

**EFFECT OF FINANCIAL MARKET INFRASTRUCTURE ON ISSUANCE OF  
CORPORATE BONDS AT THE NAIROBI SECURITIES EXCHANGE**

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## **DECLARATION**

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

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I am thankful to my friend Ouru Lina for the moral support during the research.

## **DEDICATION**

This work is dedicated to my husband Dr.Zelalem Wudineh, to my lovely daughter Yostena Zelalem and my Mother Aster Gebru who have throughout this period provided me with unconditional positive support. May the Lord richly bless them all.

## **ABSTRACT**

Corporate bonds are debt securities issued by private and public corporations (Roldes et al 2004).The role of corporate bonds in achieving the vision 2030 cannot be down played. Corporate bonds are considered as the source of diffusing stresses on the banking sector by diversifying credit risks across the economy, interest rate and refunding risk, Supplying long-term funds for long-term investment needs, lowering funding costs by avoiding a liquidity premium and providing products with flexibility to meet the specific. The main aim of this study was to investigate the effect of financial market infrastructure on issuance of corporate bonds of firms listed at the Nairobi security exchange. The study employed descriptive survey design with the population of the study being 60 companies listed on the NSE. The study used secondary data from annual reports of the quoted companies over a period of five years. The data was analyzed through the use of Statistical Package for Social Sciences (SPSS). Results from the study indicate that most firms in the NSE use more debt or long term liability as a source of financing than equity capital from shareholders. ANOVA statistics presented showed that the overall model was statistically significant as this was supported by an F statistic of 3.4 and a probability (p) value of 0.021. Regression of coefficients results showed that there was a positive relationship between corporate bond and payment, settlement system, and recording system whose beta coefficients are 0.072, 0.000 and 0.215 respectively. Statistically significant variables in the study were payment, settlement system, and recording system of the firm as they had p values of 0.000, 0.008 and 0.034 which is lower than the probability conventional of 0.05. These findings show that companies in the NSE have good return on assets and have the ability to meet their short term obligations when they fall due. The researcher suggests a study be conducted through a survey of the firms which have issued corporate bond and not listed in Nairobi Securities Exchange. This will allow for a comparison of the findings to come up with recommendations that can be applicable to all the players in the corporate world in Kenya.

## TABLE OF CONTENTS

|  |            |
|--|------------|
| <b>DECLARATION .....</b>   | <b>ii</b>  |
| <b>ACKNOWLEDGEMENT.....</b>  | <b>iii</b> |
| <b>DEDICATION .....</b>  | <b>iv</b>  |
| <b>ABSTRACT .....</b>  | <b>iv</b>  |
| <b>LIST OF TABLES .....</b>  | <b>ix</b>  |
| <b>LIST OF FIGURES .....</b>   | <b>x</b>   |
| <b>LIST OF ABBREVIATIONS.....</b>  | <b>xi</b>  |
| <b>CHAPTER ONE: INTRODUCTION.....</b>  | <b>1</b>   |
| 1.1 Background to the study .....  | 1          |
| 1.1.1 Financial Market Infrastructure .....  | 2          |
| 1.1.2 Issuance of Corporate bonds in Kenya .....                                     | 4          |
| 1.1.3 Effect of Financial Market Infrastructure on Issuance of Corporate Bonds ..... | 7          |
| 1.1.4 Nairobi Securities Exchange .....  | 8          |
| 1.2 Research Problem.....  | 10         |
| 1.3 Objectives of the study .....  | 9          |
| 1.4 Value of the study .....   | 12         |
| <b>CHAPTER TWO: LITERATURE REVIEW .....</b>  | <b>13</b>  |
| 2.1 Introduction.....  | 13         |
| 2.2 Theoretical Review .....   | 13         |
| 2.2.1 Trade-Off Theory.....  | 13         |
| 2.2.2 Pecking Order Theory.....  | 15         |
| 2.2.3 Liquidity Preference Theory .....  | 16         |
| 2.3 Determinants of Issuance of Corporate Bonds .....                                | 17         |
| 2.4 Empirical Literature .....   | 18         |
| 2.5 Chapter Summary.....   | 22         |
| <b>CHAPTER THREE: RESEARCH METHODOLOGY .....</b>                                     | <b>23</b>  |
| 3.1 Introduction.....  | 23         |
| 3.2 Research Design.....   | 23         |

|   |           |
|---|-----------|
| 3.3 Population and Sample .....                                   | 24        |
| 3.4 Data Collection .....   | 24        |
| 3.5 Data Analysis .....   | 24        |
| 3.5.1 Conceptual Model.....                                       | 25        |
| 3.5.2 Empirical Model.....  | 20        |
| 3.6 Data Validity and Reliability .....                           | 20        |
| 3.6.1 Data Validity .....   | 20        |
| 3.6.2 Data Reliability.....                                       | 27        |
| <b>CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION</b>        | <b>28</b> |
| 4.1 Introduction.....   | 28        |
| 4.2 Descriptive Statistics .....                                  | 28        |
| 4.2.1 Measures of Central Tendency .....                          | 28        |
| 4.3 Trend Analysis .....  | 29        |
| 4.3.1 Annual Trends in Corporate Bonds .....                      | 29        |
| 4.3.2 Annual Trends in Payment System.....                        | 30        |
| 4.3.3 Annual Trends in Settlement System .....                    | 31        |
| 4.3.4 Annual Trends in Recording System.....                      | 32        |
| 4.4 Inferential Statistical Analysis .....                        | 33        |
| 4.4.1 Pearson's Correlation .....                                 | 33        |
| 4.4.2 Regression Analysis.....                                    | 34        |
| 4.5 Discussion of Findings .....                                  | 36        |
| <b>CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....</b> | <b>30</b> |
| 5.1 Summary of Findings .....                                     | 30        |
| 5.2 Conclusions .....   | 40        |
| 5.3 Recommendations .....   | 41        |
| 5.4 Limitations of the Study.....                                 | 42        |
| 5.5 Suggestions for Further Studies .....                         | 43        |
| <b>REFERENCES .....</b>   | <b>44</b> |

|   |           |
|---|-----------|
| <b>APPENDICES.....</b>                                | <b>40</b> |
| Appendix I: List of Sampled Companies .....           | 40        |
| Appendix II: Mean Score of Independent Variables..... | 54        |

## **LIST OF TABLES**

|   |           |
|---|-----------|
| Table 4.1: Descriptive Statistics .....         | <b>29</b> |
| Table 4.2: Bivariate Pearson's Correlation..... | <b>34</b> |
| Table 4.3: Model of Fitness .....               | <b>35</b> |
| Table 4.4: Analysis of Variance (ANOVA) .....   | <b>35</b> |
| Table 4.5: Regression of Coefficients .....     | <b>36</b> |

## **LIST OF FIGURES**

|  |           |
|--|-----------|
| Figure 4.1: Trend Analysis in Corporate Bonds .....  | <b>30</b> |
| Figure 4.2: Trend Analysis in Payment System.....    | <b>31</b> |
| Figure 4.3: Trend Analysis in Recording System ..... | <b>33</b> |

## **LIST OF ABBREVIATIONS**

|       |  |
|-------|--|
| LVPS  | Large-Value Payment System                           |
| DNS   | Deferred Net Settlement                              |
| RTGS  | Real-Time Gross Settlement                           |
| CSD   | Central Security Depository                          |
| DVP   | Delivery Versus Payment                              |
| EADB  | East Africa Development Bank                         |
| CMA   | Capital Market Authority                             |
| NSE   | Nairobi Stock Exchange                               |
| CPSS  | Committee on Payment and Settlement Systems          |
| IOSCO | International Organization of Securities Commissions |
| IFC   | International Finance Corporation                    |
| CDS   | Central Depository System                            |
| MIT   | Millennium Information Technologies                  |
| ATS   | Automated Trading System                             |
| CBK   | Central Bank of Kenya                                |
| CHU   | Complaints Handling Unit                             |
| YTM   | Yield To Maturity                                    |
| SPSS  | Statistical Package for Social Sciences              |
| GDP   | Gross Domestic Product                               |

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the study**

Corporate bonds are debt securities issued by private and public corporations (Roldes et al 2004). Companies issue corporate bonds to raise funds for a variety of purposes, such as building a new plant, purchasing equipment, or growing the business. A purchaser or “holder” of corporate bond is a lender of funds to the “issuer”, the company that issued the bond. In exchange, the company promises to pay back the face value of the bond, also known as “principal” on a specified maturity date. Until that date, the company usually pays interest at a stated rate, generally semiannually. While a corporate bond gives the investor creditor rights in the company, the holder does not have ownership interest in the issuing company unlike a shareholder of a company’s stock (Reszat, 2003).

