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INFLUENCE OF STOCK MARKET LIQUIDITY 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 liquidity influence 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 liquidity and corporate bonds are positively and significant related (r=8.291, p=0.0008).

Unique Contribution to Theory, Practice and Policy: This study recommends study recommends for Policy makers to come up with measures to enhance the liquidity of the stock market which will in turn encourage investment in corporate bonds.

Keywords: *Stock market liquidity, 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 this study, growth of corporate bond markets implies increase in size or liquidity of corporate bond markets (ICMA, 2013). According to Tendulkar (2015), growth is a subset of development. In the literature that follow, the term corporate bond market development has been largely used. Where corporate bond market development has been used, this term also implies corporate bond market growth. According to Tendulkar (2015), corporate bond market development is multifaceted. Three indicators of corporate bond market development in emerging market economies are corporate bond market size, corporate bond market depth and corporate bond market growth. Corporate bond market size is the amount of corporate bonds outstanding in absolute dollar terms. Corporate bond market depth is the amount of corporate bonds outstanding as a percentage of GDP and it weights the corporate bond market size by the size of the overall economy. Large corporate bond markets relative to the size of the economy are deep, while corporate bond markets that are small relative to the size of their economy are shallow. Growth in the size of corporate bond markets may be measured as the compound annual growth rate or year on year growth (Tendulkar, 2015).

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.

In its April 2015 issue on accelerating emerging capital markets development, the World Economic Forum,the role that corporate bond markets play in the financial and economic development has been outlined. WEF (2015) notes that while corporate bond markets are not typically the first stage of financial development, well-functioning corporate bond markets

play an important role in the financial system and broader economy. Braun and Briones (2006) assert that corporate bonds are one of the means by which companies fund their working capital and growth capital. As corporations require an increasing amount of working and growth capital as they grow, needs for financing eventually evolve beyond that which can be stably and efficiently met by the banking system alone. That becomes an important inflection point for capital markets, including corporate bond market, development which has become more urgent as financial regulatory reforms compress banks' willingness and ability to lend. Besides the size of the company, the issuer's choice among different sources of credit is also influenced by the availability and relative costs of different forms of financing, the latter is affected by the company's maturity and the amount of information available on the company as well as the depth of the corporate bond markets.

The US financial system was wounded by the time the dollar funding market froze up in the third quarter of 2007. In the interim, however, the general macroeconomy had weakened, and this was pulling asset prices down. A classic debt deflation was underway, with falling asset, real estate and (beginning in 2008) commodity prices feeding one another in a downward spiral. The crisis, accordingly, spread from the interbank market outwards while simultaneously exploding globally (Rude, 2010).

Investors everywhere were scrambling to reduce their leverage, meet rising margin calls, raise capital and otherwise reduce their losses and exposures, but it was already difficult if not impossible for the major US financial institutions to flee their risky and losing investments to the safety of "money" because a safe, private sector money had ceased to exist (Rude, 2010). Then, the September 2008 US banking crisis itself – the breakdown of the international banking system based on the hegemony of the major US investment banks, commercial banks and insurance companies amplified the turmoil, sending a severe contractionary shock through the world economy. The ensuing economic slowdown has been and continues to be international in its scope and characterized by falling income, output and employment across the globe.

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).

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; Demirguc-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. This study has contributed to knowledge by filling in this gap. The study specifically sought to determine the effect of stock market liquidity 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 liquidity influence the growth of corporate bond market in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 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

This section reviews the empirical literature on the relationship between stock market liquidity and the growth and/or development of corporate bond markets. No prior studies exist that focused on this relationship. The study progressed by analyzing the studies on financial sector development that included the relationship between stock and bond markets. To identify the relationship between stock market liquidity and the growth of corporate bond market, the study analyzed the different measures of stock market development to identify the measures related to stock market liquidity and how they impacted on corporate bond market. The following paragraphs presents the studies.

Chordia, et al. (2003) explored liquidity movements in stock and Treasury bond markets over a period of more than 1800 trading days. Cross-market dynamics in liquidity were documented by estimating a vector autoregressive model for liquidity, returns, volatility, and order flow in the stock and bond markets. The study found that a shock to quoted spreads in one market affects the spreads in both markets, and that return volatility is an important driver of liquidity. Innovations to stock and bond market liquidity and volatility proved to be significantly correlated, suggesting that common factors drive liquidity and volatility in both markets.

