

The Influence of Financial Risk on Stock Returns

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Abstract

The decline in stock returns and the increasing financial risks at the stock market in Kenya has solicited discussions at the academic and regulatory circles to find solutions on challenges facing investor's capacity to reliably predict stock returns volatilities. This study sought to investigate the influence of financial risk on stock returns. Annual data for period 2006 to 2015 has been used. The stock return data of 9 banks listed from 2006 to 2015 was used as dependent variable while credit risk, market risk, liquidity risk and capital risk was used as independent variables. Bank size was used as a control and moderator variable. The study adopted a multivariate generalized least square regression modeling. The study focused on two dimension regression approach. Individual impact of financial risk on stock return and collective multivariate impact of financial risk on stock returns. Individual regression of credit risk, market risk, liquidity risk and capital risk show a statistical significant positive relationship with stock returns. Collective multiple GLS regression of financial risk with a control variable of bank size indicated financial risk is negatively significant on stock returns while bank size had a positive significant influence on stock returns. Moderating effect of bank size on the influence of financial risk on stock returns was found positively significant. The overall conclusion of study was held that financial risk influences stock returns of at Nairobi Securities Exchange. This research is a spatial extension of the previous researches. Unlike other studies that focus mainly on macro- economic variables, this research factored the influence of systemic and bank specific factors financial risk on stock returns.

Key Words- Financial risk, Stock returns, Credit risk, market risk, Liquidity risk, Capital risk, Bank size.

I. INTRODUCTION

Investors exist at the stock market to maximize their returns. Banks leverage this objective through their core function of financial intermediation. However, the main economic function of banks revolves taking financial risk. If banks avoid risk in order to minimize failure rates to zero, they limit the purpose of banking system to promote investor market value (Greuning & Bratanovic, 2009).

The aftermath of global financial crisis has exhibited unprecedented stock returns volatilities leading to huge lose and uncertainties on portfolio investments for local and international investors. This phenomenon of increased financial risks at the capital and financial markets has solicited discussions at the academic and regulatory circles in a bid to find solutions on challenges facing investor's capacity to reliably predict the highs and the lows of the stock returns (Sobia, Arshad & Szabo, 2015). Empirical literature remains nascent and contradictory on the actual determinants of stock returns sensitivity. However, Bhati and Sultan (2012), Mehri (2015) argued that financial risk theoretically and empirically is proven to influence stock returns. Sobia, et al. (2015) established that investors in emerging markets are mere herd and noise traders as they fail to consider external and internal fundamentals in their investment decisions.

To maximize wealth, investors require accurate and reliable information on the drivers of stock prices. Maxims of efficient market hypothesis contends that stock prices responds to news released to the markets which could be in the form of financial statements, press briefings or insider information. Massive loss of investor's wealth in the stock markets and world economic turmoil during the global financial crisis has been associated to financial risk (Mehri, 2015). In this regards, this study sought to establish the influence of financial risk on stock returns at Nairobi Securities Exchange.

Stock return is the measure of shareholder wealth in the security exchange where investors seek to maximize wealth by undertaking financial risk. Stock market is a market that facilitates trade of securities from publicly quoted companies and government securities. A stock market form is an important entity to the government, investors and other stakeholders. It's a backbone of an economy since it promotes efficient capital allocation and wealth creation. Studies show stock markets are significant for economic growth (Sobia et al. 2015).

Jorion (2007) referred financial risk as the uncertainty and potential financial loss to earnings and capital. Haque and Wani (2015) defined financial risk as an umbrella term of risks factors resulting to financial losses triggered by financial transactions. These umbrellas of risk factors for banking sector majorly include credit risk, market risk, liquidity risk and capital risk. Financial risk can be broadly classified into diversifiable risk based on company specific risk factors and un-diversifiable risk due to macroeconomic factors.

The importance of commercial banks to an economy is to link surplus and deficit units. However, as banks intermediate, they face a series of financial risks which are detrimental to sustainability of a financial system. To balance the extent of risk is crucial for survival of banks, economy and investor wealth. However, no investor will maximize their returns without engaging in risk. The impact of financial risk has been observed to be cyclical where systemic risk triggers emergence of other financial risks. Market risk triggers liquidity risk and credit risk. Credit risk and liquidity risk collectively triggers capital risk (Cheng & Nasir, 2010). Haque and Wani (2015) observed that financial risk exists in an eco-system of systemic risks where external financial risk triggers internal risk during economic recession and internal financial risk triggers external risk during boom.