Corporate bonds are debt securities issued by a corporation and sold to investors. Corporate bonds provide investors with regular interest payments which may be fixed or vary in accordance with a defined benchmark. These payments are backed by the entity’s cash flow or in some cases, the company’s physical assets that may be used as security for bonds (Davis & Jenkinson, 2012). Many corporations in the world especially in developed financial markets in the USA, Japan and Western Europe do issue corporate bonds as a means of financing. Companies such as Time Warner, Viacom, TCI, Delta, UAL, USL, and Digital Equipment use borrowed money from investors by issuing bonds (Mussa and Kihongo, 2011).

The term corporate bond is usually applied to longer-term debt instruments, generally with a maturity date falling at least a year after the issue date. Sometimes the term corporate is also used to include all bonds except those issued by government in their own currencies. Strictly speaking, however, it only applies to those issued by companies. However, despite being listed on exchanges, the vast majority of trading volume in corporate bonds in most developed markets takes place in decentralized, dealer-based, over-the-counter markets (Roldos, 2004).

### **1.1.1 Financial Market Infrastructure**

Financial market infrastructure is a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions. Financial market infrastructures typically establish a set of common rules and procedures for all participants, a technical infrastructure, and a specialized risk-management framework appropriate to the risks they incur. Financial market infrastructures provide participants with centralized clearing, settlement, and recording of financial transactions among themselves or between each of them and a central party to allow for greater efficiency and reduced costs and risks. Through the centralization of specific activities, financial market infrastructures also allow participants to manage their risks more efficiently and effectively, and, in some instances, eliminate certain risks. Financial market infrastructures can also promote increased transparency in particular markets. Some financial market infrastructures are critical to helping central banks conduct monetary policy and maintain financial stability, (IOSCO, 2011).

A payment system is a set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement. Payment systems are typically based on an agreement between or among participants and the operator of the arrangement, and the transfer of funds is affected using an agreed-upon operational infrastructure. A payment system is generally categorized as either a retail payment system or a large-value payment system (LVPS). A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and card payment transactions. Retail payment systems may be operated either by the private sector or the public sector, using a multilateral deferred net settlement (DNS) or a real-time gross settlement (RTGS) mechanism.

A central security depository(CSD) provides securities accounts, central safekeeping services, and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues (that is, ensure that securities are not accidentally or fraudulently created or destroyed or their details changed). A CSD can hold securities either in physical form (but immobilized) or in dematerialized form (that is, they exist only as electronic records). The precise activities of a CSD vary based on jurisdiction and market practices. For example, the activities of a CSD may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of both. A CSD may maintain the definitive record of legal ownership for a security; in some cases, however, a separate securities registrar will serve this notary function. In many countries,

a CSD also operates a securities settlement system), but unless otherwise specified, this report adopts a narrower definition of CSD that does not include securities settlement functions.

Securities settlement systems - A securities settlement system enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment. When transfer is against payment, many systems provide delivery versus payment (DvP), where delivery of the security occurs if and only if payment occurs. An SSS may be organized to provide additional securities clearing and settlement functions, such as the confirmation of trade and settlement instructions.

A trade repository (TRs) - is an entity that maintains a centralized electronic record (database) of transaction data. TRs have emerged as a new type of FMI and have recently grown in importance, particularly in the OTC derivatives market. By centralizing the collection, storage, and dissemination of data, a well-designed TR that operates with effective risk controls can serve an important role in enhancing the transparency of transaction information to relevant authorities and the public, promoting financial stability, and supporting the detection and prevention of market abuse. An important function of a TR is to provide information that supports risk reduction, operational efficiency and effectiveness, and cost savings for both individual entities and the market as a whole. Such entities may include the principals to a trade, their agents, CCPs, and other service providers offering complementary services, including central settlement of

payment obligations, electronic innovation and affirmation, portfolio compression and reconciliation, and collateral management. Because the data maintained by a TR may be used by a number of stakeholders, the continuous availability, reliability, and accuracy of such data are critical. (CPSS-IOSCO – 2012)

### **1.1.2 Issuance of Corporate bonds in Kenya**

Corporate bonds in Kenya were introduced into the market on November 22, 1996 when the East Africa Development Bank (EADB) bond was issued at a price of 99% raising Kshs 600 Million. Further, the EADB launched a Kshs 2 billion medium term note, which was listed on the NSE Fixed Income securities market segment on 2nd May 2001. This was viewed as a break from the long-term debt instruments. Proceeds from the issue were intended for mobilization and lending in local currencies and for the development of a sustainable tool for alleviating the exchange risk associated with long and medium term borrowing in foreign currencies. The other issue was by The Shelter Afrique which was a medium term note of Kshs 350M issued in three tranches, the first issued on the 8th December 2000, through a private placement to institutional investors. Proceeds from the sale were used for housing development in Kenya. The first locally controlled firm to offer bond was Safaricom whose proceeds were to be used to expand Safaricom and network coverage and capacity aiming to improve both the availability and reliability of their networks (Ngugi et al, 2005).

The corporate bond market in Kenya has seen a steady growth trajectory over the last couple of years, especially as a result of higher bank lending rates since the acute phase

of the global financial crisis in the fourth quarter of 2008. Despite being relatively smaller compared with South Africa and Nigeria, the Kenyan bond market is considered as one of the most advanced in Africa. For instance, in 2011, the country's bond turnover to GDP ratio stood at 19 per cent, the second highest in Africa behind South Africa. This measure indicates that for every \$100 produced in Kenya's economy, \$19 is traded on the bond market. On bond settlement, the international bond settlement standard is paying three days after the transaction is concluded.

From a macroeconomic policy perspective, the lack of bond markets places constraints on the financing of fiscal deficits, while bond markets provide useful market signals for macroeconomic policy. Domestic debt is also needed for monetary policy purposes, including for sterilizing inflows of foreign exchange. Bond markets also help to provide interest rates across the maturity spectrum and a more efficient pricing of risk. And by providing an alternative source of A financing, they reduce concentration of intermediation in banks. Because lending can be hedged in the bond market, banks have the ability to lend longer (Kahn, 2005).

The Kenyan bond market is characterized by government bonds accounting for more than 95% of the market. The bond market operates within a certain legal framework. The exchange rules had its own rules and regulations, including those for membership, listing, trading and settlement. In addition, there is a multiplicity of regulators and regulations at play in the Kenyan bond market. They are the government, Capital Market Authority (CMA) and Nairobi Stock Exchange (NSE).

### **1.1.3 Effect of Financial Market Infrastructure on Issuance of Corporate Bonds**

Financial market infrastructures that facilitate the clearing, settlement, and recording of monetary and other financial transactions can strengthen the markets they serve and play a critical role in fostering financial stability. However, if not properly managed, they can pose significant risks to the financial system and be a potential source of contagion, particularly in periods of market stress. Although financial market infrastructure performed well during the recent financial crisis, events highlighted important lessons for effective risk management. These lessons, along with the experience of implementing the existing international standards, led the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) to review and update the standards for financial market infrastructure.

To complement the growth in the primary market, recommendations to enhance the market infrastructure for corporate bonds include enhancing trading efficiency, developing a market making system, establishing a corporate bond index and creating a specialized third party guarantee institution. Robust and efficient trading, clearing and settlement and depository systems can lead to lower trading costs and price volatility, reduce market fragmentation, facilitate order flow, improve price discovery and ensure wide dissemination (IOSCO, 2011). The sub-Saharan bond markets other than BESA have a large number of structural and infrastructure issues that appear to inhibit their development and value to the economy (Banimadhu, 2003). Banimadhu, (2003) adds that

the clearance and settlement system for bond trading in most markets is generally inefficient with substantial delays occurring in the process.

#### **1.1.4 Nairobi Securities Exchange**

In 1954 the Nairobi Stock Exchange was constituted as a voluntary association of stockbrokers registered under the Societies Act. Since Africans and Asians were not permitted to trade in securities, until after the attainment of independence in 1963, the business of dealing in shares was confined to the resident European community. At the dawn of independence, stock market activity slumped, due to uncertainty about the future of independent Kenya. 1988 saw the first privatization through the NSE ,of the successful sale of a 20% government stake in Kenya Commercial Bank. The sale left the Government of Kenya and affiliated institutions retaining 80% ownership of the bank. Notably, on February 18, 1994 the NSE 20-SHare Index recorded an all-record high of 5030 points.

