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INFLUENCE OF STOCK MARKET SIZE ON THE GROWTH OF CORPORATE BOND MARKET IN KENYA

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Abstract

Purpose: The purpose of this study was to analyze how stock market size influences the growth of corporate bond market in Kenya.

Methodology: The study used descriptive and causal research designs. Secondary data was used. The sample of the study consisted of daily and monthly time series covering six years beginning January 2009 to December 2014. Unit root tests using Augmented Dickey-Fuller (ADF) and Phillips-Perron tests were done. The study used Eviews econometric software to facilitate empirical analysis of data.

Results: Regression of coefficients results shows that Stock market size and corporate bonds are positively and significant related ($r=0.029$, $p=0.002$). The results revealed that stock market capitalization does not granger cause corporate bond market in Kenya.

Unique Contribution to Theory, Practice and Policy: This study recommends for Policy makers in Kenya to find ways and means of increasing the size of the stock market to reap the aforementioned benefits. A large size of the stock market will cause the benefits to flow to the corporate bond market too.

Keywords: *Stock market size, growth, corporate bond market.*

1.0 INTRODUCTION

1.1 Background of the Study

The International Capital Markets Association, ICMA (2013) defines corporate bonds as transferable debt securities issued by Companies. They are one of a range of means, alongside equity share capital, bank lending, and other methods, by which Companies fund their business needs and their expansion (ICMA, 2013). Oji (2015) explains that corporate bonds are bonds issued by private or public firms. Investors who purchase these bonds essentially lend money to the company that issues the bond, which in turn confers on the issuer a legal commitment to pay interest on the principal and return the principal to investors when the bond matures. An important characteristic of corporate bonds is that they make it possible to raise capital without diluting ownership of the firm: unlike stock issues which confer equity ownership, investors in bonds do not own any part of the company that issues the paper. Oji (2015) observes that even in the event that a firm has financial problems, it still has a legal obligation to pay interest on its bonds and to return the principal to investors, an obligation shareholders do not enjoy.

According to Herring and Chatusripitak (2007), the development of stock markets is the key for the efficiency of the economic system, besides the fact that it would bring more opportunities for investors and deepen the financial markets. The existence of an effective bond market plays a crucial role in reducing financial sector fragility and provides an alternative cheap capital for firms (Yoshitomi & Shirai 2001). A robust bond market will help to modify the currency and maturity mismatches, provide better tools for risk pricing, enable efficient asset management and enhance the role of the country on the international capital markets (Plummer & Click 2005). In terms of macroeconomic policy, a well-developed bond market not only provides useful market signals for the policy makers, but it is also a tool of financing fiscal deficits (Kahn 2005).

Greenwood, Hanson and Stein (2010) developed a new theory to explain time variation in corporate maturity choice. In their theory, Greenwood, et al. (2010) allowed for predictability in bond market returns with the feature that corporate bond issuers tend to benefit from this predictability, that is, they use short - term debt more heavily when its expected returns are lower than the expected returns of the long- term debt. The model in Greenwood, et al. (2010) also assume that corporate issuers have a macro liquidity provision advantage relative to the other issuers. Specifically, their theory assumes that: the bond market is partially segmented, in that there are some important classes of investors who have a preference for investing at given maturities; there are shocks to the supply of long- and short-term bonds that are large relative to the stock of available arbitrage capital; there are arbitrageurs who attempt to enforce the expectations hypothesis, but do so incompletely, leaving behind some residual predictability in bond returns.

1.1.2 Global Perspective on the Growth of Corporate Bond Markets

Over the last decade or so, corporate bond markets have become bigger, more important for the real economy, and increasingly global in nature (Tendulkar & Hancock, 2014). Corporate bond markets have almost tripled in size since 2000, reaching \$49 trillion in 2013. Growth stalled in the wake of this financial crisis as banks began deleveraging their balance sheets. However, the amount outstanding from non-financial firms has continued to expand (Tendulkar & Hancock, 2014). Market depth has been increasing amongst developed and emerging markets, averaging 169% for developed markets and 24% for emerging markets in 2013. Deepening markets can

suggest increasing reliance on corporate bond markets to meet the financing needs of an economy. Corporate bond financing has increased as a proportion of total global corporate financing. In 2004, corporate bond financing made up 24% of total financing, increasing to 25% in 2012. Bank lending still dominates, making up 52% of total financing in 2012.