Stock return volatility refers to the uncertainty of returns of the underlying assets due to changes in flow of information concerning the stock into the stock markets. Negative information increases the variability over varied periods making it difficult for investors to predict stock returns. Stock volatility is characterized by the ups and downs of the stock markets inferred by bull and bear episodes where the stocks increase from trough to peak and also decrease from peak to trough by huge margins. Bull episodes are evidenced to last longer than bear episodes making it riskier for investors to hold stocks longer at bull phase (Ogilo, 2008).

Financial theory has laid emphasis on risk as a key predictor of stock returns. According to theory of Markowitz (1952), Modern Portfolio Theory (MPT) and Capital Asset Pricing Model (Sharpe, 1964 and Lintner (1965), financial market players are concerned over a given level of risk and upon which they adjust their returns expectations. Ross (1976) on his Arbitrage Pricing Theory (APT) argued that besides market risk, financial risk is driven by several other factors to determine expected return on investments.

In Kenya, Investors in the Nairobi Securities exchange lost Ksh 157 billion in the first half year of 2015 in a bear run that plunged the main market index to a two year low. According to market data, 48 counters out of 63 lost value with NSE 20 share index falling by 12.7% to 4463 points while absolute investments in this segment fell to Ksh 2.142 trillion (NSE, 2015). In the year of 2015, the stock market performed dismally with the financial sector being the biggest loser while the telecommunications and the agricultural sector proved resilient to the bear run. The banking sector suffered a 12.7% drop to 755 billion in capitalization recording a loss of Ksh 109 billion. Insurance sector shed 20.3% to Ksh 37.5 billion (NSE, 2015).

Pension funds reduced their investments in stocks from 30% to 27.1% in first quarter of 2016 due to plunging of the banking stocks due to bad debts and bank failures. The returns of pension firms in Kenya in the past three years reduced by 6.6% (Forbes, 2016).

1.1 Statement of the problem

The increase in stock returns volatilities at post global financial crisis has led to huge losses and uncertainties on stock portfolios to local and international investors. In Kenya, the phenomenon of decline in stock prices and the increasing financial risks in the banking sector has solicited discourses at investors, regulatory and academic circles (Machuke, Mwita & Kihoro, 2014). Investors maximize returns against lowest risk possible. The unprecedented

losses has yielded concerns on whether investors at NSE care about risks when making investment decisions.

Studies on the influence of financial risk on stock returns are yet to provide a substantial causal link. Sobia, et al. (2015) concluded that interest rates and exchange rates hold negative significant relationship with stock returns. Purnamasari et al. (2012) established that earnings were negative and significantly related to stock returns due to volatility of EPS. Capital risk was significantly related to stock returns while liquidity risk and credit risk proved insignificant to stock returns. Cheng and Nasir (2010) investigated the effect of interest rate, exchange rate, credit risk, solvency risk, market risk and liquidity risk on stock returns. The study established only liquidity risk provided a significant response to stock returns. Kang and Kang (2009), Aga et al. (2013) established reasonable conclusion that financial risk influences stock returns. However, they failed to incorporate combined effect of major financial risk (credit risk, market risk, liquidity risk and capital risk) on stock returns. They also failed to factor the effect of size as a moderator variable on the influence of financial risk on stock returns. These omissions form the basis of this study.

Local studies Kithinji (2010), Lakorito et al. (2014) and Mathuva (2009) have focused on the relationship of financial risk on financial performance. A gap from the existing literature is that there is no study encountered that has considered the influence of financial risk on stock returns in Kenya. The risk and return collaborates investors, regulators, researchers and market players to fair play in wealth maximization. Financial markets bridge the gap between investors, hedgers and speculators to which this study will be of significance. The principle of no risk no returns stifles wealth creation but again too much of risk is destructive to the economy. Given that there is little or no study in Kenya on how financial risk influence stock returns, it is imperative to explore this gap. The influence of financial risk on shareholder market value on listed banks in NSE forms the subject of this study.

II. LITERATURE REVIEW

2.1 Modern Portfolio Theory

Modern Portfolio Theory (MPT) is a finance theory developed in 1950 by Nobel Prize winner Harry Markowitz. It describes an optimal investment decision as one that maximizes the expected return of a portfolio for a given level of risk, or that investment decision that minimizes portfolio risk for a given amount of portfolio expected return. MPT describe investment as a principle of diversification where a collection of individual risky assets will form a portfolio with overall discounted risk for the same expected return. Stocks and bonds move in opposite directions, but a combination of a stock and a bond will yield a portfolio with overall lower risk for a given return.