The NSE was rated by the International Finance Corporation (IFC) as the best performing market in the world with a return of 179% in dollar terms. The NSE also moved to more spacious premises at the Nation Centre in July 1994, setting up a computerized delivery and settlement system (DASS). For the first time since the formation of the Nairobi Stock Exchange, the number of stockbrokers increased with the licensing of 8 new brokers. In 1996, the largest share issue in the history of NSE, the privatization of Kenya Airways, came to the market. Having sold a 26% stake to KLM, the Government of Kenya proceeded to offer 235,423,896 shares (51% of the fully paid and issued shares of Kshs.

5.00 each) to the public at Kshs. 11.25 per share. More than 110,000 shareholders acquired a stake in the airline and the Government of Kenya reduced its stake from 74% to 23%. The Kenya Airways Privatization team was awarded the World Bank Award for Excellence for 1996 for being a model success story in the divestiture of state-owned enterprises.

In September 2006 live trading on the automated trading systems of the Nairobi Stock Exchange was implemented. The ATS was sourced from Millennium Information Technologies (MIT) of Colombo, Sri Lanka, who are also the suppliers of the Central Depository System (CDS). MIT have also supplied similar solutions to the Colombo Stock Exchange and the Stock Exchange of Mauritius. The NSE ATS solution was customized to uphold the spirit of the Open Outcry Trading Rules in an automated environment. Besides trading equities, the ATS is also fully capable of trading immobilized corporate bonds and treasury bonds. In February 2007 NSE upgraded its website to enhance easy and faster access of accurate, factual and timely trading information. The upgraded website is used to boost data vending business. A Wide Area Network (WAN) platform was implemented in 2007 and this eradicated the need for brokers to send their staff (dealers) to the trading floor to conduct business. Trading is now mainly conducted from the brokers' offices through the WAN. However, brokers under certain circumstances can still conduct trading from the floor of the NSE.

The Nairobi Stock Exchange marked the first day of automated trading in government bonds through the Automated Trading System (ATS) in November 2009. The automated trading in government bonds marked a significant step in the efforts by the NSE and CBK towards creating depth in the capital markets by providing the necessary

liquidity. In December 2009, NSE marked a milestone by uploading all government bonds on the Automated trading System (ATS). Also in 2009, NSE launched the Complaints Handling Unit (CHU) SMS System to make it easier for investors and the general public to forward any queries or complaints to NSE. In July 2011, the Nairobi Stock Exchange Limited, changed its name to the Nairobi Securities Exchange Limited. The change of name reflected the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. In the same year, the equity settlement cycle moved from the previous T+4 settlement cycle to the T+3 settlement cycle. This allowed investors who sell their shares, to get their money three (3) days after the sale of their shares. The buyers of these shares will have their CDS accounts credited with the shares, in the same time.

The NSE is a self regulating organization although its activities are subject to monitoring and supervision of the CMA and a system of regular audits by the CMA is in place to ensure that the necessary regulations are complied with. Trading rights are currently given only to member firms. The trading rights are given by virtue of gaining membership to the NSE. Ownership in the member firms is subject to the approval of the CMA and NSE and firms that are 100% owned by foreigners are not permitted. (Lumumba, 2007).

## **1.2 Research Problem**

Although the corporate bond market in Kenya has seen a steady growth trajectory over the last couple of years, the corporate bonds market has had a lower trading activity

compared to the treasury bonds market, (Ngugi & Agoti, 2007). As stated by Ndung'u (2013), though Kenya's bond market is well diversified, it needs to be developed further. Demand for bonds and bank loans triggers the flow of capital in the market. By the end of 2014, ratio of corporate bond market capitalization to GDP stood at 2% and ratio of corporate bond market turnover to total bond market capitalization stood at 0.1%. This is contrasted by the ratio of equity market capitalization to GDP which stood at 50% in the same period (CMA, 2014).

Previous studies have touched on various aspects of long term debt market; Muriithi, (2003) carried out a study on comparisons of interest rates between short and long term financial debt securities, Mugenda, (2010), did a survey on factors influencing long term debt decisions by companies quoted at NSE and Kiuna, (2010) surveyed on the impact of automated trading system on the bonds market activities. Orina, (2009) did a survey of factors determining trading of financial derivatives in the NSE, while Were, (2010) carried out an investigation on the factors influencing the development of corporate bonds market; a case of Kenyan financial market but none has been able to address the effect of financial market infrastructure on issuance of corporate bonds at the Nairobi securities exchange.

This study therefore attempted to close the gap and as adequately as possible answer the question; the effect of financial market infrastructure on issuance of corporate bonds at the Nairobi Securities Exchange?

### **1.3 Objectives of the study**

The objective of the study was to establish the effect of financial market infrastructure on issuance of corporate bonds at the Nairobi Securities Exchange.

### **1.4 Value of the study**

The study will help investors to understand the effect of financial market infrastructure on issuance of the corporate bonds which will enable them make informed decisions for their investments.

The study is aimed at filling the existing knowledge gap. The study will also benefit the students as a basis of reference for any future study. Thus to academicians who want to contribute to the body of knowledge, this research will help in opening up opportunities for doing further research.

Likewise the study will help policy makers to design guidelines that can be followed in the issuance of corporate bonds which will be useful to the Nairobi Securities Exchange.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section provides a theoretical background by reviewing the literature on corporate debt securities. Section 2.2 describes the theoretical review on capital structure taking into account the main findings of the corporate finance literature. Section 2.3 describes the determinants of the issuance of corporate bonds. Section 2.4 focuses on the empirical studies of corporate debt securities. And finally Section 2.5 provides a summary of key issues emerging from the discussion in the previous sections.

#### **2.2 Theoretical Review**

Several theories of issuance of corporate bonds reveal facts about the financial structure of different organizations, particularly on capital structure taking into account the main findings of the corporate finance literature.

##### **2.2.1 Trade-Off Theory**

In trade-off theory, a decision maker running a firm evaluates the various costs and benefits of alternative leverage plans. Often it is assumed that an interior solution is obtained so that marginal costs and marginal benefits are balanced. The original version of the trade-off theory grew out of the debate over the Modigliani-Miller theorem. When corporate income tax was added to the original irrelevance proposition this created a benefit for debt in that it served to shield earnings from taxes, (Modigliani & Miller 1963). Since the firm's objective function is linear, and there is no offsetting cost of debt,

this implied 100% debt financing. To avoid this extreme prediction, an offsetting cost of debt is needed; the obvious candidate is bankruptcy.

Kraus & Litzenberger (1973) provide a classic statement of the theory that optimal leverage reflects a trade-off between the tax benefits of debt and the deadweight costs of bankruptcy. According to Myers (1984), a firm that follows the trade-off theory sets a target debt-to-value ratio and then gradually moves towards the target. The target is determined by balancing debt tax shields against costs of bankruptcy.

An important purpose of the theory is to explain the fact that corporations usually are financed partly with debt and partly with equity. It states that there is an advantage to financing with debt, the tax benefits of debt and there is a cost of financing with debt, the costs of financial distress including bankruptcy costs of debt and non-bankruptcy costs (e.g. staff leaving, suppliers demanding disadvantageous payment terms, bondholder/stockholder infighting, etc.). The marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases, so that a firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing, (Brealey et al., 2008).

Trade-off theory explains the mix of debt and equity companies use to finance their operations. The basic suggestion of trade-off theory is that corporations issue bonds due to their tax benefits, but when their debt load gets too high, they switch to stocks to minimize bankruptcy costs. In terms of bond trade-off, the interest payments on bonds that a company must make to bondholders are called coupon payments. In some countries, the company that issues bonds can write off the payments on its taxes.

However, issuing bonds increases a company's risk of bankruptcy. Thus, the company must offer a higher interest rate on the bonds as it issues more bonds. However, due to these downsides, trade-off theory states that after issuing a sufficient amount of debt, the company can switch over to issuing stock. The company might reach a level of debt beyond which the increased bankruptcy risks are too high to compensate for the tax benefits. At this level, the company begins financing itself through stock sales. Nevertheless, the trade-off level differs for every company based on its risk tolerance, (Frank & Goyal, 2005).

### **2.2.2 Pecking Order Theory**

Pecking order theory (pecking order model) postulates that the cost of financing increases with asymmetric information. Financing comes from three sources, internal funds, debt and new equity. Companies prioritize their sources of financing, first preferring internal financing, and then debt, lastly raising equity as a "last resort," (Myers & Majluf, 1984). Hence: internal financing is used first; when that is depleted, then debt is issued; and when it is no longer sensible to issue any more debt, equity is issued. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required (equity would mean issuing shares which meant 'bringing external ownership' into the company). Thus, the form of debt a firm chooses can act as a signal of its need for external finance, (Brealey, 2008).

