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EFFECT OF STOCK MARKET CONCENTRATION ON THE GROWTH OF CORPORATE BOND MARKET IN KENYA

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EFFECT OF STOCK MARKET CONCENTRATION 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 concentration 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 concentration and corporate bonds are positively and significant related ($r=0.014$, $p=0.017$).

Unique Contribution to Theory, Practice and Policy: The study recommends that concerted efforts should be made to improve market concentration in the corporate bonds market so that it can operate optimally. The existing concentration affected the stock and corporate bond markets positively. However, policy makers should be careful not to allow a higher stock market concentration as this will adversely affect the financial markets (El-Wassal, 2013).

Keywords: *Stock market concentration, 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 concentration 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 concentration 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 concentration 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 concentration 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 concentration and how they impacted on corporate bond market. The following paragraphs presents the studies.

According to El – Wassal (2013), it is possible for stock markets to be large relative to their economies, but still concentrated. Stock market concentration may be measured by looking at the share of market capitalization accounted for by large companies in the market. In Kenya, this can be the share of market capitalization accounted for by the twenty largest stocks comprising the NSE 20 Share Index.

Stock Market Concentration adversely affects stock market development as it hampers stock market breadth by the concentration of capitalization within a handful of large companies, limiting the range of attractive investment opportunities and thus adversely affecting liquidity in the stock market in question. Having a stock market which is driven by only few companies could weaken the link between stock prices for non-leading companies and/or their performance and growth prospects. This distorts the signaling function of stock markets. Stock market concentration might also encourage speculative activities as investment alternatives are limited and diversification possibilities are limited as well. According to the concentration-stability view, higher market concentration enhances the stability of the

financial system. One line of argument suggests that, due to higher market concentration, firms have more market power and may therefore generate higher profits.

In a similar way, it is stated that higher profits increase the franchise value of firms (Chang et al. 2008). This will induce managers to take less excessive risks, which enhances the stability of the entire system and suggests a positive relationship between market concentration and financial system stability. On the contrary, the concentration-fragility hypothesis predicts that higher market concentration destabilizes the system and makes it more vulnerable. According to Boyd and De Nicol’o (2005), banks in a more concentrated market (and with more market power) may charge higher loan rates to borrowers than under (more) competition. In this case, borrowers will take higher risks, which is a problem for system stability. Moreover, the “too-big-to-fail” property of some banks might lead to excessive risk taking in banking causing increased system instability.

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.

Table 1: Descriptive Statistics

	Data	Mean	MAX	MIN	STDEV	SK	KR	JB	Pro
MCONC	Daily	81.8	119.0	1.2	12.3	-1.7	7.9	2208.9	0.0
	Monthly	83.0	97.1	43.6	11.0	-1.4	5.4	40.0	0.0
	Quarterly	0.0	0.2	0.0	0.0	2.1	7.2	35.7	0.0

From the results, market concentration was positively skewed, was not normally distributed.

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 concentration).

Table 2: Correlation Matrix

	MCONC	CBOND
MCONC	1.00	
CBOND	-0.27	1.00

From the analysis, stock market concentration is positively correlated to corporate bonds.

4.2.2 Unit Root Tests

Most economic variables are usually non-stationary in nature and prior to running a regression analysis, a unit roots tests was conducted to establish whether the variable was stationary or non-stationary. The purpose of this is to avoid spurious regression results being obtained by using non-stationary series. The tests were conducted using Augmented Dickey Fuller (ADF) and Phillips Peron (PP) tests of unit roots. Results in Table 3 conducted using ADF test indicated that all variables are non-stationary (i.e. presence of unit roots) at 1%, 5% and 10% levels of significance. Unit roots test was also conducted using PP tests and gave similar results as ADF test. However, upon first differencing, the variable was stationary. These results suggested that the variable is I(1). The optimal lag order was determined empirically.

Table 3: Unit Root Tests at Level ADF

Variable	Null Hypothesis	Computed <i>t</i> -Statistic			p-value			Decision		
		Daily	Monthly	Quarterly	Daily	Monthly	Quarterly	Daily	Monthly	Quarterly
LEVELS										
MCONC	H ₀ : series has a unit	-22.359	-7.6054	-3.1594	0.0000*	0.0000*	0.1170	Reject	Reject	Accept
DIFFERENCES										
MCONC	H ₀ : series has a unit root		-11.3612	-5.4471		0.0000*	0.0014*			Reject

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 concentration and corporate bond market, the study tested the null hypothesis that NSE 20 volume as a proportion of NSE total volume does not Granger cause corporate bond market and vice versa. The p-values at daily, monthly and quarterly observations were not significant at 1%, 5% and 10% level of significance in both cases and thus the null hypotheses that stock market concentration does not Granger cause corporate bonds and corporate bonds does not Granger cause stock market concentration was accepted.