According to Tendulkar and Hancock (2014), in 2013, corporate bond issuance, a measure of market activity, reached \$3.2 trillion, compared to just \$0.9 trillion in 2000. Twenty-seven new economies have recorded corporate bond issuances in the last 13 years, most of these economies are emerging markets. Tendulkar and Hancock (2014) records that in 2013, emerging markets made up 30% of global issuances compared to just 5% in 2000. Interestingly, puttable bond issuances have soared in emerging markets since the onset of the crisis. In 2013, puttable bond issuances from emerging markets reached \$47 billion, making up 5% of emerging market issuances. While offering a cheaper source of financing for corporates they can also lead to uncertainty around future cash flows from the issuer's perspective, especially as yields in the developed world begin to increase (Tendulkar & Hancock, 2014). Bond issuances offered on international markets have increased, with \$1.8 trillion issued from developed markets and \$320 billion in emerging markets in 2013. Specialized local issuances are also breaking into the global market, for instance, Sukuk (Islamic) issuances. Sukuk issuances in emerging markets reached \$24 billion in 2013. In developed markets, issuance in 2013 reached \$472 million in 2013, double 2007 levels (Tendulkar & Hancock, 2014).

Tendulkar and Hancock (2014) also notes that since the onset of the crisis in particular, corporate bond markets have begun to fill an emerging gap in bank lending and long-term financing and are showing potential for servicing SME financing needs. Bank lending is being substituted by corporate bond financing in some developed markets, such as the United States and those in Europe. Growth in loan provision by banks to non-financial firms in the United States and Europe declined markedly after the onset of the crisis. This contrasted with strong growth of corporate bond markets outstanding for non-financial firms. Yet in China, bank lending to the real economy increased drastically after the onset of the crisis, accumulating \$8.5 trillion between 2007 and 2013.

Non-financial corporate bond outstanding also grew reaching \$0.9 trillion in 2013 (Tendulkar & Hancock, 2014). Bonds issued for financing long-term infrastructure projects have been on the increase since the outbreak of the crisis. Between 2000 and 2013, \$171 billion worth of infrastructure bonds were issued. The majority of these issuance have happened post-2007, originating mostly from China. Small Medium Enterprises will benefit from further development of corporate bond markets and improved access, especially in emerging markets. Cross-border bank lending, equity flows and foreign direct investment to emerging markets have been unsteady or decreasing in the last few years. Yet, bond inflows to emerging markets have been on an upward trend, presenting an important funding channel for emerging market firms. Despite government bond issuance being high on historical levels, there is little evidence that this is crowding out productive investment through corporate bond markets, which have also been increasing strongly in terms of issuance (Tendulkar and Hancock, 2014). According to Tendulkar and Hancock (2014), a search for yield is driving investment in corporate bond markets. A changing interest rate environment will create winners and losers.

In 2013, two thirds of global issuance came from nonfinancial issuers. Financial issuances have been decreasing in developed markets. In emerging markets, both non-financial and financial

issuances have been increasing (Tendulkar and Hancock, 2014). High yield issuances have increased in developed markets in the wake of the crisis, but have not grown significantly in emerging markets. In 2013, high yield issuances reached \$550 billion. Local currency issuances in both developed and emerging markets have increased since the onset of the crisis. Non-local currency issuances (Eurobond) have increased only in emerging markets. Refinancing issuances have increased in both developed and emerging markets. Before the onset of the crisis, refinancing issuances in emerging markets were small.

1.1.3 Regional Perspective on the Growth of Corporate Bond Markets

According to Mu et al. (2013), collection of the data for domestically issued corporate bonds required considerable effort since no centralized database exists for sub-Saharan African countries. They collected data for local currency corporate bonds from multiple sources, including: stock exchanges, securities commissions, capital market authorities and central banks. The sources often did not provide a full breakdown of the type of corporate bonds issued. Rather the total market capitalization was reported. Their data may thus include parastatal, quasi-government, and supranational corporate bonds as well as those issued by financial institutions and multinational corporations. Furthermore, in a few cases data were obtained through secondary sources, including the African Development Bank and Adelegan and Radzewicz-Bak (2009) study.