The pecking order theory is popularized by (Myers and Majluf, 1984) when they argue that equity is a less preferred means to raise capital because when managers (who are assumed to know better about true condition of the firm than investors) issue new equity,

investors believe that managers think that the firm is overvalued and managers are taking advantage of this over-valuation. As a result, investors will place a lower value to the new equity issuance.

Pecking order theory starts with asymmetric information as managers know more about their companies' prospects, risks and value than outside investors. Asymmetric information affects the choice between internal and external financing and between the issue of debt or equity. There therefore exists a pecking order for the financing of new projects, (Matemilola & Bany-Ariffin, 2011).

Asymmetric information favours the issue of debt over equity as the issue of debt signals the board's confidence that an investment is profitable and that the current stock price is undervalued (were stock price over-valued, the issue of equity would be favoured). The issue of equity would signal a lack of confidence in the board and that they feel the share price is over-valued. An issue of equity would therefore lead to a drop in share price. This does not however apply to high-tech industries where the issue of equity is preferable due to the high cost of debt issue as assets are intangible, (Brealey et al., 2008).

### **2.2.3 Liquidity Preference Theory**

This theory explains the difference of interest rates for short term and long term bonds in terms of liquidity preferences. Concerned with risk-aversion investment behaviors, it asserts that lenders anticipate the potential need to liquidate an investment earlier than expected. This is a combination of hypothesis theory and preferred habitat theory. Liquidity preference theory says that the shorter the maturity the lesser the volatility of

interest rates and less risky. Because of less involved risk, short term bonds are more liquid compared to long-term bonds, (Keynes, 1936).

Since for a given change in interest rates, the price volatility of a short-term investment is lower than the price volatility of a long-term investment, investors prefer to lend short term. Therefore, they must be offered a risk premium to induce them to lend long-term. Borrowers, on the other hand, often prefer long-term bonds because they eliminate the risk of having to refinance at higher interest rates in future periods. Furthermore, the fixed costs of frequent refinancing can be quite high. Therefore, borrowers are willing to pay the premium necessary to attract long-term financing, (Van Deventer & Imai, 1996).

### **2.3 Determinants of Issuance of Corporate Bonds**

Issuance of bonds is based on the behavior of those who buy bonds or lenders or savers. In the bonds market, the investors who buy bonds are providing loans to issuers and are receiving interest. This implies that issuance of bonds represents the supply of LFs, (Blackwell et al., 2007). The demand curve in the bond market is the relationship between the price and quantity of bonds that the investors demand all other factors constant. This curve shows an inverse relationship between the demand of bond and its price and a direct relation with interest rate, other factors constant. At higher bond prices, the quantity demanded falls and the interest rates also falls due to their inverse relation with bond prices, (Fabozzi et al., 2010). This implies lower yield to maturity (YTM) and falling expected return.

The factors held constant are, the overall wealth of the economy/ state of the economy as measured by real output/GDP, Bond's relative risk to other financial assets, and its liquidity relative to other financial assets, expected future interest rates and inflation and

government policies. Change in the above factors leads either to rightward or leftward shift in the demand curve at each interest rate or price. A change in relative risk of a bond changes its demand. An increase in relative risk decreases the demand of a bond and vice versa, (Fischer & Jordan, 2009), as investors opt for less riskier assets. The relative liquidity of a bond also affects its demand which decreases with increase in the former. From the general economic theory, the price of a commodity, income of the consumer, price of substitute and government policy are some of the factors that affect demand in the commodities market.

## **2.4 Empirical Literature**

Were, James. (2010) investigated the corporate bond market development in companies listed in the NSE. Using a descriptive study and a census method and identified factors influencing the development of corporate bonds market in Kenyan financial market. The researcher targeted the top management especially in the area of accounts, operations and found, companies listed in NSE face the corporate bond market development challenge through inadequate disclosure of information on public debt issuance and statistics measures. The companies have insufficiently dealt with establishing repurchase (repo) market as well as setting up issuance calendars to improve transparency. Therefore, regulatory frame work in Kenya as advisory services should be enhanced to mitigate critical challenge to information availability as well as formulating policies to effectively enable, disclosure of information on public debt issuance and statistics measures.

Friedman (1979 & 1985) in testing empirically the relevance of relative yields for the supply of debt securities, discovered that there is little ground for drawing any conclusion at all about even the sign of the substitutability of short-term debt and equity. In contrast,

his findings indicate that long-term debt and equity are indeed substitutes although the estimates of the associated substitution elasticity are typically very small.

Roley (1982) finds for the United States some degree of substitution between different maturities of government securities, corporate bonds, and equities. Johnson's (1988) empirical findings are consistent with imperfect substitutability between Canadian and American dollar-denominated corporate bonds. There are two recent studies estimating quasi-reduced form equations of corporate debt securities are Davis (2001) and Davis and Ioannidis (2002).

Davis (2001) explains the change in real corporate debt securities net issuance in the United States, Canada, the United Kingdom and Japan by financial demand and cost variables: real investment, the ratio between borrowing and investment, the investment-GDP ratio, the short-term interest rate, the credit spread, share prices, and the term spread. Only one explanatory factor, that is the financing-investment ratio, appears for all countries with the same sign. The main finding of this study is that corporate debt securities issuance compared with bank loans is more sensitive to cost elements and less sensitive to the business cycle. Consequently, an economy highly dependent on bank financing would show more cyclically volatile funding of firms than will be possible with debt securities markets alongside the banking system.

Davis and Ioannidis (2002) provide a similar empirical analysis based on quarterly flow-of-funds data for the United States over 1979-1999. This study focuses on whether debt securities and bank loans are substitutes (Bolton and Freixas, 2000) or complements (Holmstrom and Tirole, 1997). In contrast to Davis (2001), a positive relation is found

between debt security financing and bank financing. Corporate debt securities issuance is significantly explained by bank loans, the difference between the Treasury bill rate and the prime rate (liquidity spread), the spread between the yield on 10-year BAA corporate and government bonds (credit quality spread), the stock market index return, and the cyclical fluctuations of corporate investment. For the latter a significant negative relationship with debt securities issuance is found, albeit *a priori* a positive one is expected.

Empirical studies reveal that determinants of corporate bond yield spreads are the business cycle, inflation, short-term interest rate, yield curve, interest rate volatility, equity market risk, the difference between treasury and corporate bond issuance and liquidity considerations, approximated by amounts outstanding (Dialynas and Edington, 1992, Athanassakos and Carayannopoulos, 2001, Elton et al., 2001, and Hattori et al., 2001). The option pricing theory literature is especially useful in showing the non-linear dependence of corporate bond spreads to these variables (Merton, 1974). In contrast, other authors argue that the corporate bond market is a segmented market driven by corporate bond specific supply or demand factors and not by macro-economic and financial variables as predicted by theory (Collin-Dufresne et al., 1999) or that aggregate United States high-yield spreads are driven by firm-specific events (Cooper et al., 2001).

Not only debt securities issuance activity, but also the price of debt securities should be examined to improve the insights in the corporate debt securities market. The literature on the price of debt securities examines notably the determinants and leading indicator properties of corporate bond spreads, mostly defined as the spread between the yields on corporate and government bonds with comparable maturities.

Corporate bond spreads are determined in forward-looking markets and are available at a higher frequency than standard macroeconomic variables and are therefore potential useful indicators for future inflation and output growth. These features have generated a substantial literature assessing the information content of corporate bond spreads (Davis and Fagan, 1997, Stock and Watson, 2001, and Chan-Lau and Ivaschenko, 2001).

Most studies examine investment-grade bonds. For instance, Chan-Lau and Ivaschenko (2001) argue that prices of investment-grade bonds reflect economic fundamentals better than the prices of below-investment-grade bonds. However, Gertler and Lown (1999) argue that high-yield spreads contain more useful information. They show that the high-yield spread has significant explanatory power for the United States business cycle since the middle of the 1980s and outperforms other financial leading indicators, including the paper-bill spread (Friedman and Kuttner, 1993a and 1993b, and Kashyap et al., 1993), term spread and federal funds rate. The information content of (high-yield) corporate bond spreads could be symptomatic of financial factors at work in the business cycle. This is also suggested by the fact that in periods where the terms of credit are tightened in the United States, as indicated by Senior Loan Officer Opinion Surveys, are associated with upward movements in the high-yield spread (Duca, 1999, and Gerter and Lown, 1999).

