivated by the need to address the social and economic imbalances created during the colonial era. Hence, the government set out to create an economic growth process that had the active support and participation of the masses through rural sector development, employment creation, and access to the public services.

Public-sector investment growth then became the vehicle through which the government's developmental objectives were to be achieved (Government of Zimbabwe, 1981).

In line with the adopted growth of an equitable economic policy, public sector enterprises were expanded – chiefly through the creation of new enterprises in sectors, such as those in agriculture, mining, manufacturing, health, education, energy, tourism, transport and communication, in addition to banking and finance. Most of the new parastatals created were implemented through the Industrial Development Corporation (IDC), which was formed in 1963 to promote the growth of new investment.

Through the IDC, the State investments grew in the various sectors of the economy to the extent that IDC had 45 investment portfolios, which were wholly or partially owned subsidiaries (Government of Zimbabwe, 1981).

The government's ambitious economic growth with its equity agenda through State enterprise growth was also extended by the Transitional National Development Policy (TNDP) of 1982 (Government of Zimbabwe, 1982). As may be seen in Table 1, the public sector was poised to take a leading role in gross capital formation for the period 1982 to 1985. From the Z \$ 6 096 million cumulative total investment-planned budgets, 59 per cent was to be allocated to the public sector, with the private sector taking the remaining 41 per cent.

Table 1. Gross and Gross Fixed-Capital Formation by Sectors (in million of Z\$ at current prices)

	1981	Base Year 81/2	Plan Period				Percentage Share (Total=100)
			82/3	83/4	84/5	Total	
Gross Fixed Capital Formation							
Public Sector			1015	1162	1441	3618	66
Private Sector			431	636	791	1858	44
Total	706	978	1446	1798	2232	5476	100
Increase in Stocks							
Public Sector							
Private Sector			161	206	253	620	100
Total	305	237	161	206	253	620	100
Gross Capital Formation							
Public Sector			1015	1162	1441	3618	59
Private Sector			92	842	1044	2478	41
Total	1011	1215	1607	2004	2485	6096	100

Source: Government of Zimbabwe, 1982

High levels of new capital formation were also necessary, given the physical damage incurred by the infrastructure during the liberation war of independence. It was planned that two thirds of the cumulative planned-investment funds would go towards repair, maintenance, modernization and refurbishing; while a third would go towards new infrastructure (Government of Zimbabwe, 1982).

The allocation of investment resources by the industrial sector for the 1982-1985 planning horizon also reflected the then ongoing economic philosophy – balanced economic growth and development. As

illustrated in Table 2, the growing share of the level of investment in electricity and water, agriculture and rural development, transport and communication over the period was heavily propelled by the growth in public investment. Both transport and power infrastructures were identified as being crucial to efficiency in future production. The agricultural sector, which was domiciled by the peasant sub-sector, provided the large catchment of participants, where growth with equity consideration could be achieved through adequate public-sector investment (Government of Zimbabwe, 1982).

Table 2. Gross Fixed Capital Formation by the Industrial Sector (In millions of Z\$ at constant 1981 prices)

	1982	Base Year 81/2	Plan Period				Average Annual Percentage Change	Index 1984/5 1981/2 =100
			82/3	83/4	84/5	Total		
Agriculture, Livestock and Forestry	85	119	152	164.5	177.5	494	14.3	149.2
Manufacturing and Quarrying	106	105	87	94	101	282	-1.3	96.2
Manufacturing	155	191	265	286	309.5	861	17.5	162.0
Electricity and Water	57	68	86	93	101	280	14.1	148.5
Construction	11	18	29.5	31.5	34	95	23.6	188.9
Distribution, Restaurants and hotels	14	27	69	74.5	80.5	224	43.9	298.1
Transport and Communication	56	100	166.5	180	193.5	540	24.6	193.5
Material Production Total	484	628	835	924	997	2776	16.7	158.8
Housing	113	145	167	181	195	543	11.0	134.5
Education	18	31	45.5	49	53.5	148	68.4	477.4
Health	11	14	18.5	20.5	22	61	16.3	157.1
Public Administration	49	60	52	56	60	168	0.0	100.0
Finance and Insurance	17	18	20.5	22	23.5	66	9.3	130.6
Other Services	14	14	11.5	12.5	14	38	0.0	100
Non-Material Production Total	222	282	315	341	368	1024	9.3	130.5
(Excluding Housing)	(109)	(137)	(148)	(160)	(173)	(481)	(8.1)	(126.3)
Total Gross Fixed Capital Formation	706	910	1170	1265	1365	3800	14.5	150.0

Source: Government of Zimbabwe, 1982

As may be seen in Table 2, a total of Z \$ 5 476 million gross fixed capital formations were planned for the all industrial sectors. Material production was expected to take up 73 per cent of the planned investment expenditure. Manufacturing, construction and distribution, transport and communication, restaurants and hotels in the material-production subsector were to increase their shares in the total amount of gross fixed capital formation over the planning period; while electricity, water and agriculture were to maintain their shares. But the mining sector's share was to be reduced. In the non-material sector, the shares of education and health were to rise; while the shares of all the other subsectors were to be reduced (Government of Zimbabwe, 1982).

While the share of gross fixed capital formation in agriculture and rural development was to be maintained during the planning period, its ratio of 13 per cent of the total for all sectors was relatively high. This reflected the high priority assigned to the sector in addressing the colonial infrastructural imbalance which was to be corrected through high levels of public-sector investment. The manufacturing sector, which was largely private-sector driven, was envisaged to benefit immensely from the opportunities created by large public investment outlays and the high economic growth rates (Government of Zimbabwe, 1982).

Even though the TNDP emphasized the growth in public enterprises to achieve the government developmental objectives, it also recognized the important role played by the private sector – especially in material production. In that regard, it created the requisite incentives that promoted growth in the private sector. This was in line with the framework of government objectives and priorities, which were:

- Balanced economic growth;
- Development of growth points and similar rural areas, and the decentralization of industries;
- Value addition on the exportable raw materials; and
- Greater labour productivity, together with the use of appropriate technology and local raw materials, in the economy (Government of Zimbabwe, 1982).

Thus, while the vibrancy of the private sector enterprises was enhanced, in parallel the public enterprises sector expanded from the 20 per cent of the 1980s to over 40 per cent of the entire economic activities in 1990. These State enterprises were set up for different purposes. These included:

developmental, commercial, promotional and regulatory issues. However, the faster growth in public investment – than in private investment that occurred during the 1980 to 1990 – was achieved through the system of subsidy policy – which was deficit-financed (Government of Zimbabwe, 1982).

2.2. Public Investment in the 1991 to 2012 period

Negative economic growth rates that were caused by the inefficiency of SOEs and the marginalizing of the private sector by the public sector in resource allocation resulted in the government re-considering adopting the free-market economic system. The adopted commercialization and privatization of the SOEs that happened during the 1991 to 2000 period resulted in the limited growth of public investment. This growth was limited to the SOEs that had portfolios in the basic infrastructural provision.

However, following the huge economic meltdown that started from 2000 through to 2008 in Zimbabwe, the State reverted to the market-intervention policies. The State believed that the then ongoing economic decline could be reversed by capacitating SOEs. This economic philosophy resulted in the halting of privatization programme that had been started in 1991. Instead, a State-enterprise restructuring policy was adopted (RBZ, 2007).

The emphasis during the State enterprises restructuring exercise was to unbundle and fully commercialize the parastatals that had not yet been unbundled. This resulted in a number of parastatals taking this route, for example: The Zimbabwe Electricity Supply Authority (ZESA) was unpackaged into five separate subsidiaries, namely, the Zimbabwe Electricity Transmission Company (ZETC), the Zimbabwe Power Company (ZPC), the Power Tel, the Zimbabwe Electricity Distribution Company (ZEDCO), and the ZESA parent enterprise (Government of Zimbabwe, 2009).

The State-enterprise restructuring exercise was also perpetuated by the incoming new inclusive government in 2009. In the new unity government, State enterprises were identified as drivers of the national socio-economic objectives (Government of Zimbabwe, 2009). This means that the still high portfolios of the State enterprises were maintained during the tenure of the inclusive government (2009-2013). There were 78 State companies and parastatals that were restructured (as can be seen in Tables 3a and 3b).

Table 3a. List of Parastatals with 100% Government Shareholding

	Public Enterprise	Government Shareholding
1	National Railway of Zimbabwe	100%
2	ZESA	100%
3	Cold Storage Commission (CSC)	100%
4	NOCZIM	100%
5	Zimbabwe National Water Authority	100%
6	ARDA	100%
7	Netone	100%
8	Telone	100%
9	CMED	100%
10	Air Zimbabwe	100%
11	Zimbabwe Mining Development Corporation	100%
12	Grain Marketing Board	100%
13	Industrial Development Corporation	100%
14	District Development Fund	100%
15	Minerals Marketing Corporation of Zimbabwe	100%

Source: RBZ, 2007

Table 3b. Government Stake through the Reserve Bank of Zimbabwe (RBZ) Shareholding

	Enterprise	Government Stake Through RBZ Shareholding
1	Aurex	100%
2	Cairns Foods	65%
3	Tractive Power Holding	65%
4	Sirtech	60%
5	Homelink	100%
6	Dairiboard	21%
7	Cotton Company of Zimbabwe	7%
8	Export Credit Guarantee Company	100%
9	St Lucia Park	50%
10	Astra Holding	66%
11	Old Mutual	8%
12	Fidelity Printers and Refineries	100%
13	Tuli Coal	70%
14	Infrastructure Development Bank of Zimbabwe	16.75%

Source: RBZ, 2007

As can be seen in Tables 3a and 3b, the portfolio of State enterprises did not significantly decrease, after the inception of the privatization exercise in 1991. Besides holding portfolios of State enterprises in the justifiable core sectors, like the energy, transport (national railways) and water, the State had other portfolios in the commercial activities that were in direct competition with the private-sector enterprises.