De Jong and Driessen (2006) show that equity market liquidity risk is priced in a cross-section of corporate bond portfolios, while Acharya, Amihud and Bharath (2010) show that corporate bonds are exposed to liquidity shocks in equity and treasury markets. Franzoni, Novak, and Phalippou (2011) have found that equity market liquidity risk is priced outside the cross-section of equities.

Levine (2011) contest that stock market liquidity is necessary for economic growth. He suggests that stock market liquidity encourages, or at least strongly forecasts, corporate investment even though much of this is financed through reserved earnings and bank loans, rather than equity issues. Stock market activity is determined by two factors: the value and volume of trade divided by GDP and the turnover ratio and number of transactions.

The works of Bencivenga et al. (2006) claim that higher transaction costs are associated with lower value-traded ratios, which may affect saving rates through to economic growth rates. Using cross-country regressions during the period 1976-1993, Levine and Zervos (2008) argued that stock markets might improve growth through liquidity. They found that equity market activity was positively correlated with measures of real activity.

Atje and Jovanovic (2003) adopted a similar approach for forty countries over the period 1980-1988. They discovered significant correlation between the value of stock market trading as a percentage of GDP and economic growth. Peterson, Fialkowski and Petersen (2004) further illustrated that the quoted spread is a poor proxy for actual transaction costs faced by investors and called for an alternative proxy such as turnover rate, which may perform a better job of capturing an asset's liquidity. Brennan et al. (2008) and Chordia et al. (2001) found a negative and significant relationship between expected returns and the level of liquidity measured by trading volume and share turnover.

Miller (2001) argues that greater liquidity has a direct impact on the effectiveness of the government function of the stock market which increases market activity to reaching information which, in turn, increases the content of share prices. Additionally, the effective use of the stock market for corporate control is required for the market to be liquid. Amihud et al. (2007) contest that increased stock market liquidity can also reduce the cost of equity capital via a reduction in the expected return that investors require when investing in equity to compensate them for associated risks, that is, risk premium.

There are five dimensions of market liquidity, which are: tightness, immediacy, depth, breadth and resilience. Liquidity of a secondary market is usually described in terms of its depth and breadth. Depth connotes the quantity that can be sold without moving prices against the seller. It refers to the existence of abundant orders, either actual or easily uncovered of potential buyers and sellers, both above and below the price at which a security would be trading on the market. Breadth connotes the diversity of participants and the heterogeneity of their responses to new information. It means that the orders are both numerous and large in value with minimal impact on prices. Resiliency usually denotes the speed with which price fluctuations resulting from trades are dissipated (Sarr & Lybek, 2002). Deep, broad markets are generally more resilient against disturbances of any given size than thin, narrow markets. They tend to display greater price stability in response to a shock of a given magnitude. Tightness refers to low transaction costs, such as the difference between buy and sell prices. Liquid secondary markets are also transactionally efficient in the sense that the bid – ask spread is low. Immediacy represents the speed with which orders can be executed and settled, and thus reflects among other things, the efficiency of trading, clearing and settlement systems. The liquidity of an asset also depends on the reliability of arrangements for exchanging the asset for cash. Therefore, the liquidity of an asset depends on the liquidity of its secondary market.

Kemboi and Tarus (2012) did a study to determine the macroeconomic factors that cause stock market growth in Kenya using quarterly secondary data. The study found that macroeconomic variables such as stock market liquidity are significant determinants of the growth of Nairobi Securities Exchange. Aduda et al. (2012) did a study on the determinants of stock market development: the case for the Nairobi Stock Exchange. This study sought to investigate the determinants of development in the Nairobi Stock Exchange. Secondary data for the period 2005-2009 was used to model the factors influencing the development of the NSE. The regression results found that, macro-economic factors such as stock market liquidity, institutional quality, income per capita, domestic savings and bank development are important determinants of stock market development in the Nairobi Stock Exchange.

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 are 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 liquidity was measured using stock market turnover (TURN) and NSE total volume (NVOL).

Table 1: Descriptive Statistics

	Data	Mean	MAX	MIN	STDEV	SK	KR	JB	Pro
NVOL	Daily	24.0	161.8	2.9	17.4	2.5	13.3	8311.6	0.0
	Monthly	523.5	1030.5	150.6	196.9	0.3	2.5	1.8	0.4
	Quarterly	506.9	804.5	177.6	164.6	-0.3	2.4	0.7	0.7
TURN	Daily	435.0	6653.1	6.7	387.2	4.4	51.6	153206.8	0.0
	Monthly	9511.4	31583.3	1645.3	5708.9	1.1	4.8	24.5	0.0
	Quarterly	9018.6	19286.8	2549.1	4732.9	0.5	2.3	1.4	0.5

From the results, market liquidity was positively skewed, was not 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.