Njihia, Mbugua (1997-2004) investigated the Determinants of the Corporate Bond Market in Kenya. The study identified and examined the relationship between macroeconomic variables notably exchange rate, interest rate and inflation rate as

determinants to corporate bond market development to have dissuaded bond issuance by companies and also contributed to underdevelopment of a market that is required to boost economic growth. Also included is the variables bank credit, treasury bonds, equity returns as other determinants to corporate bond market development. The study finds that exchange rate. Interest rate and bank credit variables negatively affect the development of the corporate bond market which calls for implementation of sound policies. inflation. Equity and Treasury bond variables show no significance despite the existence of theories explaining their roles and significance in bond market development.

According to Ringui (2012), companies could proceed to perform better if the political, Macroeconomic and regulatory factors in the country are favorable for the corporate bond market to thrive. What's implied here is that if companies are encouraged by all these factors to pursue debt financing, then positive gains could be seen in these companies' performance. Ringui (2012) puts it forward that bond issues could make these companies more profitable.

## **2.5 Chapter Summary**

The literature review highlighted what needs to be in place to make a successful and efficient corporate bond market. The chapter also highlighted the determinants of corporate bond yield spreads; the business cycle, inflation, short-term interest rate, yield curve, interest rate volatility, equity market risk, the difference between treasury and corporate bond issuance and liquidity considerations, approximated by amounts outstanding.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter provides a blueprint or outline for conducting the study. Section 3.2 identified research design and described researcher's overall plan for obtaining answers to the research questions which guided the study. Section 3.3 identified the population and sample of the interest to the researcher and which was used in the study. Section 3.4 described data to be used in the study and how that data was collected. Section 3.5 described how the data was analyzed and summarized identifying and explaining conceptual and empirical models that was applied. Section 3.6 will identify the validity and reliability of data.

#### **3.2 Research Design**

The research design was the researcher's overall plan for obtaining answers to the research questions that guided the study. Polit and Hugler (1999:155) describe the research design as a blueprint or outline for conducting the study in such a way that maximum control will be exercised over factors that could interfere with the validity of the research results.

This study employed a descriptive research design that assisted the researcher identify the effect of financial market infrastructure on issuance of corporate bonds at NSE. Descriptive research design is process of collecting data to test the hypothesis or to answer questions concerning the current study (Gay, 1983). According to Mugenda & Mugenda (2003), descriptive research portrays the fact as it really is; if another researcher

goes to the field now, he or she will find situation as described. Robison (2002), Chandran (2004), claim that descriptive research design is one of the best methods for conducting research in human contexts because of portraying accurate current facts through data collection for testing hypothesis or answering to conclude the study.

### **3.3 Population and Sample**

Polit and Hungler (1999:43,232) define a population as the totality of all subjects that conform to set of specifications, comprising the entire group of persons that is of interest to the researcher and to whom the research results can be generalized. LoBondo-Wood and Haber (1998:250) describe a sample as a portion or a subset of the research population selected to participate in a study, representing the research population.

The target population of the study included all the companies listed at the Nairobi Securities Exchange that have issued corporate bond from 2005 to 2014.

### **3.4 Data Collection**

Polit and Hungler (1999:267) define data as “information obtained during the course of an investigation or study. The researcher will use secondary data. A secondary data was obtained from journals and publications of Capital Market Authority and Nairobi Securities Exchange. Information relating to contemporary issues was obtained from published sources such as journals, reports and websites.

### **3.5 Data Analysis**

Data analysis involves “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (Bogdan & Biklen, 1982).

Data was validated, edited and coded then summarized using descriptive statistics, percentages, and mean scores. Percentage scores and standard deviations are used to determine the existing hurdles in the industry and analyze data using the statistical package for social sciences (SPSS). Finally, tables, charts and graphs are used for presentation of results.

### **3.5.1 Conceptual Model**

Let;

$$Y=f(X_1, X_2, X_3)$$

Where; Y number of corporate bonds issued from 2005 to 2014 at NSE, which is the dependent variable and the independent variables are, a payment system, settlement systems and trade repository system

### **3.5.2 Empirical Model**

Let;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where Y is the dependent variable and  $X_1$  to  $X_3$  are the independent variables.

$\alpha$ = constant term

Y= number of corporate bonds issued

$\beta_1, \beta_2, \beta_3$ , , are regression coefficients or change induced in Y by each X variable

$X$ = financial market infrastructure - The system of payment, settlement and recording of Monetary and other financial transactions of the issuers

$X_1$ = payment system in that specific year

$X_2$ = settlement system in that specific year

$X_3$ = recording system in that specific year

Correlation analysis will be used to establish existing relationship between the dependent and independent variables. The Spearman's Correlation Coefficient ( $R_{sp}$ ) will be used to establish the strength of relationship between the variables, and the relationships' linearity. The Spearman's Correlation Coefficient uses correlation coefficient ( $r$ ) which is a measure of degree to which two variables are related and can range from 0 to +1 if positively correlated and 0 to -1 if negatively correlated.

### **3.6 Data Validity and Reliability**

#### **3.6.1 Data Validity**

According to Nachmias & Nachmias (1996), validity of an instrument is the degree to which an instrument measures what it is supposed to measure and consequently permits appropriate interpretation of scores. Among four basic types of measuring validity, theoretical construct validation is considered functioning as a unified framework for validity (Kane, 2001).

Construct validity defines how well a test or experiment measures up to its claims. It refers to whether the operational definition of a variable actually reflects the true theoretical meaning of a concept (Martyn, 2009). The study applied a construct validity

test. According to Hunter and Schmidt (1990), construct validity is a quantitative question rather than a qualitative distinction such as "valid" or "invalid"; it is a matter of degree.

### **3.6.2 Data Reliability**

Reliability is a measure of the degree to which a research instrument yields consistent result or data after repeated trials (Mugenda and Mugenda, 2003). Polit and Hungler (1997:296); Uys and Basson (1991:75) describes reliability as the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure. If a study and its results are reliable it means that the same results would be obtained if the study were to be replicated by other researchers using the same method.

## **CHAPTER FOUR**

### **DATA ANALYSIS, RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter discusses analysis of data and findings. The data has been analyzed using descriptive statistics to generate frequencies and inferential statistics.

#### **4.2 Descriptive Statistics**

This section provides results on measures of central tendency of the variables; payment system, settlement system, and recording being measured in the study.

##### **4.2.1 Measures of Central Tendency**

Results in Table 4.1 show that the firms in Nairobi Securities Exchange which were used in the study had a mean of 5.421 payment system with a standard deviation of 5.800 which means that there is a possibility of extreme figures. The settlement system had a mean of 15.4 with a standard deviation of 1.394. The mean presented by recording system of the firms in NSE indicated a mean of 1.568 with a standard deviation of 0.5963. The results above indicate that most firms in Kenya use payment system more than settlement and recording system.

**Table 4.1: Descriptive Statistics**

| Variable Deviation | Minimum | Maximum | Mean   | Std.   |
|--------------------|---------|---------|--------|--------|
| Payment System     | 0.1     | 18.7    | 5.421  | 5.8008 |
| Settlement System  | 13.2    | 18.59   | 15.4   | 1.3946 |
| Recording System   | 0.4     | 2.8     | 1.568  | 0.5963 |
| Corporate Bonds    | 17      | 30      | 21.582 | 2.9457 |

**Source: Researcher 2015**

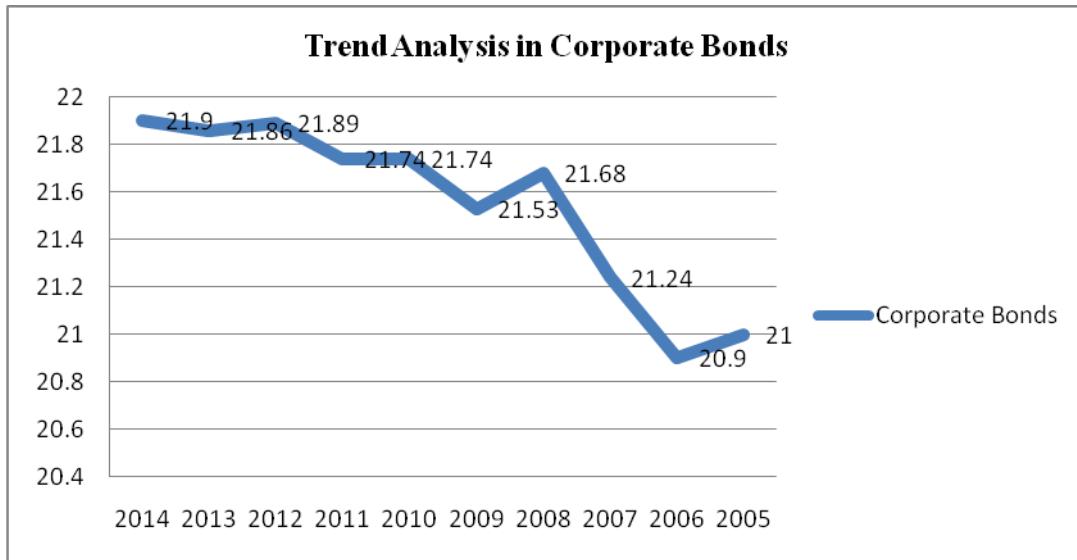
### 4.3 Trend Analysis

This section provides graphical representation of the movement and changes of the variables under study over the years 2005 to 2014.