MPT theory also observed that a portfolio constituted by positively correlated assets result to lower risk. The theory assume an efficient market with rational risk averse investors; implying that one will only undertake a risky investment only if the returns were commensurate based on individual risk preference. MPT theory defined risk as the volatility of assets prices and the expected return as a collection of weighted asset returns. Harry Markowitz theory (1952) developed a mean variance formulation that combines assets portfolio to generate an efficient frontier curve which identifies the optimal portfolio for investment.

Hyde (2007) investigated the sensitivity of stock returns to market risk, interest rate and exchange rates in France, Germany, UK and Italy. The study established that the three risks exhibit a significant influence on excess returns and future cash flows. This empirical study confirms the relevance of modern portfolio theory by aligning the influence of diversified risk on stock returns.

2.2 Arbitrage Pricing Theory

Arbitrage pricing theory (APT) is an asset pricing valuation model that describes stock returns as a function of a series of risk factors. The theory was proposed by Roll and Ross (1976). The theory is an advancement of Capital Asset Pricing Model (CAPM) by Sharpe and Litner that contended that stock returns are a function of beta risk only. Unlike CAPM, APT describes that stock returns is a factor of a series of risk factors ranging from firm and macro risk factors. Compared to CAPM, APT theory is less restrictive in its assumptions. APT theory assumes the markets are perfectly competitive, Investors prefer more wealth to less with certainty and asset returns follow a stochastic process expressed a linear function of n risk factors. APT theory of n risk factor model can be expressed as below:

$$E(R_{it}) = \lambda_0 + \lambda_1 b_{i1} + \lambda_2 b_{i2} + \dots + \lambda_n b_{in}$$

$E(R_{it})$ = the expected return on asset I during a specified period of time, $i=1, 2, 3 \dots n$

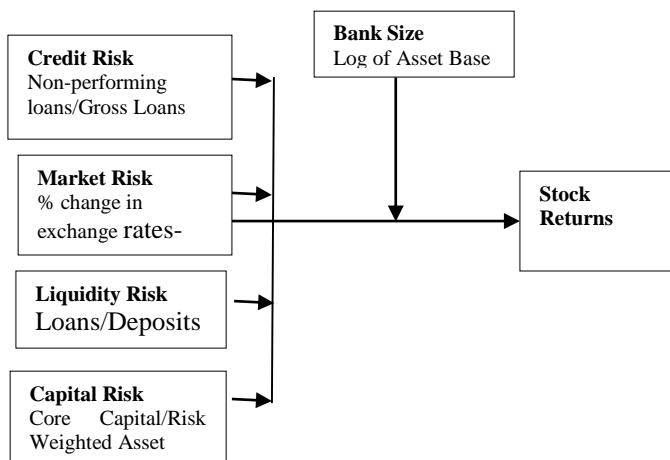
λ_0 = the expected return on the asset with zero risk

λ_n = the risk premium related to the n th common risk factor; i.e. how responsive is returns of asset i to the n th risk common factor loadings.

Sobia et al. (2015) established that the factor loadings that determine the stochastic process of asset returns over time can be associated with macro and micro economic risk factors.

2.3 Conceptual Framework

A conceptual framework employed in the study discusses the foundation that influence of financial risk on stock returns. The dependent variable in the study includes bank stock returns while independent variables were credit risk, market risk, liquidity risk and capital risk. The study entailed a control/moderator variable of bank size. Figure 2.2 represent the study's conceptual framework.



Independent Variable Moderator Variable Dependent Variable

Figure 2.2 Conceptual Frameworks.

2.3.1 Credit Risk

Aghababaeiet al. (2013) described credit risk as the risk that accrue due to variability of derivatives and debt instruments as a result variations in the quality of advances and the underlying counterparties. In this study credit risk was measured using the ratio of Non-Performing Loans to Gross Loans (NPG). This measure conforms to following empirical studies (Kolapo, Ayeni & Oke, 2012; Abu, Sajeda & Mustafa, 2015).

2.3.2 Market Risk

Market risk is the risk that the value of on and off-balance sheet positions of a bank will be adversely affected by movements in prices or markets rates such as foreign exchange rates, interest rates, credit spreads, equity prices or /and commodity prices leading to a loss in earnings and capital (Sukcharoensin, 2013). In this study market risk was measured using exchange rate operationalized as the annual rate of change of exchange rate between Ksh and USD in accordance to the studies of Sukcharoensin, (2013) and Mouna and Anis (2015).