Mu, et al. (2013) compiled a unique set of data on corporate bond markets in Africa. They applied an econometric model to analyze the key determinants of African government securities market and corporate bond market capitalization. They observed that African bond markets have been steadily growing in recent years, but nonetheless remain undeveloped. According to Mu et al. (2013), corporate bond markets in African countries are at nascent stage of development and there is a strong need to promote their development. The market capitalization of corporate bonds is typically much lower than those of other developing, emerging, and advanced economies as a percentage of GDP. On average, the capitalization of corporate bonds was 1.8 percent of GDP in 2010 for sub-Saharan African countries, whereas this figure was generally much larger for other developing and emerging economies in Asia, Central Europe and Latin America. Moreover, the low level of development of the bond market is particularly apparent upon comparison with the capitalization of more advanced economies.

According to Mu et al. (2013), corporate bond market capitalization ranges from 26.5 percent of GDP for Canada to 98.6 percent of GDP for the United States. Nevertheless, corporate bond market capitalization for sub-Saharan Africa has grown as a share of GDP from 1 percent in 2006 to 1.8 percent in 2010. When taken together, the share of corporate bonds in total bonds has increased rather rapidly from just 5.1 percent in 2006 to 10.8 percent in 2010. Mu et al. (2013) observes that most corporate bond markets in SSA had a low capitalization, particularly for the period 1990–2000. The main exception is South Africa, which had a corporate bond market capitalization of 16.6 percent of GDP in 1990 to 2000 period and 15.9 percent in 2001 to 2010 period. Both values are far in excess of those corresponding to other countries. Whereas certain SSA countries have yet to become active in terms of issuing corporate debt (e.g., Angola, Burundi, Eritrea, The Gambia, Guinea, Lesotho, Seychelles, and Sierra Leone), strong growth is evident over these periods for certain countries, which have either issued a substantial amount of corporate debt for the first time (e.g., Ethiopia and Namibia), or whose pre-existing

markets have experienced considerable expansion relative to income (e.g., Botswana, Guinea-Bissau, Mali, Nigeria, and Senegal).

1.2 Statement of the Problem

The Kenyan corporate bond market is far less developed in comparison to its treasury counterpart. Corporate bond turnover as at December 2014 was Ksh 1.9 billion compared to Ksh 504.3 billion for treasury bonds. Corporate bond turnover as a percentage of total bonds turnover stood at only 0.38% compared to Treasury bond turnover as a percentage of total bonds turnover which stood at 99.62% over the same period. Extant literature points to the economic importance of corporate bonds market (Herring & Chatusripitak, 2006; WEF, 2015; ICMA, 2013; Oji, 2015; Tendulkar, 2015; Greenwood, et al., 2010 ; Luengnaruemitchai & Ong, 2005; Turner, 2011; Mu et al., 2013; Demircug-Kunt et al., 2008; Adelegan, 2008; Levinger & Li, 2014; Sengupta & Anand, 2012; IOSCO, 2002 and IOSCO, 2011). It will be in the interest of the Kenyan Government to enhance efficiency and financial stability by nurturing the development of a corporate bond market.

The studies carried out in Kenya focused on stock market development and/or the banking sector development. Kemboi and Tarus (2012) examined macroeconomic determinants of stock market development in emerging markets. Nyasha and Odhiambo (2014) analyzed the origin of the stock market in Kenya and traced the reforms that have been undertaken to develop the stock market. Ikikii and Nzomoi (2013) analyzed the effects of stock market development on economic growth in Kenya using the gross domestic product and two key measures of stock market development namely capitalization and trade volume. Kamau and Were (2013) analyzed the driving factors behind the impressive banking sector performance in Kenya. Putunoi and Mutuku (2012) empirically investigated the effects of domestic debt on economic growth in Kenya. Wamburu and Wainaina (2014) analyzed the determinants of stock market development in Kenya using an error correction model approach. Bitok, et al. (2014) examined the factors that influence the growth and development of Nairobi Securities Exchange in Kenya. Aduda et al. (2012) sought to investigate the determinants of development of Nairobi Stock Exchange using secondary data for the period 2005 to 2009.

All the studies mentioned above failed to operationalize stock market development and thus presenting a conceptual gap. The current study attempted to operationalize stock market development into stock market size. This study has contributed to knowledge by filling in this gap. The study specifically sought to determine the effect of stock market size on the growth of corporate bond market in Kenya.

1.3 Objective of the Study

The objective of this study was to analyze how stock market size influences the growth of corporate bond market in Kenya.

2.0 LITERATURE REVIEW 2.1 Theoretical Review

2.1.1 Market Segmentation Theory

Market Segmentation Theory is a modern theory pertaining to interest rates stipulating that there is no necessary relationship between long and short-term interest rates & and that investors have fixed maturity preferences. It is also called segmented markets theory. Bauder (2001) argue that Market Segmentation Theory maintain that short-term and long-term rates

are distinct markets, each with its own buyers and sellers, and are not easily substituted for each other.