#### 4.3.1 Annual Trends in Corporate Bonds

Figure 4.1 present an increase in corporate bonds from year 2007, 2008 and 2014 with a slight decrease in 2006, 2009 and 2013 there was a constant in years 2010 and 2011. This indicates that there was a renewed interest in corporate bonds from year 2007 hence the rise in trend from that year. The results also show that the corporate bonds of companies are well endowed.

**Figure 4.1: Trend Analysis in Corporate Bonds**

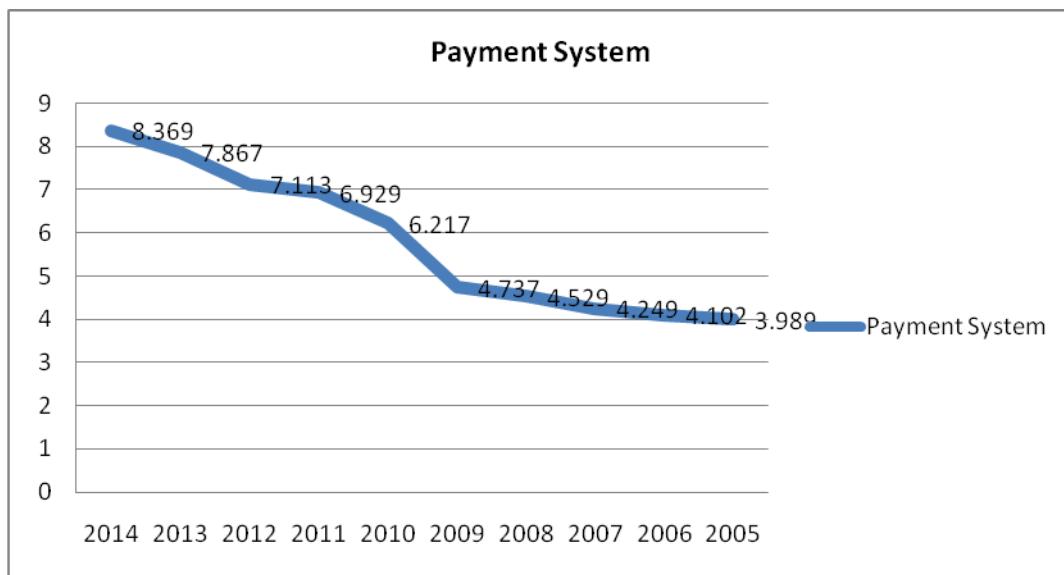


**Source:** Researcher 2015

#### 4.3.2 Annual Trends in Payment System

Results in figure 4.2 show a steady increase in the payment system of firms in the Nairobi's Securities Exchange from years 2005 to year 2014. The rise in payment system through the years indicates that companies are trying to enhance payment system within the firm.

**Figure 4.2: Trend Analysis in Payment System**

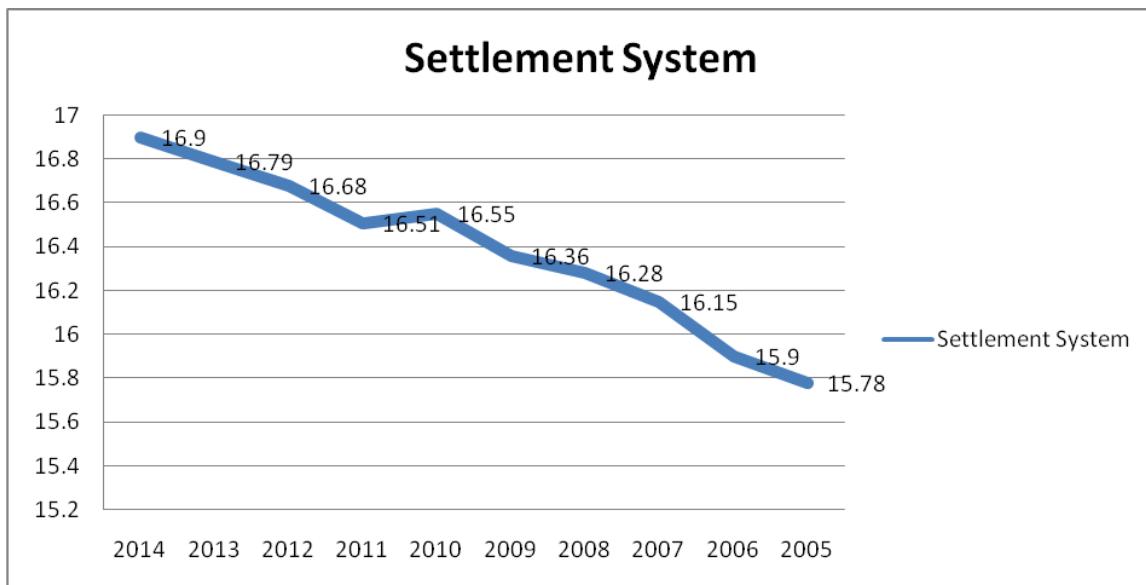


**Source:** Researcher 2015

#### **4.3.3 Annual Trends in Settlement System**

The trend in settlement system presented by figure 4.3 indicate that there has been a steady increase in companies' total assets from year 2005 and a slight decrease in the same in year 2011. This shows that companies represented in the NSE have embraced settlement systems in order to enhance their performance.

**Figure 4.3: Trend Analysis in Settlement System**

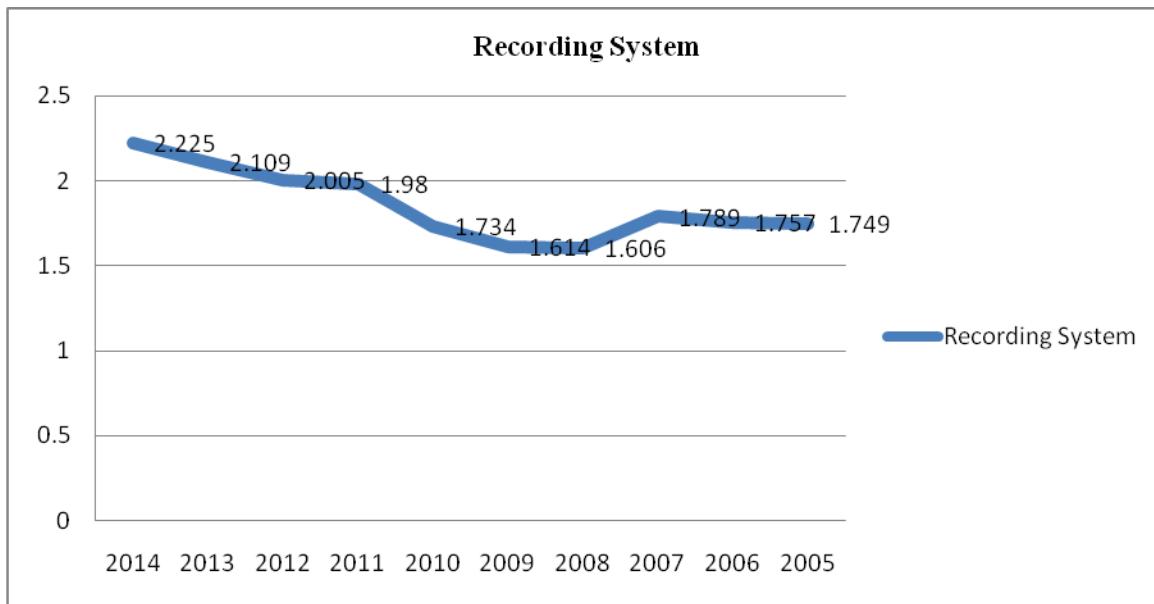


**Source:** Researcher 2015

#### 4.3.4 Annual Trends in Recording System

The trend in recording system presented by figure 4.4 indicates that there was a slight decrease in the same in year 2008. This was later followed by a slight increase throughout the years until 2014. This shows that companies represented in the NSE have enough materials to records the performance that they will help in future to know the areas to perfect.