2.3.3 Liquidity Risk

Saleh (2014) defined liquidity risk as the inadequacy of the liability side of the bank that constraints demand deposit and possibly triggers system fragility and bank runs. It is the uncertainty that arise when a security cannot be liquidated in a market to avert a financial loss. This study adopted funding liquidity risk as a measure of loans to deposit ratio and the ratio of liquid asset to total assets (El Mehdi, 2014; Saleh, 2014).

2.3.4 Capital Risk

Capital risk refers to the risk that the earnings and capital of financial institution is exposed due to lack of risk capital. It is the extent within which bank capital accommodates risk weighted assets (Greuning & Bratanovic, 2009). In this study capital risk is operationalized by the ratio of core capital to risk weighted asset and the ratio of shareholders' funds to total assets in accordance with the following studies: (Demirguc et al., 2010; Kolapo et al, 2012).

2.3.5 Bank Size

Berger and Brouwman (2011) determined that bank size, market share and capital can be used as a control variable measured as a log of asset base. They described that bank size is positively related to probability of survival where large banks are less affected by financial crisis compared to smaller banks. During normal times, large banks depict low returns compared to small banks. This explains that the effect of risk and returns in banks is determined by the state of the economy. This observation was supported by Shariat and Khosvari (2008) who observed that firm size is negatively related to stock returns during periods of financial difficulties.

2.3.6 Stock returns

Stock return is the change in capital or wealth due to an investment. The changes could occur due to cash flows such as earnings, dividends or interest or due to negative or positive changes in prices (Mehri, 2015). To determine stock returns the study employed formula applied by Purnamasari et al. (2012) and Predescu and Stancu (2011) in calculating the stock returns:

Equation 2.1: Equation Formula on Determination of Stock Returns

$$R_{i,t} = \ln\left(\frac{P_t + Div}{P_{t-1}}\right)$$

Where, $R_{i,t}$ denote the continuously compounded individual bank stock returns at time t . P_t is the Stock price at the end of the period, P_{t-1} is the stock price at the end of the previous period and Div is the cash dividend during the period. Stock return was computed annually from 2006 to 2015. Logarithmic returns are preferred because they are tractable when handling many sub periods for a long horizon. They are also statistical and conform to normal distribution (Mouna & Anis, 2015).

2.4 Empirical Review

Having laid pre-requisite theoretical foundation and conceptual framework defining the association of variables of study; the study reviewed empirical evidence on the influence of financial risk stock returns and related studies by varied scholars.

2.4.1 Credit Risk and Stock returns

Naser et al. (2011) conducted an empirical study to establish the effect of credit and exchange risk on stock returns conditional volatility of banks in Australia using asymmetrical and symmetrical GARCH models. The result of the research found out that there exist meaningful association between credit risk and market risk with stock return volatility. The findings of the study also established that financial risk helps to predict a stock return which is helpful to investors and regulators.

Kithinji (2010) conducted a study on credit risk management on profitability of commercial banks in Kenya. The study covered the period 2004 to 2008 focusing on the amount of credit, level of non-performing loans and profitability. The study found that profitability of commercial banks is not influenced by the amount of gross loans and non-performing loans. The study findings implied that there could other factors that impact on bank profitability. Steiger (2010) examined the influence of stock options and credit risk on stock returns. The study used tradable credit derivatives of credit default swaps and interest rates to measure credit risk. The study established high explanatory power between credit default swaps and stock returns.

Aghababaeiet al. (2013) investigated the effects of credit risk indicators on shareholders' value of commercial banks listed in Tehran Stock Exchange- Iran. The study covered 6 years from 2005 to 2010 and concluded that credit risk indicators have a significance influence on shareholder value.

Janssen (2012) examined the impact of credit risk on stock returns at the German, French and Dutch stock markets for the period 2004-2012. The objective of the study was to ascertain whether systematic risk embedded on the credit spread affects stock returns. The study found out that there is no significant

relationship between excess returns on stocks and credit spreads. Kang and Kang (2009) also conducted a study on the impact of individual firm credit spread and stock returns. They argued that the notion of higher returns on firms with low credit risk than firms with high credit risk is puzzle only applicable during periods of financial distress, otherwise the mean variance theory of higher risk higher returns holds for stable financial periods. That according to the fundamentals of risk versus returns trade off; investor's undertaking on financial risk is compensated by an investment return premium.