3. Private Investment in Zimbabwe: 1965 to 1990

Private investment in Zimbabwe can also be traced – starting from the UDI period, 1965 to 1980. Although the colonial government had adopted the highly market-interventionist policies during the period, these did not crowd out growth in the private sector. This was largely so, because the State's economic participation was mainly focused on economic activities that aided the growth of private investment.

The adopted inward-looking economic strategy benefited the growth of the private enterprises. For example, private farmers (although they were mostly whites), through the established agricultural parastatal accessed subsidized inputs, credit facilities, and had a guaranteed market for their produce.

In the same way, the protectionist tariffs helped in the growth of the private manufacturing industries, as they were shielded from any external competition (Seidman, 1986).

At the dawn of independence in 1980, the Zimbabwean government extended the State-intervention policies that had shaped the growth path of private investment for the decade that was to follow. Unlike its predecessor government, the growth in public sector investment extended to commercial activities that posed direct competition with the private sector enterprises. For example, the creation of the new State enterprises of manufacturing, finance, mining and commercial agriculture crowded out the private sector growth in

product-market opportunities (Government of Zimbabwe, 1991a).

Private investment growth was also marginalized in resource-allocation during the period from 1980 to 1990. The growth in high public investment that was made possible by the subsidy policy was financed by borrowing from the domestic market. The continued borrowing in the wake of the growing inefficiency and financial losses of State enterprises – especially at the end of the 1980s – denied the private enterprises enough and affordable resources to finance their viable business ventures (Government of Zimbabwe, 1991a).

Although the public sector grew phenomenally during the period, the created mixed economic system maintained the vibrancy of the private sector. For example, the private sector efficiency greatly improved in the background of the State's high investment in human capital services, such as health and education. However, in the wake of the State enterprises' inefficiencies and losses, which were weighing down on economic growth rates, the government of Zimbabwe was forced to adopt free-market policies at the end of the 1980s (Government of Zimbabwe, 1991a).

3.1. The Commercialization and Privatization of State Enterprises through the Economic Structural Adjustment Programme (1991-1996)

Following the heavy financial losses of public enterprises, and the subsequent high government debt to Gross Domestic Product (GDP) ratio, which was weighing down on economic growth rates, the Zimbabwean government adopted market reforms in 1991 under the auspices of the IMF and World Bank-backed Economic Structural Adjustment Programme (ESAP) (Government of Zimbabwe, 1991a).

The principal objective of the ESAP was to remove all the market-intervention practices of the old economic policy regime that stood in the growth path of the private sector enterprises. The ultimate goal was to position the private sector, as the engine of the economic growth process in Zimbabwe. Thus, some of the critical reforms implemented that enabled the operation of market forces, included the following: Trade liberalization; domestic deregulation; financial sector and monetary-policy liberalization; fiscal policy, as well as tax changes and labour-market liberalization.

These reforms were implemented in parallel with the public enterprises reforms that were designed to start with the commercialization of the identified State-owned enterprises in preparation for their full privatization (Government of Zimbabwe, 1991a).

3.1.1. Public Enterprise Reform

As part of ongoing economic reforms, the government of Zimbabwe in 1991 started the privatization of public enterprises, in order to eliminate the budget deficit, and to enhance economic efficiency (Government of Zimbabwe, 1991b). In preparation for their full privatization, the State enterprises were to first undergo the commercialization process – to wean them off from the government protection, and to expose them to the competitive environment. Thus, the parastatals were given autonomy in their micro-decision-making on issues, such as hiring and firing, investment and price setting.

The fully commercialized State enterprises were then registered as private limited companies with a 100% government ownership. The government of Zimbabwe was set to benefit from this arrangement through revenue collection. The newly commercialized State enterprises were expected to pay tax that would improve the government's resource base. The government's propensity to borrow from the foreign and domestic capital markets to support the parastatals was also expected to fall, as they were now autonomous entities. The commercialization of the State enterprises was envisaged to result in the release of more resources towards the productive activities in the economy (Government of Zimbabwe, 1991b).

To accelerate the commercialization and privatization programme, the inter-ministerial committee was set up in 1994. It was tasked to come up with a policy paper on how it would proceed with the commercialization and privatization of State enterprises. Hence, it adopted the trenching approach, in which State enterprises were grouped into three major tranches. Tranche 1a was composed of State enterprises in the social function and these were to be retained as parastatals. Tranche 1b was composed of State enterprises that performed a promotional function; and these were also to be retained. Tranche 2 was composed of State enterprises, which were strategic to the government and were to remain as government owned.

The State enterprises in the first two tranches were the candidates for full commercialization only. The third tranche consisted of State enterprises in commercial activities, and these were candidates for commercialization, and then for privatization exercise (Privatization Agency of Zimbabwe, 2002).

The agricultural sector was one of the areas where the restructuring and commercialization was significant after the tranching of State enterprises. The cases in point are: the Cotton Marketing Board (CMB); the Dairy Marketing Board (DMB); the Grain Marketing Board (GMB); and the Cold Storage Commission (CSC). These agricultural parastatals were subjected to a fast-track reform process – in order to achieve high levels of operating efficiency.

After commercialization, the State enterprises were incorporated as private companies. These were 100% government-owned companies. In assuming their new legal status, the CMB became the Cotton Company of Zimbabwe (Cottco); the DMB became the Dairiboard Zimbabwe Ltd (DZL); and the CSC became the Cold Storage Company (CSC).

In addition, the government of Zimbabwe assumed the Z\$4 billion debt of these three major agricultural State enterprises (Government of Zimbabwe, 1998).

3.1.2. Enhanced Privatization under the Zimbabwe Programme for Economic and Social Transformation (1996-2000)

At the end of the first phase of commercialization, under the ESAP in 1995, there was no public enterprise in Zimbabwe that was ready for privatization. In fact, the conditions that were responsible for the ineffectiveness and inefficiency of the public enterprises were still prevalent. Although the commercialized State enterprises were registered as private companies under the companies Act, they were still governed by their line ministries through the Act of Parliament (Government of Zimbabwe, 1998).

On the positive side though, there was a significant reduction in the financial deficit of the aggregate public enterprises. The financial losses, which amounted to Z\$4 707 million in the 1992/93 financial year were reduced to Z\$ 648 million in the 1993/94 financial year (Government of Zimbabwe, 1998). In general, the commercialization and privatization targets during the ESAP were not met.

The government of Zimbabwe then came up with the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST) – to take over from the ESAP, and to finish the privatization exercise. Completing the public enterprise reform through the restructuring, rationalization and privatization of public enterprises became the core mandate of the ZIMPREST. To step up the reform process, a timetable for the divestiture of State enterprises – consisting mostly of those whose Acts of Parliament were still in force – was formed.

Notable progress was registered, however, in the second phase of privatization (1996-1999), compared to the first phase. From a total of 40 State enterprises that were planned for divestiture, five were successfully privatised. These were: the Commercial Bank of Zimbabwe (CBZ); the Dairiboard Zimbabwe Limited (DZL); the Zimbabwe Reinsurance Company (ZIMRE); the Zimbabwe Tourism Group of Companies (RTG); and the Cotton Company of Zimbabwe (Cottco).

The first State enterprises to be privatised were the DZL, Cottco and CBZ in 1997. ZIMRE and the RTG were later privatised in 1999. The State, however, retained some minority stake in all the

privatization exercises concluded (Government of Zimbabwe, 2000).

However, in comparison to the first phase of privatization, some progress was made in the second phase. Nevertheless, the rate of this privatization fell short of the expectations of the stakeholders – who included the World Bank and the IMF. This slow rate of progress resulted in the formation of the Privatization Agency of Zimbabwe (PAZ) in 1999. It was to take over the privatization business from the 1994 established inter-ministerial subcommittee of the cabinet (RBZ, 2007). It was to manage and lead the privatization exercise – with the following roles:

- By working in liaison with line ministries and parastatals, to help, support and speed up the privatization programme;
- To ensure the smooth flow of progress subject to the approval of the inter-ministerial committee on privatization on the plan of divestiture;
- To ensure that all the privatization processes are successful; and
- To ensure that the privatization processes led to job creation and foreign currency earnings for Zimbabwe (RBZ, 2007).

3.2. Private Investment in Zimbabwe: 2000 to 2012

Continued privatization through PAZ of the remaining SOEs was planned for the period beyond 2000. However, with the deterioration of the economy that was starting to set in, after the fast-track land-reform programme, its progress stalled. In fact, in the face of the worsening economic situation, private investment growth was negative for the years running up to 2008. Full and efficient operation of the private enterprises was handicapped by the high inflation rates, high interest rates, the high importation cost of raw materials, and the political uncertainty.