**Figure 4.3: Trend Analysis in Recording System**



#### **4.4 Inferential Statistical Analysis**

Inferential analysis conducted generated correlation results, model of fitness, and analysis of the variance and regression coefficients.

##### **4.4.1 Pearson's Correlation**

Table 4.2 presents Pearson's Bivariate Correlation which shows that settlement structure had a strong positive correlation of (0.102) and a probability value of (0.055). This shows that settlement system was statistically significant in explaining payment system. Recording system had a weak positive correlation and a statistical significant value of 0.009. This showed that the recording system determined payment system of companies in the NSE. Recording system had a strong positive correlation of 0.092 and an insignificant probability value of 0.603. On an overall basis it can be concluded that the variables of the study had moderate to strong correlations.

**Table 4.2: Bivariate Pearson's Correlation**

| Variable   | Pearson         | Corporate | Payment | Settlem           | Recording |
|------------|-----------------|-----------|---------|-------------------|-----------|
|            | Correlation     | Bonds     | System  | ent<br>syste<br>m |           |
| Corporate  | Pearson         |           |         |                   |           |
| Bonds      | Correlation     |           |         |                   |           |
|            | Sig. (2-tailed) |           |         |                   |           |
| Payment    | Pearson         |           | 0.102   | 1                 |           |
| system     | Correlation     |           |         |                   |           |
|            | Sig. (2-tailed) | 0.055     |         |                   |           |
| Settlement | Pearson         |           |         |                   |           |
| system     | Correlation     | 0.443     | 0.272   | 1                 |           |
|            | Sig. (2-tailed) | 0.009     | 0.119   |                   |           |
| Recording  | Pearson         |           |         |                   |           |
| system     | Correlation     | 0.092     | 0.006   | 0.03              | 1         |
|            | Sig. (2-tailed) | 0.603     | 0.974   | 0.866             |           |

**Source:** Researcher 2015

#### 4.4.2 Regression Analysis

Table 4.3 below shows the fitness of the regression model in explaining the variables under study. The results indicate that the variables; payment system, settlement system, recording system of the firm were satisfactory in explaining corporate governance. This conclusion is supported by the R square of 0.319. This further means that the independent variables can (31.9%) explain the independent variable (corporate bonds).

**Table 4.3: Model of Fitness**

| <b>Indicator</b>           | <b>Coefficient</b> |
|----------------------------|--------------------|
| R                          | 565                |
| R Square                   | 0.319              |
| Std. Error of the Estimate | 2.5926             |

**Source: Researcher 2015**

ANOVA statistics presented on Table 4.4 indicate that the overall model was statistically significant. This was supported by an F statistic of 3.4 and a probability (p) value of 0.021. The reported p value was less than the conventional probabilities of 0.05 significance level thus its significance in the study.

**Table 4.4: Analysis of Variance (ANOVA)**

| <b>Indicator</b> | <b>Sum of Squares</b> | <b>Df</b> | <b>Mean Square</b> | <b>F</b> | <b>Sig.</b> |
|------------------|-----------------------|-----------|--------------------|----------|-------------|
| Regression       | 91.424                | 4         | 22.856             | 3.4      | 0.021       |
| Residual         | 194.925               | 29        | 6.722              |          |             |
| Total            | 286.349               | 33        |                    |          |             |

**Source: Researcher 2015**

Regression of coefficients results in Table 4.5 shows that there is a positive relationship between corporate bonds and payment system, settlement system, recording system whose beta coefficients are 0.072, 0.000, and 0.215 respectively. Statistically significant variables in the study were payment system and settlement system of the firm as they had p values of 0.000 and 0.008 which is lower than the probability conventional of 0.05. These results indicate that the level of corporate bonds is determined by payment system, settlement system, recording system of the company. This further means that an increase in unit change of payment system, settlement

system, recording system of the company results to a unit change in corporate bonds of the company.

**Table 4.5: Regression of Coefficients**

| Variable          | Beta   | Std. Error | T      | Sig.  |
|-------------------|--------|------------|--------|-------|
| Constant          | 18.661 | 1.524      | 12.246 | 0.000 |
| Payment system    | 0.072  | 0.089      | 0.809  | 0.000 |
| Settlement system | 0.000  | 0.000      | 2.862  | 0.008 |
| Recording system  | 0.215  | 0.761      | 0.282  | 0.780 |

**Source: Researcher 2015**

#### **4.5 Discussion of Findings**

The rise in trend of corporate bonds over the years shows that there was a renewed interest in corporate bonds from year 2007 hence the rise in trend from that year. The results from the study indicate that there is a significant and positive relationship between corporate bonds and payment system. The rise in payment system indicated by the trend analysis through the years shows that companies used more debt as a source of financing its assets than equity capital. Pearson's correlation indicated that payment system had a strong positive relationship to corporate bonds meaning that an increase in payment system also led to an increase in corporate bonds.

The finding support Bhagat and Jefferis (2002) findings that payment system has become an instrument of corporate governance; not only the mix between debt and equity and their well-known consequences as far as taxes go must be taken into consideration.

The results in the recording system mean show that companies in Kenya, listed in the

stock exchange market have the ability to meet their short term obligations when they fall due, this is represented by mean greater than one. Increase in recording system represents an increase in payment thus the trend results show that the companies in 2007 and 2008 did not fall in financial difficulties and had enough capital which could be converted to investments.

Further, Ebaid (2009) study was on the emerging market economy of Egypt found that the selection of payment system mix has a very weak relationship with the performance. He found that the relation among payment system has insignificant relationship with performance measured which does not agree with the findings of this study that payment system is an important element in determining performance of a company. In addition, from the results the rise in payment system through the years indicates that companies use more debt as a source of financing. These results disagree with those of Zeitun and Tian (2007) whose study was on the Jordanian firms found the relation between payment system and debt (short term and long term as insignificant).

The results further show that there exists a positive relationship between payment system and board composition, board skills and CEO duality which sum up to corporate bonding in a company. These results support studies by Abor and Biekpe (2007) who explore the link between corporate bonds and the payment systems decision of SMEs. The results generally suggest that SMEs pursue lower debt policy with larger board size. Interestingly, SMEs with higher percentage of outside directors, highly qualified board members and one-tier board system rather employ more debt. It is clear,

from the study, that corporate bonds structures influence the financing decisions of Ghanaian SMEs.

From the results it is possible there is significance of issuance procedure, cost of issue, state of secondary market and level of transparency in attracting corporate bonds to the market. This findings support the study of Bella (2012) whose findings indicated that bonds can be used as debt instruments are a cheaper source of external capital for companies when interest rates are comparatively low.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary**

The findings from the measures of central tendency on the three variables (payment system, settlement system and recording system) indicate that most firms use payment system more than settlement and recording system. Analyses of variance indicate that the variables; payment system, settlement system and recording system of the firm were satisfactory in explaining corporate bonds. Pearson's bivariate correlation established a positive relationship between corporate bonds and payment system, settlement system and recording system with payment system and settlement system of the firm are statistically significant variables in the study. This further means that a change in payment system, settlement system and recording system of the company results to a change in the number of corporate bonds of the company.

The study shows that there is a significant and positive relationship between corporate bonds and payment system. The rise in payment system indicated by the trend analysis through the years shows that companies used more debt as a source of financing its assets than equity capital. Pearson's correlation indicated that payment system had a strong positive relationship to corporate bonds meaning that an increase in payment system also led to an increase in corporate bonds.

The results in the recording system mean show that companies in Kenya, listed in the securities exchange market have the ability to meet their short term obligations when

they fall due, this is represented by mean greater than one. Increase in recording system represents an increase in payment thus the trend results show that the companies in 2007 and 2008 did not fall in financial difficulties and had enough capital which could be converted to investments. From the result in the recording system of the Companies represented in the Nairobi securities exchange have enough material to records the performance that they will help in future to know the area.

## **5.2 Conclusions**

This study empirically analyzes the determinants of corporate bond market development in Kenya. The study considers the level of development of the corporate market, and also the political, macroeconomic, market structures and intermediaries determinants of corporate bond market development in Kenya.

From the results it also adequate to conclude that most firms in the NSE use more debt or long term liability as a source of financing than equity capital from shareholders. Debt is used as an asset financing source than equity capital because in most cases equity capital requires some ownership of the company where giving up a certain right of the company to someone else is not really welcomed by many business owners. Decisions in the company will have to be made through consulting which may take longer period of time in addressing pressing matters.