According to DeFond, Francis, and Wong, (2000) Market Segmentation Theory is one of the various theories that are associated with the yield curve. It is also known as the segmented market hypothesis. The Market Segmentation Theory tries to describe the relation of the yield of a debt instrument with its maturity period. The Market Segmentation Theory explicates the reasons behind the prominence of normal yield curves over the other forms of yield curves. Furthermore, short and long-term markets fall into two different categories. Therefore, the yield curve is shaped according to the supply and demand of securities within each maturity length.

The Market segmentation theory states that most investors have set preferences regarding the length of maturities that they will invest in. Market segmentation theory maintains that the buyers and sellers in each of the different maturity lengths cannot be easily substituted for each other. An offshoot to this theory is that if an investor chooses to invest outside their term of preference, they must be compensated for taking on that additional risk. This is known as the Preferred Habitat Theory (Bauder, 2001).

Market segmentation theory assumes that short term and long term rates are determined in separate or segmented markets. Some investors prefer short term securities. They invest in short term bonds. Again, there are some investors who prefer long term bonds. As a result, bonds having different maturity periods are not perfect substitutes for one another. Such an argument implies that lenders and borrowers are interested in bonds of only one maturity and even if the return on a sequence of shorter bonds were considerably higher than the return on those bonds, they would not attempt to switch into shorter bonds. Therefore, expectation concerning short rates would have no role in determining long rates. Thus even if short term rate increases in any period of time this theory implies that investors will not shift from long term bonds to short term bonds in order to enjoy higher rate in the short run. Thus even if the short run rate of interest increases it will not influence the long term rate of interest.

According to Wilkinson (2013) Market segmentation theory is based on institutional practices followed by the commercial banks and insurance companies and investment trusts. While the commercial banks mostly deal in short term securities, insurance companies and investment trusts mostly deal in long term securities. Market segmentation theory is however not free from defect as it overlooks the fact that there is considerable degree of overlapping between different markets. Same institutions operate in different markets dealing in securities of different maturities.

2.1.2 Portfolio Theory

Markowitz (1952) argued that the traditional application of one-dimensional investment criteria such as the Net Present value (NPV) criterion should be replaced by two dimensions: Expected returns and risk defined as the standard deviation of the return distribution. In the following decades he expanded his model and used it in a famous book (Markowitz, 1991). He argued also that investors should not look at securities individually. It is unrealistic to assume that investors or investment advisors can predict the future return of individual stocks.

However, based on empirical analysis of the co-variation of the returns of several securities, it is possible to make portfolio decisions, in which the incomplete correlation between the securities can be exploited for diversification. The focus of investors should be on the effect of

combining securities. In a realistic setting, investors must make a trade-off between expected returns and risk. The available investment universe is represented by an efficient frontier with a slope and shape that reflects the interplay in the financial market between all investors with a varying degree of risk-aversion. If an individual investor wants a higher expected return, he must accept a higher risk.

In 1989, Morgan decided to develop a portfolio model, which was able to measure and explain the risks of the firm on a daily basis. In 1992, J.P. Morgan launched the Risk Metrics methodology to the marketplace for free (J.P.Morgan, 1996). The staff of the firm made daily updates of spot prices, volatility estimates and correlation estimates accessible through the internet. They explained that they did so because the firm was interested in promoting greater transparency of market risks, they wanted to establish a benchmark for market risk measurement and to use the Risk Metrics methodology to help clients to understand their portfolio risk. In 1993-1994, J.P. Morgan revised their technical document and popularized the concept Value-at-Risk (VaR) as portfolio risk measure to be applied by financial institutions in the capital adequacy calculations to be presented to financial regulators. VaR is a downside measure estimated by means of historical statistics on volatility and correlations among a sample of financial assets and focussing on the probability of suffering losses. For a given portfolio, probability and time horizon, VaR is defined as a threshold value, which can be used to instruct the portfolio manager to keep the probability of suffering losses below a certain level.