The growth prospects of private investment, however, improved with the coming of the unity government in 2009. Business confidence improved from 2009 to 2012, which resulted in positive growth in the formation of new private businesses.

4. Challenges Facing Public and Private Investment in Zimbabwe

Even though the Zimbabwean government launched a one-stop shop in 2010 – to reduce the new business formation period from more than 50 days to 11 days – there are still a number of investment growth constraints that need to be addressed. The challenges that affect private and public investment growth in Zimbabwe include: (i) The lack of clarity in the policy environment that emanates from implementation inconsistencies, particularly in regard to the regulations of economic empowerment and indigenization; (ii) the high national debt overhang,

which has reduced the country's creditworthiness that has resulted in highly priced lines of credit; (iii) low business confidence; (iv) liquidity constraints that have starved long-term finance to the productive sectors; (v) low industrial competitiveness, due to the use of outdated technology and obsolete equipment; (vi) poor and inadequate infrastructure, particularly in energy, water, health and transport; (vii) the general inefficiencies in the public enterprise; and (viii) the low and unpredictable rain pattern (Government of Zimbabwe, 2014; R.B.Z, 2013; A.F.D.B,2012).

Although the prevalence of these challenges cuts across all the various sectors in Zimbabwe, they are more severely felt by enterprises in the mining, agricultural, manufacturing, and the construction sectors – the pillars of the country's economy. For example, growth in these sectors has been hampered by the scarcity of long-term and cheap finance – principally, because of the country's high risk premium – which has been caused by the huge debt overhang and policy inconsistencies. These issues have greatly undermined the industrial competitiveness in Zimbabwean enterprises through, for instance, the inability to invest in modern technology, in power generation and in hiring skilled labour.

5. Conclusion

This paper has discussed the growth dynamics of public and private investment from 1965 to 2011. Five broad economic periods were identified, which influenced the growth trends of the two components of investments. These are: (i) The rise in public enterprise growth during the UDI (1965-1980); (ii) the extended growth in public enterprise after independence (1980-1990); (iii) the first phase of privatization under ESAP (1991-1995); (iv) the second phase of privatization under ZIMPREST (1996-2000); and (v) the State enterprise restructuring (2000-2011).

Following the UDI in 1965 to 1980, the adopted import-substitution economic growth strategy resulted in massive public enterprise growth which became a stimulus tool to self-grow the economy. Taking advantage of the basic infrastructure provided, private enterprises grew during the period, creating a vibrant mixed-economic system. The economic growth in response to the economic formation was also positive, averaging 6.5%.

There was an interruption to the growth trend, however; and this was realized during the 1977 to 1979 period, when the physical infrastructure was destroyed – due to the intensification of the war of liberation. In order to correct the economic imbalance inherited from the colonial rule, the government extended the market-intervention policies from 1980 to 1990. Public-enterprise growth was regarded as the vehicle through which the government was to achieve its developmental objective – growth with equity.

Partly because of the huge infrastructural gap that was inherited, the economic growth rates were impressive – following the massive public investment in utilities.

The limit to this growth buoyancy was, however, reached when the marginalization of the private sector set in, as the public enterprise growth was largely debt-financed. The huge financial losses of most parastatals that also followed reversed the high economic growth rates that had initially been achieved. As with most other African economies during that time, the economic crisis that was developing in Zimbabwe – as a result of the huge debt burden and public enterprises inefficiencies, forced the government to adopt the free market policies in the spirit of ESAP in 1991.

Through the privatisation programme, which was central to ESAP, the efficiency of the identified State enterprises was to be enhanced by their commercialisation – before their final sale to the private sector. Although no sale was concluded by the end of the first phase of privatisation in 1995, the result of the exercise was evident: the growth of public enterprises was suppressed. The growth of private enterprises picked up instead; and the economic growth rates were high.

The growth in private investment was further enhanced through ZIMPREST, during the 1996 to 2000 period. In relative terms to the Malawian and Zambian counterparts, the Zimbabwean privatisation exercise was less successful. Out of a total of 40 enterprises planned for divestiture, only five were successfully dispossessed. With the setting in of the economic meltdown from 2000 to 2008, following the fast-track land-reform programme in 2000, the privatisation exercise also slowed down.

In contrast to the ongoing spirit of privatisation, the government's emphasis changed to the restructuring of the State enterprises – dismantling them into small units, which were then subjected to commercialisation. Although the high portfolio of the State enterprises was maintained, the new unity government that was installed in 2009 stimulated investor confidence; and this helped to reverse the negative economic growth that had bottomed in 2008.

Although it may be argued that the Zimbabwean economy is a mixed system, it is important to point out that, besides holding high portfolios in the basic infrastructural enterprises, the State still actively participates in the commercial activities that directly compete with those of the private-sector enterprises.

Overall, this study finds that, despite the government's efforts to boost both private and public investment in Zimbabwe, the country still faces a number of challenges, as do many other African countries. These challenges include, amongst others: (i) The high national debt overhang; (ii) low business confidence; (iv) liquidity constraints; (v) low industrial competitiveness; and (vi) an inadequate infrastructure

References:

1. AF.D.B (African Development Bank). 2012. African Economic Outlook- The case of Zimbabwe. African Development Bank.
2. Aschauer, D. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics*, 23(1), 177-200.
3. Dailami, M. and Walton, M. 1989. Private Investment, Government Policy and Foreign Capital in Zimbabwe. World Bank Working Papers, Number WPS 248.
4. Erenburg, S.J. and Wohar, M.E. 1995. "Public and Private Investment: Are there casual linkages." *Journal of Macroeconomics*, 17(1), 1-30.
5. Ghali, K.F. 1998. Public Investment and Private Capital Formation in a Vector Error- Correction Model of Growth. *Applied Economics*, 30(6), 837-844.
6. Graham, M.V. 2002. "Public and Private Investment in United States and Canada." *Economic Modelling*, 29(4), 641-64.
7. Government of Zimbabwe. 2014. Budget Statement. Ministry of Finance and Economic Development. Harare, Government Printers.
8. Government of Zimbabwe. 2009. Budget Statement. Ministry of Finance and Economic Development. Harare: Government Printers.
9. Government of Zimbabwe. 1998. Zimbabwe Programme for Economic and Social Transitional (ZIMPREST). Harare: Government Printers.
10. Government of Zimbabwe. 1991a. Framework for Economic Reform, 1991-1995. Harare, Government Printers.
11. Government of Zimbabwe. 1991b. Economic Structural Adjustment Programme. Ministry of Finance and Economic Development. Harare: Government Printers.
12. Government of Zimbabwe. 1982. Transitional National Development Plan, 1982/83-1984/85. Volume 1. Harare, Government Printers.
13. Jenkins, C. 1998. Determinants of Private Investment in Zimbabwe. *Journal of African Economies*, 7(1), 34-61.
14. Masunungure, E. and Zhou, G. 2006. An Analysis of the Objectives and Effects of Privatisation on the Public Sector on the Role of the State in Zimbabwe. Zimbabwe Coalition on Debt and Development (ZIMCODD) and the Southern Africa Peoples' Solidarity Network (SAPSN).
15. Monadjemi, M. 1993. Fiscal Policy and Private Investment Expenditure: Study of Australia and the United States. *Applied Economics*, 25, 143-8.
16. Narayan, P.K. 2004. "Do Public Investment Crowds Out Private Investment? Fresh Evidence from Fiji.?" *Journal of Policy Modelling*, 26(6), 747-753.
17. Nazmi, N. and Ramirez, M.D. 1997. Public and Private Investment and Economic Growth in Mexico. *Contemporary Economic Policy*, Vol XV, 65-75.
18. Odedokun, M.O. 1997. Relative Effects of Public versus Private Investment Spending on Economic Efficiency and Growth in Developing Countries. *Applied Economics*, 29(10), 1325-1336.
19. Pereira, A.M. and Andraz, J.M. 2003. "The Effects of Public Investment on Private Investment on Different US Industries." *Public Finance Review*.
20. Privatisation Agency of Zimbabwe. 2002. Privatisation in Zimbabwe. PAZ Newsletter, Issue number 1.
21. Pereira, A.M. 2001. On the Effects of Public Investment on Private Investment: What Crowds in What? *Public Finance Review*, 29(1), 3-25.
22. R.B.Z (Reserve Bank of Zimbabwe). 2013. Monetary Policy Statement Presented on 31 January 2013. Reserve Bank of Zimbabwe.
23. R.B.Z (Reserve Bank of Zimbabwe). 2007. Unlocking Value Through Privatisation of Targeted Public Enterprises: Supplement to the January 2007 Monetary Policy Review Statement. Reserve Bank of Zimbabwe.
24. Seidman, A. 1986. Money, Banking and Public Finance in Africa. London. Zed.
25. Zou, Y. 2003a. A Comparative Study of Japan and US Economic Performance; Its Relationship with Public and Private Investment. The 60th annual meeting of Japan Economic Policy Association, Mimeo.
26. Zou, Y. 2003b. On the Relationship Between Public and Private Investment: An Empirical Study of Japan. *Journal of Economic Policy Studies*, 1, 18-29.