Descriptive results on the opportunity of the firm paves way to the conclusion that the

companies in the Nairobi Securities Exchange have good return on assets and that the latter is well stated. However in this case investors are advised to be observant of the company's shares as one with a perfect price to book value (greater than 1) has a chance that the asset will fade in its value leaving the investors with poor returns on the same. The settlement system indicates the ownership or value of the company in terms of its current assets and noncurrent assets. Firms in the NSE present an increased trend throughout years 2007-2008 which means that they have enough assets which can be converted into cash. From the trend analysis the increase in growth of corporate bond in companies in Kenya indicates a good structural level upon which companies make corporate decisions.

### **5.3 Recommendations**

The study recommends investors who end up making decisions after looking at the opportunity of the firm, which is calculated as price value divided by book value of shares. A greater price to book value that is a value greater than one indicates good returns to investors. However in this case investors are advised to be observant of the companies' shares as one with a perfect price to book value (greater than 1) has a

chance that the asset will future fade in its value leaving the investors with poor returns on the same. Companies using debt as a source of financing may experience some disadvantage and advantages over the same. High debt levels are not optimal as at times they may lead to losses, financial distress of the company and bankruptcy.

Debt financing is also advantageous in its own way as it tends to create leverage on the few resources of the company and there is also a sense of autonomy in ownership of the company, that is ownership of the company, is not shared by the shareholders. Companies as well are able to foresee growth opportunities and to an extend maximization of shareholders wealth using debt.

One way of ensuring market stability is by increasing liquidity and addressing bond market fragmentation. Support for existent benchmark programs could be through strategies for building liquidity such as bond reopening and initiating approaches to smoothen the debt maturity structure such as bond exchanges through switches and conversions.

#### **5.4 Limitations of the Study**

The study relied on secondary data collected from firms listed in the Nairobi Securities Exchange and risk informed and accurate data thus, the integrity of the findings is affected by the accuracy.

Determining the corporate bonds did not incorporate other variables such as efficiency and social legitimacy.

The objective of this study concentrated on the relationship between payment system and corporate bonds performance, thus it did not tackle the immediate effect on any changes in corporate bonds structure.

The NSE data keeps changing, thus the results would have been different if the same research would be conducted another year.

### **5.5 Suggestions for Further Studies**

The study concentrated on other firms in the securities exchange with exception of the investment, insurance and financial institution companies thus, a study should be conducted on these other companies.

The study creates a gap that needs to address the determinants of corporate bond in other industries not analyzed in this study. Further studies can concentrate on other variables that constitute corporate bond such financial efficiency and social legitimacy in companies in Kenya.

A Study could also be done on particular economic sectors to analyze the effects of capital structure on corporate bonds. Further studies could also include how culture affects corporate bonds.

The researcher suggests a study be conducted through a survey of the firms which have issued corporate bond and not listed Nairobi Securities Exchange. This will allow for a comparison of the findings to come up with recommendations that can be applicable to all the players in the corporate world in Kenya.

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## APPENDICES

### **Appendix I: List of Sampled Companies**

| No | Company                    |
|----|----------------------------|
| 1  | Kakuzi                     |
| 2  | Rea Vipingo                |
| 3  | Sasini Tea                 |
| 4  | Access Kenya               |
| 5  | Car and General            |
| 6  | CMC Holdings               |
| 7  | Kenya Airways              |
| 8  | Marshalls East Africa      |
| 9  | Nation Media Group         |
| 10 | Safaricom Ltd              |
| 11 | Scan group                 |
| 12 | Standard Group             |
| 13 | Tourism Promotion Services |
| 14 | Uchumi supermarkets        |
| 15 | Housing Finance            |
| 16 | Centum Investment          |
| 17 | Athi River Mining          |
| 18 | Bamburi Cement company     |
| 19 | British American tobacco   |

|    |                                    |
|----|------------------------------------|
| 20 | East African Cables Ltd            |
| 21 | E.A Portland Cement                |
| 22 | East Africa Breweries              |
| 23 | Eveready E.A                       |
| 24 | Kenya Oil Company                  |
| 25 | BOC Kenya Ltd                      |
| 26 | KPLC                               |
| 27 | Kengen                             |
| 28 | Total Kenya Ltd                    |
| 29 | Mumias Sugar Kenya                 |
| 30 | Sameer Africa                      |
| 31 | Unga Group Ltd                     |
| 32 | Express Kenya Ltd                  |
| 33 | Kapchorua Tea Co.                  |
| 34 | Williamson Tea Kenya               |
| 35 | Limuru Tea Company                 |
| 36 | The Co-operative Bank of Kenya Ltd |
| 37 | Longhorn Kenya Ltd                 |
| 38 | CIC Insurance Group Ltd            |
| 39 | Diamond Trust Bank Kenya Ltd       |
| 40 | TPS Eastern Africa (Serena) Ltd    |
| 41 | Rea Vipingo Plantations Ltd        |
| 42 | Hutchings Biemer Ltd               |
| 43 | Equity Bank Ltd                    |
| 44 | Standard Chartered Bank Ltd        |

|    |   |
|----|---|
| 45 | NIC Bank Ltd                                      |
| 46 | National Bank of Kenya Ltd                        |
| 47 | Kenya Commercial Bank Ltd                         |
| 48 | CFC Stanbic Holdings Ltd                          |
| 49 | Barclays Bank Ltd                                 |
| 50 | Jubilee Holdings Ltd                              |
| 51 | British-American Investments Company ( Kenya) Ltd |
| 52 | Kenya Re-Insurance Corporation Ltd                |
| 53 | Pan Africa Insurance Holdings Ltd                 |
| 54 | City Trust Ltd                                    |
| 55 | Trans-Century Ltd                                 |
| 56 | Centum Investment Co Ltd                          |
| 57 | Olympia Capital Holdings ltd                      |
| 58 | Kenya Orchards Ltd                                |
| 59 | A. Baumann CO Ltd                                 |
| 60 | Crown Berger Ltd                                  |

## Appendix II: Mean Score of Independent Variables

| <b>Variable</b>          | <b>Mean</b> | <b>Std. Deviation</b> |
|--------------------------|-------------|-----------------------|
| <b>Payment system</b>    |             |                       |
| 2014                     | 8.369       | 9.9765                |
| 2013                     | 7.867       | 9.3687                |
| 2012                     | 7.113       | 9.5341                |
| 2011                     | 6.926       | 8.0668                |
| 2010                     | 6.217       | 7.13                  |
| 2009                     | 4.737       | 5.007                 |
| 2008                     | 4.529       | 5.0937                |
| 2007                     | 4.249       | 5.6132                |
| 2006                     | 4.102       | 5.453                 |
| 2005                     | 3.989       | 4.2345                |
| <b>Settlement system</b> |             |                       |
| 2014                     | 16.90       | 2.01                  |
| 2013                     | 16.79       | 1.69                  |
| 2012                     | 16.68       | 1.65                  |
| 2011                     | 16.51       | 1.53                  |
| 2010                     | 16.55       | 1.52                  |
| 2009                     | 16.36       | 1.54                  |
| 2008                     | 16.28       | 1.56                  |
| 2007                     | 16.15       | 1.57                  |
| 2006                     | 15.90       | 1.34                  |
| 2005                     | 15.78       | 1.12                  |
| <b>Recording System</b>  |             |                       |
| 2014                     | 2.225       | 3.675                 |
| 2013                     | 2.109       | 3.432                 |
| 2012                     | 2.005       | 3.011                 |
| 2011                     | 1.98        | 2.9665                |

|                       |       |        |
|-----------------------|-------|--------|
| 2010                  | 1.734 | 1.3377 |
| 2009                  | 1.614 | 0.8132 |
| 2008                  | 1.606 | 0.9107 |
| 2007                  | 1.789 | 1.1132 |
| 2006                  | 1.757 | 1.1020 |
| 2005                  | 1.749 | 1.0975 |
| <b>Corporate Bond</b> |       |        |
| 2014                  | 21.90 | 3.312  |
| 2013                  | 21.86 | 3.247  |
| 2012                  | 21.89 | 3.265  |
| 2011                  | 21.74 | 3.107  |
| 2010                  | 21.74 | 2.968  |
| 2009                  | 21.53 | 3.067  |
| 2008                  | 21.68 | 2.972  |
| 2007                  | 21.24 | 3.016  |
| 2006                  | 21    | 3.103  |
| 2005                  | 20.9  | 2.004  |