Table 4: Results for Granger Causality Test

Variables	Null Hypothesis	trace-Statistic			p-value			Decision		
		Daily	Monthly	Quarterly	Daily	Monthly	Quarterly	Daily	Monthly	Quarterly
GRANGER CAUSALITY										
Corporate bond market, Stock Market Concentration	MCONC does not Granger Cause D(LNCBOND)	1.1431	0.4519	0.00905	0.31909	0.63637	0.99100	Accept	Accept	Accept
	D(LNCBOND) does not Granger Cause MCONC	0.0077	0.83207	0.05874	0.99227	0.43980	0.94315	Accept	Accept	Accept

4.4 Hypotheses testing using Regression Analysis

4.4.1 Analyzing Effect of Stock Market Concentration on Corporate Bonds

Normality test revealed that NSE volume as a proportion of total NSE volume were not normally distributed at all-time series. 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.

Unit roots tests were conducted using Augmented Dickey Fuller (ADF) and Phillips Peron (PP) tests. The results were similar using both tests and indicated that all variables are non-stationary (i.e. presence of unit roots) at 1%, 5% and 10% levels of significance. However, upon first differencing, all the variables were stationary.

Regression of coefficients results shows that Stock Market Concentration and corporate bonds are positively and significant related ($r=0.014$, $p=0.017$). This means that one unit increase in Stock market concentration leads to a growth in corporate bond market by 0.014 units. The null hypothesis was rejected since $p < 0.05$ and thus Stock Markets concentration have a significant effect on corporate bonds.

This finding is inconsistent with that of El-Wassal (2013) who argued that Stock Market Concentration adversely affects stock market development as it hampers stock market breadth by the concentration of capitalization within a handful of large companies, limiting the range of attractive investment opportunities and thus adversely affecting liquidity in the stock market in question. Having a stock market which is driven by only few companies could weaken the link between stock prices for non-leading companies and/or their performance and growth prospects. This distorts the signaling function of stock markets. Stock market concentration might also encourage speculative activities as investment alternatives are limited and diversification possibilities are limited as well. According to the concentration-stability view, higher market concentration enhances the stability of the financial system. One line of argument suggests that, due to higher market concentration, firms have more market power and may therefore generate higher profits.

The finding that stock market concentration as measured by NSE 20 volume as a proportion to NSE total volume does not Granger cause corporate bond market in Kenya is inconsistent with El-Wassal (2013). El-Wassal (2013) had predicted a negative relationship between high stock market concentration and stock market liquidity which ultimately negatively affect corporate bond market. High concentration is not desirable as it can adversely affect liquidity, and it is common to find a negative correlation between concentration and liquidity.

Stock market concentration adversely affects market development as it hampers market breadth by the concentration of capitalization within a handful of large companies, limiting the range of attractive investment opportunities and thus adversely affecting liquidity in the stock market in question. Having a stock market which is driven by only few companies could weaken the link between stock prices for non-leading companies and/or their performance and growth prospects. This distorts the signaling function of stock markets. Stock market concentration might also encourage speculative activities as investment alternatives are limited and diversification possibilities are limited as well.

4.5 Discussion of the Findings

4.5.1 Analyzing Effect of Stock Market Concentration on Corporate Bonds

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5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

This section presents the conclusions based on the findings from the analysis. Regression of coefficients results shows that Stock Market Concentration and corporate bonds are positively and significant related ($r=0.014$, $p=0.017$). This means that one unit increase in Stock market concentration leads to a growth in corporate bond market by 0.014 units. The null hypothesis was rejected since $p<0.05$ and thus Stock Markets concentration have a significant effect on corporate bonds.

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5.2 Recommendations

The study concluded that stock market concentration had a positive relationship. Therefore, the study recommends that concerted efforts should be made to improve market concentration in the corporate bonds market so that it can operate optimally. The existing concentration affected the stock and corporate bond markets positively. However, policy makers should be careful not to allow a higher stock market concentration as this will adversely affect the financial markets (El-Wassal, 2013).

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