FINANCIAL PERFORMANCE AFTER THE SPANISH BANKING REFORMS: A COMPARATIVE STUDY OF 19 COMMERCIAL BANKS

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Abstract

A diagnostic review of the Spanish financial system during the 2008 financial crisis reveals the emergency need for banking reform in the sector. In an attempt to evaluate the impact of the Spanish reform, the present study examines the bank's performance before/after the reform was adopted, using data of 19 Spanish commercial banks extracted from the Global Vantage research database (Standard and Poor's) over the period 2006 to 2013. This study uses multivariable regression method to investigate the impact of the CAMELS rating system: capital adequacy, asset quality, management quality, liquidity and sensitivity to market risks on the bank's performance such as earnings efficiency. The time-line of the study is essential because it helps us to determine the financial performance of Spanish commercial banks before the banking reforms during the financial crisis and an important set in terms of mergers and acquisition in the banking industry. The empirical results have found strong and positive evidence that Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk are useful predictors of banks performance (earnings efficiency), thus, any reform pilot toward this banking indicators will eventually have a positive impact on banking performance. Base on the present study, the Spanish reform was so vital for better banking performance. Therefore, this study serves not only to academics but also to policy makers.

Keywords: Bank's Performance, Commercial Banks, CAMELS, Spanish Financial System, Financial Crisis

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1. Introduction

After the 2008 financial crisis, the performance of financial service has become the number one priority of most government officials. It is because banks and other financial institutions are known as the most important activity since their strategies affect economic development, employment, prices and national income (IMF, 2014). Thus, any positive or negative events encountered in this sector, is possible to impose threat to the entire economy. In other word, financial crisis encountered by countries primarily have its effect on the banking sector which is later being spread on the others sectors in the economy (Cibrán et al., 2008).

According to the recent financial crisis which causes bankruptcy around the world, Spain was placed at the top list because of the crucial state of its banking system which makes its economy vulnerable (Carbó-Valverde, 2011), unsustainable fiscal deficits,

rising borrowing cost, rapid job loss and severe financial turmoil (IMF, 2014). Before the crisis, the presentation of the income statements of Spanish banks 2007 reveal more traditional banking crisis, consisting of excess leverage and excess mismatch of the timing of assets and liabilities which was materialized under the shadow of an unregulated and unsupervised banking system.

Following the diagnosis of financial stability forum, evidence shows that low real interest rates and abundant liquidity; and a wave of financial innovation with little or no supervision by the authorities in charged were the core stimulus of the Spanish banking crisis. Thus, the spin off effect of the global financial crisis on Spanish banking sector makes Spain in collaboration with the European Financial Stability Facility (EFSF) developed a supported program aimed to gear the financial sector's participation to these forces by requiring weak banks

to more decisively clean their balance sheet and by reforming the sector's policy framework (FSF,2008).

Further, to know how effective and efficient banking system is, efficient use of credits, and all the guidelines stipulated by the reform's authority on Spanish banks, it is vital to assess the financial performance of the banking sector before and after the reforms. Financial performance indicates how the banks and other financial institutions use the available stipulated guidelines to protect the banking operating against continue risk or due to gambling incentive related to capital market (Teket et al. (2011).

Even though performance measurement entails identifying criteria and features that have crucial role in reaching the goal of a bank, Atkinson, (1997) illustrates criteria for evaluating firm's performance: measurement must be significant and understandable from the viewpoint of user; measurement method must be reliable and stable; and must be reviewed and generally be accepted by all people from difference perspectives. Nevertheless, banks and other financial service firms pose a special challenge appraising them for some reasons: difficulty in cash flow estimation; heavily regulated and changes in regulatory requirement; and assets being marked to market more frequently (Damodaran, 2009).

In this paper, we focus on bank's performance before/after the reform was adopted by the Spanish banking sector. We shall argue in this paper that reforms in the financial sector have been the core factor for the overall increase in net gain in the sector. Reforms in this sector have been well sequenced; taking the state of the market in the other segments or has large externality and formed the key institutions maintaining the payment system of an economy. Therefore, we employ CAMELS technique used in measuring bank performance which consists of six components: capital adequacy, asset quality, management, earning, liquidity and sensitivity to market risks. The dataset of this study consists of 19 commercial operating Spanish banks during 2006 to 2013. The timing period reveals very important set in terms of mergers and acquisition in the banking industry after the reform legislation was passed.

In the second section, we provide a brief insight of the existing literature covering: the Spanish financial system; banking sector reforms; and a summary of studies using the CAMELS rating system

in order to achieve financial performance in the banking sectors. Research design and the variable measurement employed in assessing the hypothesis of the present study will be discussed in third section. In the fourth section, we present and interpret the result obtained from third section. Lessons emerging from the Spanish experience for issues of topical relevance for the monetary authorities are considered in the final section.

2. Literature Review

2.1. Spanish financial sector

In broad term, financial service firm refers to any firm that is able to produce financial products or services. In Spain especially, when referring to financial service firms, more reference can be seen from the evolution of the Cajas de Ahorros Españoles (Pison Fernández, & Feijóo Souto, 2003). In fact, financial sector has been one of the most innovation and dynamic in the last 20 or 30 years (Huarte et al., 1989). It was precisely this intense innovation alone side with under-regulated financial system which incubated the 2008 financial crisis. Speaking of Spanish banks, creditable legislation was passed even though the separation between banks, insurance companies, investment banks and firms was always seemed artificial.

According Real Decreto-Ley11/2010, banks were giving a wide range of choosing the legal form they wish to develop specific financial activity. Recently, even though the financial crisis has marked a decline in the Spanish financial system, it is certain that is only part of the European financial system and as such demonstrate the continue need for external funding, integration and unification of the European financial system. Thus, the financial service sector has been the foundation of the Spanish economy (Pisón Fernández, 1980); banks providing much of the capital for growth and foreshadow both equity and bond markets as pioneers in risking sharing. Table 1 below summarizes the market capitalization of publicly traded banks, insurance companies, brokerage houses, investment firms and thrift in Spain after the reforms in the financial sector.

Table 1. List of 19 commercial banks in Spain used in the study

Commercial Banks	Global Vantage Key (GV Key)
Banco de Sabadella SA	245436
Banco Popular Español	15522
Banco Santandaer SA	14140
BFA Bankia	297957
BBVA Umim	15181
Caixabanco SA	286879
Unicajar Cesis	16307
Banco Valencia	281571
NCG Banco	243431
Grupo Catalana SA	212641
Liberbanco SA	281232
Libercaja SA	30875
BMN	286879
Kutxabanco-cajarsur	287851
Soixa Sicav SA	284815
Sotogrande SA	208183
Union Europea	16307
Urbas Grupo SA	104955

Source: Key (GV Key) of Spanish Banks extracted from the Global Vantage (Standard and Poor) database

2.2. Banking Sector Reform

The main objective of the banking sector reforms was to ensure adequate bank capitalization and reduce uncertainty regarding the strength of their balance sheets; legal framework for a swift and orderly process of financial sector restructuring and sound operating environment with the ultimate goal of improving the allocative efficiency of resources through operational flexibility, improved financial viability and institutional strengthening (RGS, 2012). Furthermore, the reforms have focussed to re-establish its access to the market, ensuring credit starts to flow into the real economy, removing financial repression through reductions in statutory pre-emption, while stepping up prudential regulations at the same time (RGS, 2012). The banking sector reform was strategized in two approaches.

First, clean up and protecting order of the balance sheets of financial entities (IMF, 2014) was approved under an initiative from the government, with two separate external assessment reports. In particular, a special emphasis was placed on improving credibility of the Spanish financial system and clarifies any doubts regarding the bank's balance sheets, thus creating flexibility for recapitalisation of about 100 billion Euros from its European partners with a proportion of 16 and 26 billion Euros at best and of between 51 and 62 billion Euros at worst (RGS, 2012).

Second, active step were taken by the Spanish government to established legislation assumed under the *memorandum of understanding* for the recapitalisation of the banking sector and strengthens the crisis resolution instruments available to credit entities, thus, reducing the probability and seriousness of future economic crises. Also, the supervisory

system was revamped in view of the crucial role of supervision in the creation of an efficient banking system as in table 2 (see appendix).

Measures to improve the performance of the Spanish banking system have included (i) early stage risks are identify and address through continued proactive monitoring and supervision in order to ensure adequate provisioning; (ii) banks are encourage bolster capital in ways that do not irritate already - tight credit condition; (iii) restructuring corporate debt and reducing impediments to assets disposal; (iv) the use of more complete banking union and more monetary easing by the ECB to further reduce funding cost and easing of credit condition through swift progress; (v) institutionalisation of a mechanism facilitating greater coordination for regulation and supervision of financial conglomerates; and (vi) mitigation of conflict of interest through enhance of FROB's checks and balances as well as maintaining corporate governance and internal control strategy for the loss of control over saving and commercial banks (RGS, 2012 & IMF, 2014).

2.3. The History of CAMEL

The determination of financial performance of commercial banks using the application of CAMEL rating system have been growing both local and internationally. Initially, CAMEL was developed in the US by regulating bodies administering commercial banks in order to detect the financial distress of a saving bank (CBRE, 2013). As regard to the history of introducing CAMEL, it was originally implemented by the US banking institution which consists of five areas of bank performance, namely, capital adequacy, asset quality, management quality, earnings efficiency, and liquidity. CAMEL rating

system was aimed at appraising the performance of commercial banks during the early 1970s. Since then, the application of CAMELS has spread up globally in respect of evaluating the financial performance in the banking sector (Abassgholi, 2010).