4.1.2.1 Trend Analysis for NSE Total volume (NVOL)

The Figure 1 indicates that NVOL has been fluctuating with an increasing trend for all the years under the study.

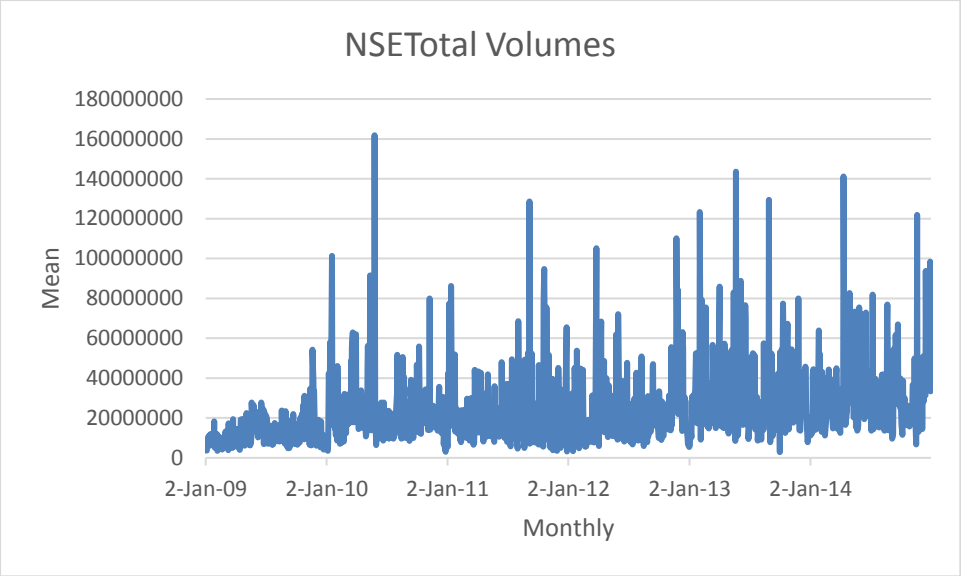

Figure 1: Trend Analysis for NSE Total volume (NVOL)

4.1.2.2 Trend Analysis for Market Turnover (TURN)

Figure 2 indicates that market turnover has moderately been increasing from the 2009 to 2013. Towards the end of the year 2013, it then shot to 6.5 billion before declining in the year 2014

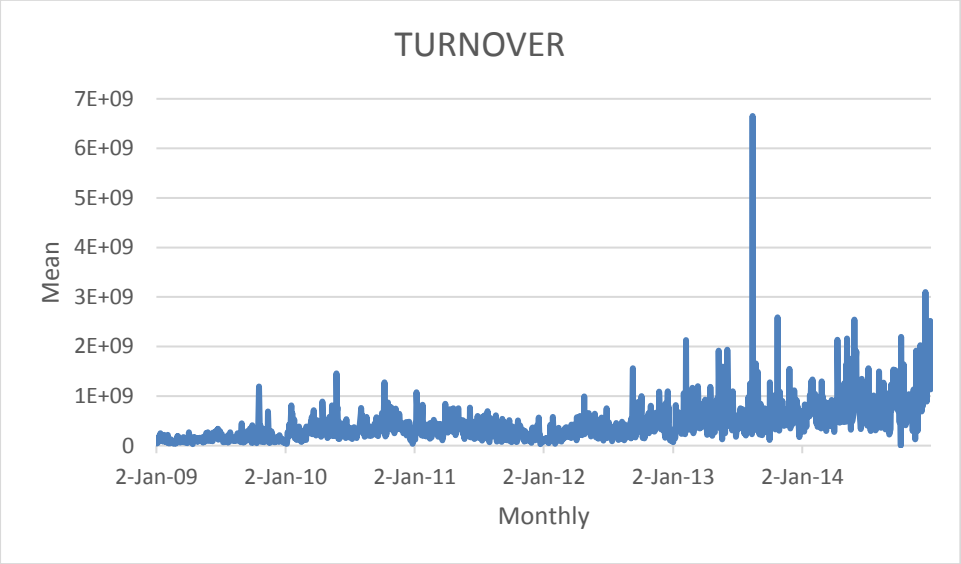

Figure 2: Trend Analysis for Market Turnover (TURN)

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 liquidity).