According to Portfolio Theory, more sophisticated investors hold a portfolio consisting of both bonds and shares. If they are risk-averse, bonds represent a large part of the portfolio. If they have more risk appetite, they own more shares. The trade-off between the two types of securities is affected by both return and risk evaluations. Portfolio theory provides a nice explanation of their substitution between bond and share markets. A decline in the market interest rate makes shares relatively more attractive and gives an arbitrage incentive to move more into shares. In the context of the capital asset pricing model, a lower risk-free interest rate reduces the slope of the capital market line, which makes the market portfolio of shares more attractive. According to Patoda and Jain (2012), shares are typically viewed as financial assets that will fluctuate and be influenced by political, social, or economic distress and company's performance and investors will invest in bond market to diversify the risk of losses.

There are, however, also challenges in relation to portfolio theory. An obvious question when making the trade-off between return expectations and risk is how risk is measured. The Markowitz-model assumed that risk should be measured as the standard deviation of the portfolio return, i.e. by volatility. According to Sharpe, the investor could accept the more simple measure of beta. Jorion (2006) recommended the use of Value-at-Risk. Experience shows that investors relying on all three types of advice can suffer losses. In extraordinary times, the model assumptions concerning the shape of statistical distributions do not hold and the calculations can give misleading results.

Bonds and stocks compete for investment money at a fundamental level, which suggests that a strengthening equity market would attract funds away from bonds. This would tend to lower the demand for bonds; sellers would have to lower prices to attract buyers. Theoretically, the price of bonds would gravitate south until bond yields rose to a level that was competitive with

the risk-adjusted returns found in the stock market. In the short run, rising equity values would tend to drive bond prices lower and bond yields higher than they otherwise might have been. However, there are many other variables at play in any given investment market, such as interest rates, inflation, monetary policy, government regulation and overall investor sentiments. Bull markets tend to be characterized by investor optimism and expectations of future stock price appreciation. This adjusts the risk/return dynamic in the marketplace and often leads to investors and traders becoming relatively less risk-averse. Most bonds represent a less risky investment than most stocks, which means that stocks have to offer a higher return as a premium for increased risk. This is why money leaves equities and goes into the bond market during times of uncertainty. The opposite would tend to be true during a bear market; stocks would begin to receive funds at the expense of bonds.

2.2 Empirical Review

Raghavan and Sarwono (2012) sought to establish the factors that influenced the development of corporate bond market in India. Their results showed that while the growth of the government bond market was a major positive influence in the development of the corporate bond markets in India, bank lending in India slowed the development of the corporate bond market. Other factors such as size of the economy, openness, size of the stock market and institutional factors such as corruption had little or no impact on the development of the corporate bond market.

In Seok (2012) investigated the status of domestic bond markets in Asia for the period 1997 to 2011. Using simple regression method to examine bond market development, they found that stock market size was not particularly important for bond market development. In contrast, the banking sector size and competition among banks fosters development of domestic bond markets. In their study, structural factors namely country size and economic development were positively associated with bond market size. The strength of legal rights and the depth of credit information also played an important role in bond market development. Inflation and exchange rate negatively affected bond market development. Claessens et al. (2007) find that the development of financial system including the banking industry and stock market, low inflationary pressure, and stable exchange rate are positively associated with bond market development.

Demirguc-Kunt (2005) found evidence that the small size of stock markets was the main constraint that prevented emerging countries from raising funds abroad. The small amount of issuance in these markets may not be attractive enough to multinational corporations and potential foreign investors. The small size of the markets also makes it difficult to be reflected in the global bond market indices. Besides, it requires fixed costs to understand the characteristics of the markets. Therefore, there will be little demand for these local securities (Eichengreen & Luengnaruemitchai, 2004).

3.0 RESEARCH METHODOLOGY

This study used both descriptive and causal research designs. The target population of this study comprised of data for equities and corporate bond market covering a period of sixty years from 1954 when the NSE was established to 2014. This provided annual time series of 60 observations as a target population. The unit of observation is daily time series, monthly time series and quarterly time series. This hence provide quarterly time series of 240 observations,

monthly time series of 720 observations, and daily time series of approximately 15600 observations for each of the variables under study. The sampling method was purposive sampling. The study used Eviews econometric software to facilitate empirical analysis of data.

4.0 RESULTS AND DISCUSSIONS 4.1 Descriptive Statistics

This study categorized descriptive statistics into two. First, the study obtained and analyzed the summary statistics namely the mean, maximum, minimum, standard deviation, skewness, kurtosis and Jarque Bera statistics using evIEWS software version 20. Subsection 4.1.1 presents the details of summary statistics. Subsection 4.1.2 provides the statistics based on diagnostic tests carried out on time series data. Diagnostic tests mainly focused on multicollinearity.