With respect to the predicting bank failure in recent years, several academic studies have illustrated the extent to which private supervisory measures are useful in controlling bank's deficiency. The emergency of the banking crisis during the 1990 have stipulated the provision of another component to the CAMEL rating system called *Sensitivity to Market Risk* (S). Thus, the criteria for evaluating the performance of the banks under the CAMELS became capital adequacy, asset quality, management quality, earnings efficiency, liquidity and sensitivity to market risk. Consistent with this measurement,

International Monetary Fund 2014 research illustrated CAMELS ratios as the most efficient measurement in term of preserving financial stability.

In Spain, Banco de España as a regulatory body in joint collaboration with European Financial Stability Facility (EFSF) have found the CAMELS rating system useful in the assessment of the financial soundness of commercial banks after the great reforms in the sector. In recent research, the CAMELS rating system have been found very interesting in the measurement of financial performance of state, private and foreign banks after the global financial crisis (Dincer et al., 2011). Finally, table 3 below illustrates several studies using the CAMELS ratio in order to achieve performance measurement of banking sector during the financial crisis.

Table 3. Research conducted using the CAMELS rating system

Research Title	Authors	Year
The Future of Community Banks: Lessons from Banks That Thrived During the Recent Financial Crisis	Gilbert R. Alton, Andrew P. Meyer, & James W. Fuchs	2013
The Effects of Board Size of Financial Performance of Banks	Uwuigbe, O. R. & Fakile, A. S.	2012
Relative Performance of Commercial Banks in India Using CAMEL Approach	Sriharsha Reddy Kambhammettu	2012
Measuring the financial performance of banks using CAMEL model; comparing traditional combined and Islamic banks of Pakistan	Kouser & Saba	2012
The CAMEL rating system in banking supervision. A case study	Uyen Dang	2011
Risk Management, Corporate Governance and Banks Performance in the Financial Crisis.	Aebi Vincent, Sabata, G & Schmid, M	2011
A Performance Evaluation of the Turkish banking Sector after the Global Crisis via CAMELS ratios.	Dincer, H., Gencer, G., Orhan, N. & Shabinbas, K	2011
Efficiency ratio and bank performance (Using the CAMEL approach)	Hays et al.,	2010
A Comparison of Financial performance in the Jordanian Commercial banks	Al-Taleb, G. & Al-Shubiri, F. N.	2010
Financial Crisis	Anderson, R. G. & Gascon, C.	2009
Los modelos de control de gestión de la actividad bancaria: capacidad predictiva para el cumplimiento de objetivos en los proceso de crisis	Pilar Cibrán, F., Huarte, C. G. & Beltrán, V. J. L	2008
Is the Internet Delivery Channel Changing Banks 'Performance'?	Harnando, I. & Nieto, M. J.	2007

Source: Developed by researcher purposely for this study

3. Research Design

This study used secondary data drawn from Global Vantage research database (Standard and Poor's), of 19 Spanish commercial banks during 2006 to 2012 (see table 1 above), and the time frame is chosen because it was during the last quarter of 2007 that the Spanish Financial Crisis began. All banks have available yearly data for the CAMELS rating system except for the year 2013 that the data were drawn directly from the annual report of each bank using the variable measurement process as stipulated below. Each bank has its own code, called Global Vantage Key (GV Key).

The time-line of the study is essential because it helps us to determine the financial performance of Spanish commercial banks before the banking reforms during the financial crisis. It further expands

the year to 2012 to 2013 as to identify the banking performance after the reforms of the financial sectors using simple regression. The timing period reveals very important set in terms of mergers and acquisition in the banking industry.

Since this study aims to examine the relationship between the variables, it used a correlation method to test the assumptions of the multivariable regression. Thus, it is consistent with Gilbert et al., (2013); O & A, (2011); Coleman & Biekpe, (2005); and Hays et al., (2010). The equation becomes:

$$\text{Bank Performance} = f(\text{Capital adequacy, Assets quality, Management capacity, Liquidity, Market risk})$$

$$ROE = f(CAP, ASS, MGE, LIQ, MRISK) \quad (1)$$

The regression equation becomes:

$$ROE_{it} = \beta_0 + \beta_1 CAP_{it} + \beta_2 ASS_{it} + \beta_3 MGE_{it} + \beta_4 LIQ_{it} + \beta_5 MRISK_{it} + \mu_{it} \quad (2)$$

Where;

- ROE_{it} represents *Return on Equity* for bank i at time t
- CAP_{it} represents *Capital Adequacy* for bank i at time t
- ASS_{it} represents *Asset Quality* for bank i at time t
- MGE_{it} represent *Management Capacity* for bank i at time t
- LIQ_{it} represent *Liquidity* for bank i at time t
- $MRISK_{it}$ represent *Sensitivity to Market Risk* for bank i at time t
- μ_{it} = Error term

- β_i represent the *coefficients* of the independent variables
- $i = 1$ to 19 banks
- $t = 2006$ to 2013

3.1. Variable Measurement

Capital adequacy ratio expresses in percentage the amount of a bank's capital to its risk weighted credit exposures. According the international standard, banks must maintain a minimum capital adequacy ratio to ensure that it can absorb a reasonable level of losses before becoming insolvent (BS2A, 2013; FRBSF, 1999; NCUA, 2013 and AIA, 1996).

$$Capital\ adequacy\ ratio = \frac{(Tier\ 1\ capital - goodwill) + Tier\ 2\ capital}{risk - weighted\ assets} \geq 8\%$$

$$Equity\ capital\ to\ total\ assets = \frac{Total\ capital}{Total\ assets} \geq 4 - 6\%$$

Asset quality is very important because it is allows evaluation of the quality of loan portfolio using trend analysis and peer comparison. Thus, the greatest risk face by bank is the risk of loan losses derived from the delinquent loans. According to the

European Central Bank (ECB), asset quality enhances the level of transparency of the balance sheet of significant banks and rebuilds investor confidence (ECB, 2014 & AIA, 1996).

$$NPLs\ to\ total\ equity = \frac{NPLs}{Total\ Equity} \leq 1\%$$

$$Provision\ for\ loan\ loss\ ratio = \frac{Provision\ for\ loan\ loss}{Total\ Loans} \geq 100\%$$

Management capacity: The AIA approach stipulated that the management capacity plays the most important role in a bank's success. This can be attributed to operating ratio, profit per employee, expenses per employee, and gross earning assets to

total assets. Bank's board size reveals an outstanding financial performance and reduces the problem of free-rider in Nigeria (Uwuigbe & Fakile, 2012; AIA, 1996).

$$Management\ capacity\ ratio = \frac{General\ expenses}{Total\ Assets}$$

Earning quality: The capacity of profitability has contributed greatly in maintain the financial health of financial sector in Spain. For the purpose of

appraising the impact of earnings on banks, this paper has taken in to consideration the following accounting ratio below (Cibrán et al., 1997).

$$Earning\ quality\ ratio = \frac{Net\ profit\ before\ Taxes}{Total\ Assets}$$

$$Earning\ quality\ ratio = \frac{Net\ profit}{Total\ Equity}$$

Liquidity expresses the degree to which bank is capable of mobilizing short-term deposits at lower interest rate, and investing these funds in long-term at higher rates, thus maintain the level of liquidity

sufficiently to meet its financial obligation in a timely manner with minimal loss (BS2A, 2013; FRBSF, 1999; UFIRS, 2013; NCUA, 2013 and AIA, 1996).

$$Customer\ deposits\ to\ total\ assets = \frac{Total\ customer\ deposits}{Total\ Assets} \geq 75\%$$

Market risk addresses the changes in interest rates and foreign exchange rates. It reflects the capital and earnings exposures that stem from changes in interest rates for banks that operate in credit card lending. Thus, changes in interest rates affect earnings by changing net interest income and the level of other interest-sensitivity income and operating capital. For purpose of this study, we consider the gross domestic product (GDP), consumer price index (INF) and market capitalization (MC) to reflect the market risk (BS2A, 2013; FRBSF, 1999; UFIRS, 2013; NCUA, 2013 and AIA, 1996).

3.2. Hypotheses

The main aim is to illustrate the predictability chain in which changes in the banking performance may be assess through the exploitation of CAMELS rating system before/after the reforms of the banking sectors using multivariable regression method. Based on the above measurement, the present study seeks to test the following hypotheses:

H₁₀: $\beta = 0$ (*Capital Adequacy* is not a useful predictor of *banks performance*)

H_{1a}: $\beta \neq 0$ (*Capital Adequacy* is a useful predictor of *banks performance*)

H₂₀: $\beta = 0$ (*Asset Quality* is not a useful predictor of *banks performance*)

H_{2a}: $\beta \neq 0$ (*Asset Quality* is a useful predictor of *banks performance*)

H₃₀: $\beta = 0$ (*Management Capacity* is not a useful predictor of *banks performance*)

H_{3a}: $\beta \neq 0$ (*Management Capacity* is a useful predictor of *banks performance*)

H₄₀: $\beta = 0$ (*Liquidity* is not a useful predictor of *banks performance*)

H_{4a}: $\beta \neq 0$ (*Liquidity* is a useful predictor of *banks performance*)

H₅₀: $\beta = 0$ (*Sensitivity to market risk* is not a useful predictor of *banks performance*)

H_{5a}: $\beta \neq 0$ (*Sensitivity to market risk* is a useful predictor of *banks performance*)

4. Results

4.1. Descriptive Statistics

In table 4.1 below, the mean and the standard deviation revealed the best measure of the central tendency for the 19 financial banks in Spain before the financial reforms. Our samples on average shown that the banks were able to generate Return on Equity (ROE) of about 1, 36% and standard deviation of 0,04%, with our coefficient of variation (CV) of about 2,9%; CAP of about 1%; ASS of about 9%; MGE of about -10,18; LIQ of about 6%; and MRISK of about 15%. Statistically, this shows the fitness of our model in terms of the relative sizes of the squared residuals and outcome values.