Table 2: Correlation Matrix

	NVOL	TURN	CBOND
NVOL	1.00		
TURN	0.64	1.00	
CBOND	0.33	0.46	1.00

From the analysis, stock market liquidity 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.

To establish whether causality existed between stock market liquidity and corporate bond market, the study tested the null hypothesis that stock market liquidity does not Granger cause corporate bond market and vice versa using turnover and total NSE volume as proxies for stock market liquidity. The null hypothesis that stock market liquidity does not Granger cause corporate bonds was accepted at all observations as the p-values were not significant across all observations. However, there was a unidirectional causality between corporate bonds and stock market liquidity as measured by both turnover and NSE volume using monthly time series. This means that corporate bonds Granger causes stock market liquidity at monthly time series.

Table 3: Results for Granger Causality Tests

Variable	Null Hypothesis	*trace*-Statistic			p-value			Decision		
		Daily	Monthly	Quarterly	Daily	Monthly	Quarterly	Daily	Monthly	Quarterly
GRANGER CAUSALITY										
Corporate bond market, Stock Market Liquidity	LNTURN does not Granger Cause D(LNCBOND)	0.2340	0.13819	0.76265	0.79138	0.87120	0.48266	Accept	Accept	Accept
	D(LNCBOND) does not Granger Cause LNTURN	0.6069	3.13599	0.80690	0.54515	**0.05020***	0.46359	Accept	Reject	Accept
Corporate bond market, Stock	LNNSEVOL does not Granger Cause D(LNCB	0.7371	2.19296	2.06827	0.47867	0.11990	0.15888	Accept	Accept	Accept

Market Liquidity	OND)									
	D(LNCBOND) does not Granger Cause LNNSEVOL	1.2570	4.14033	0.66148	0.28480	**0.02037***	0.52964	Accept	Reject	Accept

4.4 Hypotheses testing using Regression Analysis

4.4.1 Effect of Stock Market Liquidity on Corporate Bonds

Results in table 4 shows that stock market liquidity was found to be satisfactory variables in explaining corporate bonds. This is supported by coefficient of determination also known as the R square of 40.75%.

The results indicated that the overall model was statistically significant. Further, the results imply that Stock Market Liquidity is good predictors of corporate bonds. This was supported by an F statistic of 15.13 and the reported p value (0.0008) which was less than the conventional probability of 0.05 significance level. Regression of coefficients results shows that stock market liquidity and corporate bonds are positively and significant related (r=8.291, p=0.0008)

Hypothesis testing for stock market liquidity

The hypothesis was tested by using the ordinary least square regression. The acceptance/rejection criteria was that, if the p value is greater than 0.05, the Ho is not rejected but if it's less than 0.05, the Ho fails to be accepted. The null hypothesis was that stock market liquidity does not have a significant effect on corporate bonds. Results in Table 4 shows that, the calculated f-statistic of 15.13 was higher than the tabulated/critical f statistic (F α = 0.05).The findings were further supported p-value of 0.0008. This indicated that the null hypothesis was rejected hence stock market liquidity have a significant effect on corporate bonds

Table 4: stock market liquidity on Corporate Bonds

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Stock Market Liquidity	8.291456	2.131453	3.890049	**0.0008**
C	0.006944	0.014610	0.475278	0.6393

R-squared	0.407527	Mean dependent var	0.061967
Adjusted R-squared	0.380596	S.D. dependent var	0.022763
S.E. of regression	0.017915	Akaike info criterion	-5.126714
Sum squared resid	0.007061	Schwarz criterion	-5.028542
Log likelihood	63.52056	Hannan-Quinn criter.	-5.100669
F-statistic	15.13248	Durbin-Watson stat	0.720462
Prob(F-statistic)	0.000788		

Growth in corporate bond market=0.0069 + 8.2914X

Where;

X= Stock Market Liquidity

4.5 Discussion of the Findings

Normality test revealed that all the daily observed proxies of stock market liquidity were not normally distributed. Observations at monthly horizons revealed that TURN was not normally distributed while NVOL were normally distributed. This position reversed at quarterly observations where NVOL was not normally distributed and TURN was normally distributed. Since the distribution was not uniform for all horizons, the study performed a logarithmic transformation for all variables to rule out the possibility of getting non-standard estimators.