Stock market size was measured by stock market capitalization (MCAP). Descriptive statistic results are presented in Table 1.

Table 1: Descriptive Statistics

Data	Mean	MAX	MIN					
STDEV					SK	KR	JB	Pro
MCAP Daily	1290.9	2368.9	588.7	480.1	0.8	2.3	174.1	0.0
Monthly	1296.6	2316.3	611.5	493.7	0.8	2.4	8.8	0.0
Quarterly	1296.7	2303.2	683.0	496.5	0.8	2.4	3.1	0.2

From the results, market capitalization was positively skewed, was not normally distributed. Observations at monthly horizons revealed that MCAP, was normally distributed.

4.1.2 Trend Analysis

The trend analysis is conducted so as to help establish the movement of the variable under study as the trend analysis graphically indicates the pattern of movement in the variable. The Figure 1 indicates that stock market capitalization (MCAP) has been consistent for all the years under the study

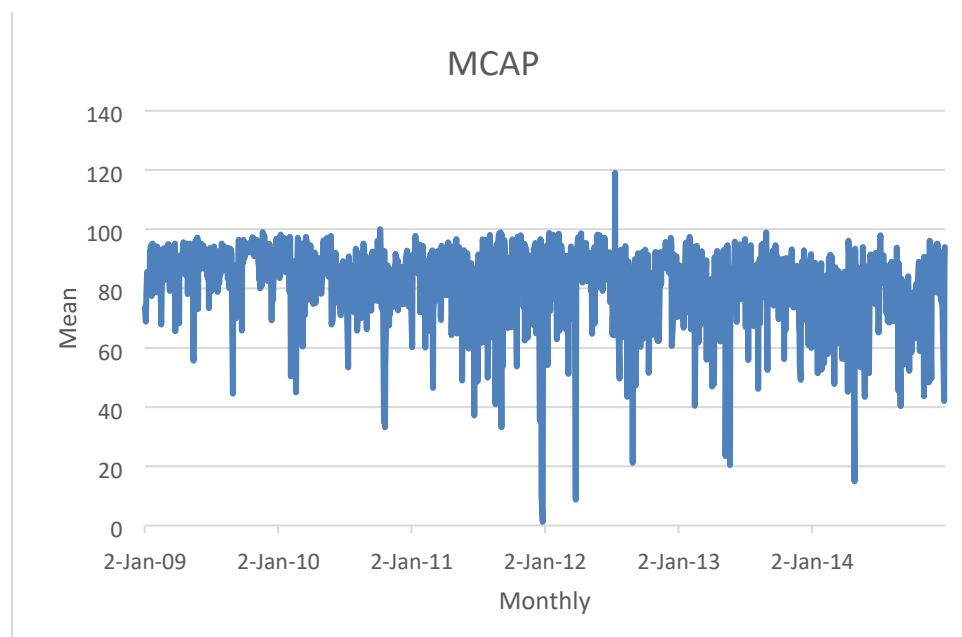


Figure 1: Trend Analysis for stock market capitalization (MCAP) 4.2 Diagnostic Tests

4.2.1 Multicollinearity Test

Multicollinearity was assessed in this study using correlation matrix. Table 2 presents the results of the correlation matrix between the dependent (corporate bonds) and the independent variable (stock market size).

Table 3: Correlation Matrix

	MCAP	CBOND
MCAP	1.00	
CBOND	0.73*	1.00

From the analysis, stock market size (MCAP) is positively correlated to corporate bonds.

4.3 Granger Causality Test

Granger causality test was performed to test the null hypothesis that a causal relationship existed between two variables. Table 3 shows the results of the Granger causality test. To establish whether causality existed between stock market size and corporate bond market, the study tested the null hypothesis that stock market capitalization does not Granger cause corporate bond market and vice versa. The magnitude of the t-statistic was higher for the null hypothesis that stock market capitalization does not Granger cause corporate bond market at

all observations as compared to the null hypothesis that corporate bond market does not Granger cause stock market capitalization. The p-values at daily, monthly and quarterly observations were not significant at 1%, 5% and 10% level of significance and thus the null hypothesis was accepted in both cases.

4.4 Hypotheses testing using Regression Analysis

4.4.1 Effect of Stock Market Size on Corporate Bonds

After conducting the diagnostic tests, regression model was run. Stock Market size was found to be satisfactory variable in explaining corporate bonds. This is supported by coefficient of determination also known as the R square of 33.95%.