Table 4.1. Before the financial banking reforms (2006-2011)

	N	Minimum	Maximum	Mean	St. Deviation	Coefficient of Variation
ROE	19	-5,30	7,42	1,36	0,04	2,9%
CAP	19	0,00	88,52	19,99	1,22	1%
ASS	19	0,00	69,03	18,75	1,69	9%
MGE	19	-149	19,11	-4,44	4,52	-10,18%
LIQ	19	0,00	78,51	16,33	1,05	6%
MRISK	19	-9,17	10,47	2,52	3,85	15%

Source: Computed by researchers using data of banks extracted from the Global Vantage (Standard and Poor) database

Table 4.2 below, illustrated the relative variability of 19 commercial banks in Spain after the financial reform was implemented. Our samples on average shown that the banks were able to generate Return on Equity (ROE) of about -16,85% and

standard deviation of 5,56%, with our coefficient of variation (CV) of about 33%; CAP of about 1,6%; ASS of about 2%; MGE of about -22,9; LIQ of about 4%; and MRISK of about 26,4%.

Table 4.2. After the financial banking reforms (2012-2013)

	N	Minimum	Maximum	Mean	St. Deviation	Coefficient of Variation
ROE	19	239,73	2,14	-16,85	5,56	-33%
CAP	19	-26,03	53,38	11,14	0,73	1,6%
ASS	19	0,00	114,99	25,271	0,48	2%
MGE	19	-86,79	15,51	-9,73	2,230	-22,9%
LIQ	19	-272,72	35,40	3,15	0,14	4%
MRISK	19	-5,00	2,30	-2,36	6,24	-264%

Source: Computed by researchers using data of banks extracted from the Global Vantage (Standard and Poor) database

Unlike in table 4.3 below, where the coefficient of variation (CV) were less than a 100% but had the most recorded high values with -5% for ROE; CAP of about 11%; ASS of about 49%; MGE of about 28%; LIQ of about 1,4%; and MRISK of about 91%

before and after the Spain financial reform. Thus, it shows the fitness of our model in terms of the relative sizes of the squared residuals and outcome values which is consistent with (George et al., 2003).

Table 4.3. The financial banking reforms (2006-2013)

	N	Minimum	Maximum	Mean	St. Deviation	Coefficient of Variation
ROE	19	-59,11	5,84	-3,65	0,2	-5%
CAP	19	-2,95	77,81	20,31	2,23	11%
ASS	19	0,00	80,52	23,27	2,07	49%
MGE	19	-128,5	16,83	6,60	1,83	28%
LIQ	19	-48,59	58,05	12,92	0,18	1,4%
MRISK	19	-10,63	7,85	1,49	1,35	91%

Source: Computed by researcher using data of banks extracted from the Global Vantage (Standard and Poor) database

4.2 Pearson Correlation Coefficients

Table 5.1 below ascertained the correlation between the dependent (ROE) and the predictors (CAP, ASS, MGE and MRISK) before the financial sector reform during the period 2006 to 2011. It was also used to check the existent of multicollarity between predictors in each of the regression models with a benchmark of 0,9 (Field, 2009).

Analysing table 5.1 revealed that most of the correlation between ROE, CAP, ASS, MGE and MRISK were highly significant ($p < 0,01$), ranged between 0,583 and 0,821. Return on Equity (ROE) was highly significantly and positively correlated with Capital Adequacy (CAP) Management quality (MGE) and Sensitivity to Market Risk (MRISK). Return on Equity (ROE) was highly significantly and negatively correlated with Assets quality (ASS) and Liquidity (LIQ).

Table 5.1. Correlation Results before the Financial Sector Reform (2006-2011)

		ROE	CAP	ASS	MGE	LIQ	MRISK
ROE	Correlation de Pearson	1	,583**	-,573*	,654**	-,542*	,821**
	Sig. (bilateral)		,009	,010	,002	,017	,000
CAP	Correlation de Pearson	,583**	1	-,070	-,005	-,446	,474*
	Sig. (bilateral)	,009		,776	,983	,056	,040
ASS	Correlation de Pearson	-,573*	-,070	1	-,740**	,688**	-,592**
	Sig. (bilateral)	,010	,776		,000	,001	,008
MGE	Correlation de Pearson	,654**	-,005	-,740**	1	-,458*	,590**
	Sig. (bilateral)	,002	,983	,000		,049	,008
LIQ	Correlation de Pearson	-,542*	-,446	,688**	-,458*	1	-,733**
	Sig. (bilateral)	,017	,056	,001	,049		,000
MRISK	Correlation de Pearson	,821**	,474*	-,592**	,590**	-,733**	1
	Sig. (bilateral)	,000	,040	,008	,008	,000	

** Correlation is significant at the level 0,01 (2- tailed).

* Correlation is significant at the level 0,05 (2- tailed).

Source: Computed by researchers using SPSS 22 (2014).

Table 5.2 below summarised the correlation results between return on equity and capital adequacy, assets quality, management capacity, liquidity and sensitivity to market risk after the Spanish financial reforms during the year 2012 to 2013. Analysing table 5.2 revealed that return on

equity (ROE) have significant and positive correlation with capital adequacy (CAP), assets quality (ASS), liquidity (LIQ) and sensitivity to market risk (MRISK) at $p < 0,05$, ranged between 0,519 and 0,792 but no significant correlation with management capacity (MGE) at $p > 0,05$.

Table 5.2. Correlation Results after the Financial Sector Reform (2012-2013)

		ROE	CAP	ASS	MGE	LIQ	MRISK
ROE	Correlation de Pearson	1	,519	,792	,002	,986**	,660**
	Sig. (bilateral)		,027**	,005**	,994	,000	,006
CAP	Correlation de Pearson	,519	1	-,540	-,188	,501	-,213
	Sig. (bilateral)	,027**		,005**	,442	,000*	,382
ASS	Correlation de Pearson	,792	-,540	1	-,185	,651**	-,625**
	Sig. (bilateral)	,005**	,005**		,449	,007	,004
MGE	Correlation de Pearson	,002	-,188	-,185	1	-,095	,525*
	Sig. (bilateral)	,994	,442	,449		,697	,021
LIQ	Correlation de Pearson	,986**	,501	,651**	-,095	1	,614**
	Sig. (bilateral)	,000	,000*	,007	,697		,005
MRISK	Correlation de Pearson	,660**	-,213	-,625**	,525*	,614**	1
	Sig. (bilateral)	,006	,382	,004	,021	,005	

** Correlation is significant at the level 0,01 (2- tailed).

* Correlation is significant at the level 0,05 (2- tailed).

Source: Computed by researchers using SPSS 22 (2014).

Like in table 5.3 below, which illustrated the correlation results between the dependent (ROE) and the predictors (CAP, ASS, MGE and MRISK) before/after the financial sector reform during the period 2006 to 2013. Analysing table 5.3 shown that return on equity (ROE) have significant and positive correlation with capital adequacy (CAP), assets quality (ASS), liquidity (LIQ) and sensitivity to market risk (MRISK) at $p < 0,05$, ranged between 0,377 and 0,643 but no significant correlation with management capacity (MGE) at $p > 0,05$.

Finally, there were evidence of significant correlation between the dependent variable (ROE)

and the predictors (ROE, CAP, ASS, MGE and MRISK) across the difference periods. However, the result revealed that before the reforms in the financial sector, management capacity exhibited exponential power on the banking performance unlike after the financial reforms from 2012 to 2013. The predictors were also significantly autocorrelated with each other which was acceptable since there were no substantial correlation ($r < 0,9$) between the predictor (MGE) that could cause multicollinearity issues in the studied banks in Spain.

Table 5.3. Correlation Results before/after the Financial Sector Reform (2006-2013)

		ROE	CAP	ASS	MGE	LIQ	MRISK
ROE	Correlation de Pearson	1	,643**	,433**	,024	,597*	-,377**
	Sig. (bilateral)		,007	,002	,923	,01	,002
CAP	Correlation de Pearson	,643**	1	-,732**	-,733**	-,003	,613**
	Sig. (bilateral)	,007		,000	,000	,991	,005
ASS	Correlation de Pearson	,433**	-,732**	1	,717**	,726**	-,393
	Sig. (bilateral)	,002	,000		,001	,003	,096
MGE	Correlation de Pearson	,024	-,733**	,717**	1	,652**	-,256
	Sig. (bilateral)	,923	,000	,001		,004	,291
LIQ	Correlation de Pearson	,597*	-,003	,726**	,652**	1	,625**
	Sig. (bilateral)	,01	,991	,003	,004		,004
MRISK	Correlation de Pearson	-,377**	,613**	-,393	-,256	,625**	1
	Sig. (bilateral)	,002	,005	,096	,291	,004	

** Correlation is significant at the level 0,01 (2- tailed).

* Correlation is significant at the level 0,05 (2- tailed).