To establish the effect of stock market liquidity on corporate bond market, the study tested the null hypothesis that stock market liquidity does not Granger cause corporate bond market and vice versa using turnover and total NSE volume as proxies for stock market liquidity. The null hypothesis that stock market liquidity does not Granger cause corporate bonds was accepted at all observations as the p-values were not significant across all observations.

With regards to Granger causality test, the null hypothesis that corporate bonds does not Granger cause stock market liquidity was also accepted at daily and quarter yearly observations as the p-values at daily and quarterly observations were not significant at 1%, 5% and 10% level of significance. P- values at monthly observations for both proxies were however significant and thus the null hypothesis was rejected at 5% and 10% level of significance. This implies that corporate bond market Granger causes stock market liquidity as measured by turnover and total volume using monthly observations. This emphasizes the importance of corporate bond market on the liquidity in the stock market. In summary, based on Granger Causality model, the findings reveal that there exists a causal relationship between corporate bonds and stock market liquidity and that corporate bond market Granger causes stock market liquidity when monthly observations are used.

Regression of coefficients results shows that stock market liquidity and corporate bonds are positively and significant related ($r=8.291$, $p=0.0008$). This means that one unit increase in Stock market liquidity leads to a growth in corporate bond market by 8.291 units. The null hypothesis was rejected since $p<0.05$ and thus Stock Market liquidity have a significant effect on corporate bonds.

This finding is consistent with that of Levine (2011), Fulghieri and Rovelli (2008) and others who contest that stock market liquidity is necessary for economic growth. Levine (2007) suggests that stock market liquidity encourages, or at least strongly forecasts, corporate investment even though much of this is financed through reserved earnings and bank loans, rather than equity issues. Stock market activity is determined by two factors: the value and volume of trade divided by GDP and the turnover ratio and number of transactions.

The finding that stock market liquidity as measured by turnover and NSE total volume Granger cause corporate bond market is consistent with Raghavan and Sarwono (2012) who found out that stock market liquidity (measured by total value of stocks traded) have a significant influence on the corporate bonds market (measured by corporate bonds outstanding). However, this finding disagrees 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.

This finding is related to Chordia, et al. (2003). Chordia, et al. (2003) explored liquidity movements in stock and Treasury bond markets over a period of more than 1800 trading days. Cross-market dynamics in liquidity were documented by estimating a vector autoregressive model for liquidity, returns, volatility, and order flow in the stock and bond markets. The study found that a shock to quoted spreads in one market affects the spreads in both markets, and that return volatility is an important driver of liquidity. Innovations to stock and bond market liquidity and volatility proved to be significantly correlated, suggesting that common factors drive liquidity and volatility in both markets.

De Jong and Driessen (2006) show that equity market liquidity risk is priced in a cross-section of corporate bond portfolios, while Acharya, Amihud and Bharath (2010) show that corporate bonds are exposed to liquidity shocks in equity and treasury markets. Franzoni, Novak, and Phalippou (2011) have found that equity market liquidity risk is priced outside the cross-section of equities.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This section presents the conclusions based on the findings from the analysis. Stock market liquidity as measured by turnover and total volume has a positive relationship with corporate bonds outstanding but does not Granger cause corporate bond market in Kenya. However, there is a unidirectional causal relationship between corporate bond market and stock market liquidity using monthly time series data. Regression of coefficients results shows that stock market liquidity and corporate bonds are positively and significant related ($r=8.291$, $p=0.0008$). This means that one unit increase in Stock market liquidity leads to a growth in corporate bond market by 8.291 units. The null hypothesis was rejected since $p<0.05$ and thus Stock Market liquidity have a significant effect on corporate bonds.

The finding that stock market liquidity as measured by turnover and NSE total volume does not granger cause corporate bond market is consistent with Raghavan and Sarwono (2012) who found out that stock market liquidity (measured by total value of stocks traded) did not have a significant influence on the corporate bonds market (measured by corporate bonds outstanding). However, this finding disagrees 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.

De Jong and Driessen (2006) show that equity market liquidity risk is priced in a cross-section of corporate bond portfolios, while Acharya, Amihud and Bharath (2010) show that corporate bonds are exposed to liquidity shocks in equity and treasury markets. Franzoni, Novak, and Phalippou (2011) have found that equity market liquidity risk is priced outside the cross-section of equities.

5.2 Recommendations

Based on the conclusions of the study, stock market liquidity was found to have a positive relationship with corporate bond market. Therefore, this study recommends for Policy makers to come up with measures to enhance the liquidity of the stock market which will in turn encourage investment in corporate bonds.

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