The results indicated that the overall model was statistically significant. Further, the results imply that the independent variables are good predictors of performance. This was supported by an F statistic of 11.31 and the reported p value (0.002) which was less than the conventional probability of 0.05 significance level. Regression of coefficients results shows that Stock market size and corporate bonds are positively and significant related ($r=0.029$, $p=0.002$).

4.4.2 Hypothesis testing for Stock Market size

The hypothesis was tested by using the ordinary least square regression. The acceptance/rejection criteria were that, if the p value is greater than 0.05, the H_0 is not rejected but if it's less than 0.05, the H_0 fails to be accepted. The null hypothesis was that stock Market size does not have a significant effect on corporate bonds. Results in Table 4.8 shows that, the calculated f-statistic of 11.31 was higher than the tabulated/critical f statistic ($F_{\alpha} = 0.05$). The findings were further supported p-value of 0.002. This indicated that the null hypothesis was rejected hence Stock Market size have a significant effect on corporate bonds.

Table 4: Stock Market Size on Corporate Bonds

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Market Size	0.029972	0.008911	3.363343	0.0028
C	0.016767	0.013982	1.199180	0.2432
R-squared	0.339579	Mean dependent var		0.061967
Adjusted R-squared	0.309560	S.D. dependent var		0.022763
S.E. of regression	0.018914	Akaike info criterion		-5.018142
Sum squared resid	0.007871	Schwarz criterion		-4.919970
Log likelihood	62.21770	Hannan-Quinn criter.		-4.992097
F-statistic	11.31208	Durbin-Watson stat		0.286795

Prob(F-statistic) 0.002806

The optimal model is;

Growth in corporate bond market = $0.016 + 0.029X$

Where;

X = Stock Market Size

4.5 Discussion of the Findings

Normality test revealed that stock market capitalization was normally distributed at all time series except daily time series. With regards to multicollinearity test, stock market capitalization (MCAP) is negatively related to stock market concentration (MCONC). On the other hand, stock market size (MCAP) is positively correlated with stock market liquidity as measured by both NVOL and TURN.

With regards to Granger causality test, the p-values at daily, monthly and quarterly observations were not significant at 1%, 5% and 10% level of significance and thus the null hypothesis was accepted in both cases. Therefore, there is no Granger causality between stock market size as measured by stock market capitalization and corporate bond market as measured by corporate bonds outstanding at daily, monthly and quarter yearly observations.

Regression of coefficients results shows that Stock market size and corporate bonds are positively and significant related ($r=0.029$, $p=0.002$). This means that one unit increase in Stock market size leads to a growth in corporate bond market by 0.029 units. The null hypothesis was rejected since $p < 0.05$ and thus Stock Market size have a significant effect on corporate bonds.

This finding is consistent with that of Raghavan and Sarwono (2012) who sought to establish the factors that influenced the development of corporate bond market in India. Their results showed that while the growth of the government bond market was a major positive influence in the development of the corporate bond markets in India, bank lending in India slowed the development of the corporate bond market. Other factors such as size of the economy, openness, size of the stock market and institutional factors such as corruption had little or no impact on the development of the corporate bond market.

In Seok (2012) analyzed the determinants for Asian bond market development and found that stock market development as measured by stock market capitalization was not particularly important for bond market development. The study agrees with the findings of Mu, et al. (2013) and Eichengreen, et al. (2008) who established that the development of financial system is critical in the development of corporate bond markets.

5.0 CONCLUSIONS AND RECOMMENDATIONS 5.1 Conclusion

This section presents the conclusions based on the findings from the analysis. Stock market size as measured by stock market capitalization has a positive relationship with corporate bonds outstanding but does not Granger cause corporate bond market in Kenya. Regression of coefficients results shows that Stock market size and corporate bonds are positively and

significant related ($r=0.029$, $p=0.002$). This means that one unit increase in Stock market size leads to a growth in corporate bond market by 0.029 units. The null hypothesis was rejected since $p<0.05$ and thus Stock Market size have a significant effect on corporate bonds.

Raghavan and Sarwono found out that stock market size (measured by stock market capitalization) did not have a significant influence on the corporate bonds market (measured by corporate bonds outstanding). This finding is also consistent with Jiang, Tang and Law (2002) who analyzed the costs and benefits of developing debt markets in Hong Kong and found the relationship between equity issuance and debt market development is positive although not significant. Patoda and Jain (2012) examined the relationship between bond market and stock market in India and found a positive correlation between stock and bond market of India.