Source: Computed by researchers using SPSS 22 (2014).

4.3 Regression Analysis

Table 6 below, summarised the regression statistics from the estimating models 1, 2 and 3 to test the banking performance before/after the Banking reforms in the Spanish economy during a long chain period of financial crisis. The results revealed that all three ROE models (Model 1, Model 2 and Model 3) were highly significant in explaining variations in the banking performance (F statistics, $p < 0.01$). The adjusted R^2 result in Model 1 shows that a unit change in predictors (*CAP, ASS, MGE and MRISK*) let to about 82% change in ROE ($F=17,62$, $p < 0.01$).

After the banking reforms was implemented, the adjusted R^2 result in Model 2 shown that a unit

change in predictors (*CAP, ASS, MGE and MRISK*) let to about 44% change in ROE ($F=3,79$, $p < 0.05$). However, we noticed that the explanatory power decreased in the adjusted R^2 from 82% to 44% after the banking reforms was implemented. In contrast, the adjusted R^2 result in Model 3 shown that a unit change in predictors (*CAP, ASS, MGE and MRISK*) let to about 78% change in ROE ($F=13,23$, $p < 0.01$).

Comparing the adjusted R^2 of the three models, Model 1 and Model 3 have stronger explanatory powers with $R^2=0,82$ and $0,78$ respectively while Model 2 exhibits weaker explanatory power with $R^2=0,44$.

Table 6. Regression coefficients

	2006-2011		2012-2013		2006-2013	
Independent Variables	ROE					
	-.698**	(0,018)	7,015*	(0,060)	-10,188**	(0,01)
CAP	4,058**	(0,002)	2,938**	(0,03)	0,223**	(0,011)
ASS	-0,039	(0,241)	0,471	(0,126)	-0,411**	(0,004)
MGE	2,406**	(0,011)	3,125**	(0,029)	1,236*	(0,097)
LIQ	0,023*	(0,056)	-1,387**	(0,011)	-0,087	(0,259)
MRISK	0,063*	(0,058)	1,612**	(0,014)	2,820***	(0,000)
R^2	0,871		0,593		0,836	
Adjusted R^2	0,822		0,436		0,773	
F – Statistics	17,622		3,785		13,230	
Significant	(0,000)***		(0,025)**		(0,000)***	

Source: Computed by researchers using SPSS 22 (2014)

The values of the Dubin-Watson statistics ranged between 1,5 and 2,5 which were within the statistic rules of thumb, indicating the residuals of the regression models are uncorrelated and independent. Also, the variance inflation factor (VIF) checked the

present of multicollinearity (O'Brien, 2007 & Belsey et al., 2004) and concluded that there was no multicollinearity problem with the model as in table 6 below.

Table 7. Valibility, Reliability and Objectivity

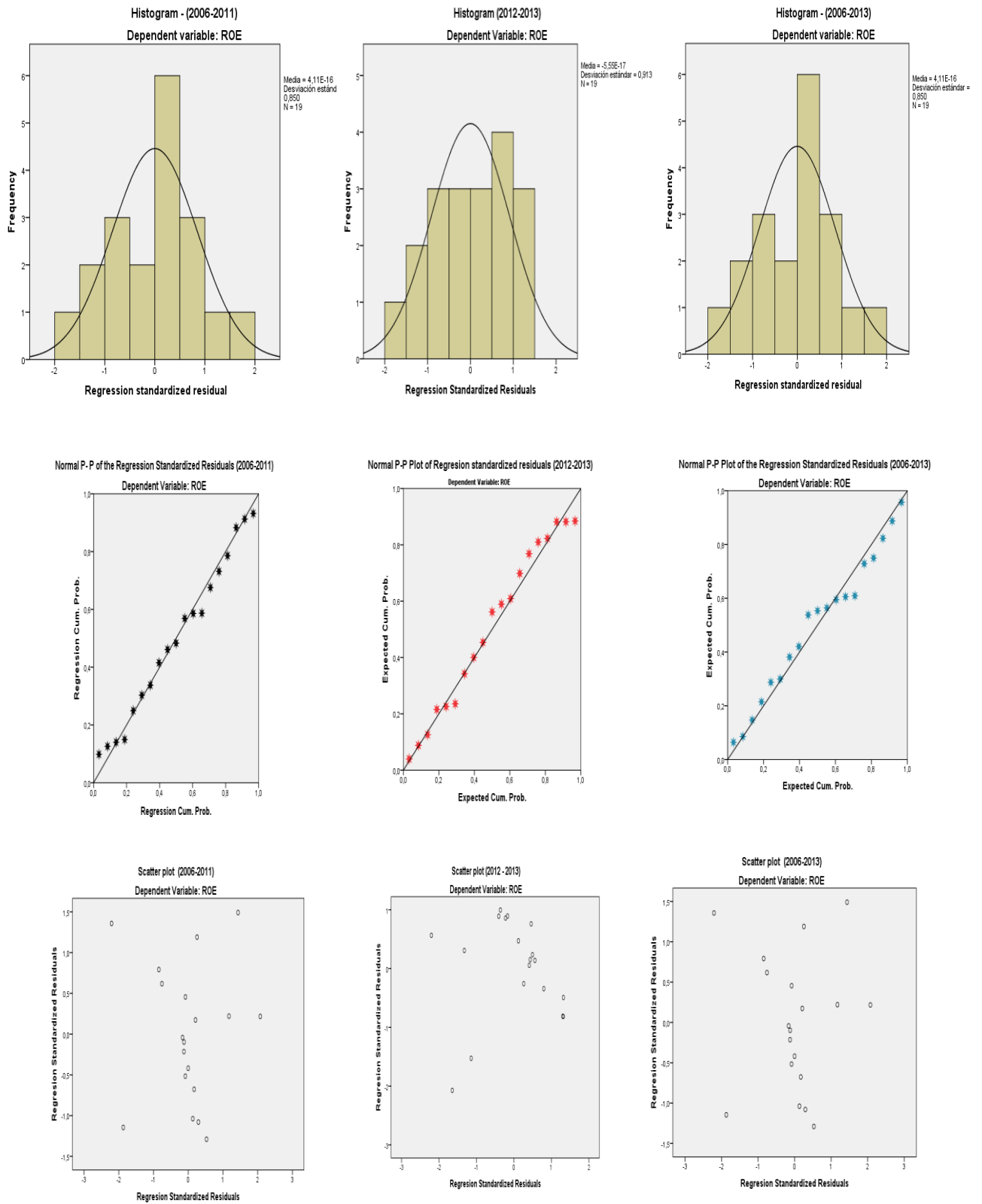
	2006-2011		2012-2013		2006-2013	
	Durbin –Watson (1,5-2,5)					
	2,009		2,175		1,771	
	Collinearity Statistics (<5)					
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
CAP	0,592	1,688	0,527	1,896	0,860	1,163
ASS	0,676	2,619	0,808	1,246	0,639	3,179
MGE	0,518	2,147	0,574	2,651	0,567	2,724
LIQ	0,757	1,802	0,660	1,514	0,638	2,959
MRISK	0,696	2,273	0,835	1,198	0,817	1,933

Source: Computed by researchers using SPSS 22 (2014)

Histograms and scatter-plot graphs were further developed from the residuals to check the existence of normality with the distribution and the adhered of

the assumptions of homoscedasticity (Tabachnick, 2001) and linearity figure 1 below.

Figure 1. Validity, reliability and objectivity of the Model



Source: Computed by researchers using SPSS 22 (2014)

5. Conclusion

In Spain, the banking services have been categorized as most important activity in the economy, thus banking performance remain at stake to many investors and governmental policies makers. Using the CAMELS rating system along side with multivariable regression have shown that the 19 Spanish banks can maintain high banking performance by increasing the Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk. Since the reforms had as objective to ensure that transfer of assets does not affect management effectiveness, in Model 2, there was no correlation between assets quality and management capacity. The significant values of the F Statistics across the three models as shown above demonstrate that the models are not bias.

Therefore, in Model 1 (before the banking reforms), we reject the null hypotheses and accept the alternative hypotheses which states *Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk* are useful predictors of *banks performance* while we do not reject the null hypothesis which *Assets Quality* is not a useful predictor of *banks performance* (see table 6 above). There is significant relationship found between *Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk* and *Banks performance*.

In Model 2 (after the banking reforms were implemented), we reject the null hypotheses and accept the alternative hypotheses which states *Capital Adequacy, Management Capacity, Liquidity and Sensitivity to Market Risk* are useful predictors of *banks performance* while we do not reject the null hypothesis which *Assets Quality* is not a useful predictor of *banks performance* (see table 6 above).