According to Bondt (2002), the development of a corporate debt securities market is closely linked, and often follows, the development of an equity market. As most of the costs of going public in bond and equity markets in terms of accounting requirements, legal and other fixed costs, are similar, the development of each of these markets encourages the development of the other markets.

5.2 Recommendations

The study concluded that stock market size has a positive relationship with corporate bond markets. Therefore, this study recommends for Policy makers in Kenya to find ways and means of increasing the size of the stock market to reap the aforementioned benefits. A large size of the stock market will cause the benefits to flow to the corporate bond market too.

REFERENCES

- Adelegan, O. J. (2009). The derivatives market in South Africa: Lessons for Sub- Saharan African Countries. *IMF Working Paper*, 09/196.
- Aduda, J., Masila, J. M., and Onsongo, E. N. (2012). The determinants of stock market development: The case for the Nairobi Stock. *International Journal of Humanities and Social Science*, 2(9), 214-227.
- Bitok, S. K., Tenai, J. B., Chenuos, J. K. and Kosgei, N. (2014). Factors influencing the development of capital markets in a developing economy: A case study of Nairobi Securities Exchange in Kenya. *European Journal of Business and Management*. 6(16), 52-60.
- Bondt, G. D., (2002). *Euro Area Corporate Debt Securities Market: First Empirical Evidence*, August 2002. *Working paper Series*, WP/164. European Central Bank.
- Claessens, S., Klingebiel, D. and Schmukler, S. (2007). Government bonds in domestic and foreign currency: The role of macroeconomic and institutional factors. *Review of International Economics* 15(2), 370-413.

- Eichengreen, B., Panizza, U. and Borensztein, E. (2008). Prospects for Latin American bond markets: A cross-country view, in Borensztein, Cowan, Eichengreen, and Panizza (eds.), *Bond markets in Latin America: On the verge of a big bang?* (Cambridge: MIT Press), 247–290.
- Greenwood, R., Hanson, S. and Stein, J. C. (2010). A gap-filling theory of corporate debt maturity choice. *The Journal of Finance*. 65(3), 993-1028.
- Herring, R. and Chatusripitak, N. (2001). The Case of the missing market: the bond market and why it matters for financial development. *Wharton Financial Institutions Centre Working Paper*, University of Pennsylvania.
- Johansen, S. and Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*. 52,169-210.
- Kemboi, J. K. and Tarus, D. N. (2012). Macroeconomic determinants of stock market development in emerging markets: Evidence from Kenya. *Research Journal of Finance and Accounting*, 3(5).
- Kothari, C. N. (2004). *Research methodology, methods and techniques*. 2nd ed. Wiley Easton. New Delhi.
- Markowitz, H.M.(1952). Portfolio selection, *Journal of Finance*, **7**, 77-91.
- Markowitz, H.M.(1991).*Portfolio selection: Efficient diversification of investments*,2nd Ed., Basil Blackwell, Cambridge MA & Oxford, UK.
- Mu, Y., Phelps, P. and Stotsky, J. G. (2013). Bond markets in Africa. *IMF Working Paper*. WP/13/12.
- Mugenda, G., and Mugenda, V. (2003). *Research methods*. Nairobi: Acts Press.
- Nyasha, S. and Odhiambo, N. M. (2014). The dynamics of stock market development in Kenya. *Journal of Applied Business Research*. 30(1), 73 – 82.
- Oji, C. K. (2015). Bonds: A viable alternative for financing Africa’s development. Occasional Paper 211. South African Institute of International Affairs.

- Patoda, R. and Jain, K. (2012). Assimilation between bond market and stock market. *Global Journal of Management and Business Research*. 12(20), 43-54.
- Tendulkar, R. (2015). *Corporate bond markets: An emerging markets perspective*. Staff Working Paper SWP6/2015, IOSCO Research Department. IOSCO.
- Tendulkar, R. and Hancock, G. (2014). *Corporate bond markets: A global perspective*. Staff Working Paper of the IOSCO Research Department. IOSCO.
- Turner, P. (2011). Bond markets in emerging economies: An overview of policy issues. *BIS Papers No. 11*.
- Wamburu, K. K. and Wainaina, G. (2014). Determinants of stock market development in Kenya: An Error Correction Model approach. *European Journal of Business Management*. 1(11), 1-14.