In Model 3 (before/after the banking reforms), we reject the null hypotheses and accept the alternative hypotheses which states *Capital Adequacy, Management Capacity, Assets Quality and Sensitivity to Market Risk* are useful predictors of *banks performance* while we do not reject the null hypothesis which *Liquidity* is not a useful predictor of *banks performance* (see table 6 above). The non-significant relationship found between liquidity and Banks performance is consistent with the conclusion drawn by prior studies in table 3.

References:

- Abassgholi Pour, M, (2010), "Factors affecting the performance of banks", *Journal of banking and finance*, No.106, pp. 24-35.
- AIA Annual Report, (2010), Retrieved October 20, 2011. Available at: http://media.corporateir.net/Media_Files/IROL/23/238804/AIA_2010Annual_Report_End_Final.pdf
- Belsey, D. A., Kuh, E., & Welsch, R. E, (2004), *Regression diagnostics: Identifying influential data and sources of collinearity*. New York: Wiley
- C'M'S'Albiñana & Suárez de Lezo, (2012), *Saneamiento Del Sector Financiero*, Real Decreto-Ley 2/2012.
- Carbó-Valverde, S., Marques-Ibanez, D., & Fernandez, F. R, (2011), "Securitization, Risk transferring and Financial Instability: The Case of Spain", August 15,. Available at SSRN: <http://ssrn.com/abstract=1909751>
- Cecilio H. G., Pilar Cibrán F. M., & Garrido Valenzuela, I, (1989), "Análisis cuantitativo del proceso de transformación bancaria dentro del marco de la innovación financiera", *Revista de economía y empresa*, ISSN 0213-2834, Vol. 9, N° 23.
- Coleman, A., & Nicholas- Biekpe, N, (2005), "Does Board and CEO Matter for Bank Performance? A Comparative Analysis of Banks in Ghana", *Journal of Business Management*, University of Stellenbosch Business School (USB), Cape Town, South Africa Vol.13, Pp.46- 59.
- Collins, J. and Hussey, R 2003, *Business Research*, 2nd edn, Palgrave Macmillan, New York.
- Commercial Bank Report of Examination; Section 6000.1, *Banking Information and Regulation*, Federal Reserve Board, October, 2013.
- Damodaran A, (2009), "Valuation of Financial Service Firm", Stern School of Business, consulted at <http://people.stern.nyu.edu/adamodar/pdfiles/papers/finfirm09.pdf>
- Dinçer, H., Gencer, G., Orhan, N. & Şahinbaş, K, (2011), "A Performance Evaluation of the Turkish Banking Sector After the Global Crisis via CAMELS Ratios", *Procedia Social and Behavioral Sciences*, 24: 1530-1545.
- European Central Bank, (2014), *Makes progress with asset quality review, and confirms stress test parameters for comprehensive assessment*, EUROSYSYSTEM, 3 February 2014.
- Field, A, (2009), *Discovering statistics using SPSS*, 3rd edn, Sage Publication, London.
- Financial Stability Forum, (2008), *Report on Financial Stability Forum on Enhancing Market and Institutional Resilience*, Publication Service Washington, D.C, 7th April, available at http://www.financialstabilityboard.org/publications/r_0804.pdf
- George F. R., Freyja L. & Bruce D. M, (2003), *Use of Coefficient of Variation in Assessing Variability of Quantitative Assays*, Clin Diagn Lab Immunol, November, 10 (6): 1162
- Gilbert, R. Alton, Andrew P. Meyer and James W. Fuchs (2013), *The Future of Community Banks: Lessons from Banks that Thrived during the Recent Financial Crisis*, Federal Reserve Bank of St. Louis Review, March/April 115-43.
- Hays, Fred H. & Lurgio, Stephen A. De & Gilbert, Jr. & Arthur H, (2010), "Efficiency Ratios and Community Bank Performance", *Journal of Finance and Accountancy*, pp.1-15.
- Ignacio Hernando and María J. Nieto, (2006), *IS THE INTERNET DELIVERY CHANNEL CHANGING BANKS' PERFORMANCE? THE CASE OF SPANISH BANKS* Banco de España Documentos de Trabajo N.º 0624.
- International Monetary Fund, (2014), *Spain: Financial Sector Reform – Final Progress Report IMF Country*

- Report No.14/59, Publication Service Washington, D.C, available at <http://www.imf.org/external/pubs/ft/scr/2014/cr1459.pdf>
20. Jose A. Lopez, (1999), *Using CAMELS Rating to Monitor Bank Condition* Federal Reserve Bank of San Francisco, Economic Letter Index, Issues 99-19.
 21. Kouser, Rehana & Saba, Irum, (2012), "Gauging the Financial Performance of Banking Sector using CAMEL Model: Comparison of Conventional, Mixed and Pure Islamic Banks in Pakistan", *International Research Journal of Finance and Economics*, Issue 82, pp.67-88.
 22. National Credits Union Administration Regulation 2013, CAMELS rating, NCUAR, 1775 Duke Street, Alexandria, VA 22314-3428.
 23. O'Brien, R.M, (2007), "A caution regarding rules of thumb for variance inflation" factors, *Quality & Quantity*, 41, 673-690.
 24. Pilar Cibrán, F. M., Crespo D. M. A., Huarte, G. C, (1997), "El Beneficio Por Acción", *Actualidad Financiera*, ISSN 0213-6929, Año nº 2, N° Extra 4.
 25. Pilar Cibrán, M. F., Huarte, C. G., & Beltrán Varandela, J. L, (2008), "Impacto de la crisis financiera sobre la gestión bancaria: análisis empírico del sistema financiero español", *Revistas de Economía y Empresas* ISBN 978-84-691-5667-4, páge. 113-124.
 26. Pison Fernández, I. C. & Feijóo Souto, B. F, (2003), "Las cajas de ahorro en Europa: valoración de las cajas de ahorro gallegas". *Universidad de Santiago de Compostela: Tórculo*, ISBN 84-8408-275-X.
 27. Pison Fernández, I. C, (1980), "El sistema financiero español y la financiación de la empresa en Galicia", *Universidad de Santiago de Compostela*, ISBN 84-7191-236-8.
 28. Reddy, Sriharsa , (2012) "Relative performance of commercial banks in India using CAMEL approach." *International Journal of Multidisciplinary Research* 2.
 29. Reforms by the Government of Spain, (2012), *Combating the Crisis with Determination*, Moncloa Palace. Available at http://www.kas.de/wf/doc/kas_8049-1442-1-30.pdf?121029115820
 30. Reserve Bank, (2013), "Capital Adequacy Framework: Standardised Approach", *Prudential Supervisory Department, Document BS2A*, Issued September, Ref # 3023654, New Zealand.
 31. Richard G. Anderson and Charles S. Gascon, (2009), *The Commercial Paper Market, the Fed, and the 2007-2009 Financial Crisis*, Federal Reserve Bank of St. Louis Review, November/December 2009, 91(6), pp. 589-612.
 32. Tabachnick. B. G., & Fidell, L. S, (2001),, *Using Multivariate Statistics*, 4th ed. Boston MA: Allyn and Bacon
 33. Teker, D., Teker, S., & Sönmez, M, (2011), "Economic value added performance of publicly owned Banks: Evidence from Turkey". *International Research Journal of Finance & Economics*, (75), 133-137.
 34. Uwuigbe, O. R., & Fakile, A. S, (2012), "The Effects of Board Size on Financial Performance of Banks: A Study of Listed Banks in Nigeria", *International Journal of Economics and Finance*, Vol. 4, No. 2.

APPENDIX

Table 1. Reform in the Spanish Banking Sector Outlines

<p>Box I</p> <p>Reform in the Spanish Banking Sector</p> <p>Bank restructuring and resolution</p> <ul style="list-style-type: none">• Promptly address capital shortfalls so that all capital needs are met by end-December.• Ensure that any aggregate downsizing of credit portfolios as part of banks' restructuring plans is consistent with an adequate supply of credit to the economy.• Apply burden-sharing powers to minimize the overall costs for taxpayers.• Avoid new mergers that do not clearly generate value.• Quickly wind down non-viable banks in an orderly manner.• Ensure no delay in the provision of ESM financing for recapitalization, with the ESM converting initial financing via ESM bonds into cash as quickly as feasible. <p>AMC</p> <ul style="list-style-type: none">• Avoid future expansions of the AMC's perimeter unless critical.• Develop incentive structures that focus the AMC's management exclusively on maximizing the value out of the sale and restructuring of its assets.• Ensure the transfer of assets does not affect their effective management.• Pursue vendor financing agreements with banks. <p>Legal and institutional framework for bank restructuring and resolution</p> <ul style="list-style-type: none">• Formalize a cooperation agreement between the Bank of Spain and the FROB to clarify respective responsibilities.• Enhance the FROB's checks and balances and internal controls to mitigate possible conflicts of interest.• Formulate clear and easy-to-monitor governance arrangements and ownership policies for nationalized banks, as well as an exit strategy from such banks.• Introduce depositor preference.• Adopt regulations implementing the RDL to clarify the criteria for the departure from the <i>pari passu</i> treatment of creditors in resolution, subject to the "no creditors worse off rule" and based on sound public policy principles. <p>Regulatory and supervisory framework</p> <ul style="list-style-type: none">• Enhance the corporate governance regime for savings banks, and design a strategy for their loss of control over commercial banks.

Source: Reforms by the Government of Spain, (2012); Spain: Financial Sector Reform – Final Progress Report, IMF (2014)

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