Abu et al. (2015) undertook an empirical study to establish how credit risk affects bank profitability in Bangladesh for the period 2003 to 2013. Credit risk was measured using the ratio of Non-Performing Loans to Gross Loans (NPLGL), ratio of loan loss reserve to gross loans (LLRGL), ratio of Loan Loss Reserve to Non-Performing Loans (LLRNPL) and Capital Adequacy Ratio (CAR). Profitability indicators used included return on asset (ROA) and Return on Equity (ROE). Their finding revealed a negative significant effect of NPLGL and LLRGL on all profitability parameters and a significant negative effect of CAR on ROE concluding that credit risk affects banking profitability in Bangladesh.

2.4.2 Market Risk and Stock returns

Empirical study by Syed & Anwar (2012) provided evidence on the relationship between interest rate and stock returns. It confirmed the existence of significant negative relationship between interest rates and stock returns. In their study on the effects of interest rate, exchange rate and volatilities on stock prices in Pakistan found that exchange rate risk on commercial banks stock returns is significant. They argue that banks will never hedge their individual position perfectly and this exposes them to exchange rate risk.

Ryan and Andrew (2004) conducted a study on market, interest rate and foreign exchange risk in Australian banking sector for the period 1996 to 2001 using GARCH-in-Mean Approach to model stock return volatility on daily Australian stock returns. They concluded that market risk, short and medium term interest rates along with their volatility are a significant determinant of bank stock returns. However, it was found that exchange rates and long term interest rates are not significant in influencing Australian banks stock returns.

Hyde (2007) investigated the sensitivity of stock returns to market risk, interest rate and exchange rates in France, Germany, UK and Italy. The study established that the three risks exhibit a significant influence on excess returns and future cash flows. This empirical study confirms the relevance of and modern portfolio theory by aligning the influence of diversified risk on stock returns. Predescu and Stancu (2011) analyzed portfolio risk in the pretext of global financial crisis using volatility models of ARCH and GARCH along three benchmark indexes of USA, UK and Romania. The objective of the study was to establish the uncertainties in the portfolio over time as a result of financial crisis. Modeling of stock returns volatility of the indexes established that portfolio risk was influenced by systemic forces of the financial crisis. The study also established that diversification of the portfolio along the three indexes during the crisis did not reduce portfolio risk.

Sukcharoensin (2013) conducted a study to examine the influence of market, interest rate and exchange rate on time varying property

of Thai banks stocks returns using GARCH framework. The study established that market is a factor of stock return sensitivity to large banks than to small and medium Thai banks. The study also established that interest rate and exchange rate are better predictors of stock returns sensitivity of Thai banks. In the long run, large banks are seen to hedge exchange rate risk and therefore exchange rate risk does not influence their stock return sensitivity. Mouna and Anis (2015) investigated the effect of market, interest rate and exchange rate risk of financial stock returns during financial meltdown using GARCH-in-Mean model. The study was conducted for eight countries within USA, European market and China for the period 2006-2009. The study established that market, interest rate and exchange rate positively and negatively influence the volatility of stock returns in USA, China and Europe economies during the financial crisis and concluded therefore that risk forms a component of return.

2.4.3 Liquidity Risk and Stock returns

Dick-Nielsen, et al. (2013) in their empirical study on market liquidity and funding liquidity with regards to Danish bond markets established that funding liquidity determined market liquidity and consequently, market liquidity drives market returns. The study tested for existing relationship between funding liquidity and market liquidity. Fontaine et al. (2013) conducted a study on funding liquidity risk and the cross section of stock returns. The study established that banks diffuse funding shocks to stock returns. The study concluded that low returns are associated with stocks volatility, illiquidity and higher risk premiums.

Mehri (2015) conducted a study on the effects of financial risk on the relationship between earnings and stock returns. The study established a significant positive correlation between earnings and stock returns. It also concluded a negative significant effect of credit risk and capital risk on stock returns but found the effect of liquidity risk on stock returns insignificant. Aga et al. (2013) researched on the association of liquidity ratios and stock returns at Tehran Stock Exchange during 2006 to 2011. The study used external factor of systematic risk and internal factor of company size as control variables. The study found that current ratio can be used to predict stock returns.

El Mehdi (2014) investigated the effects of bank liquidity and financial performance of the Moroccan banking sector. The study defined bank liquidity position over variety of liquidity ratios namely; liquid assets to total assets, liquid asset to total liabilities, liquid assets to deposits, loans to total assets, illiquid assets to liquid liabilities. The study conclusion defined determinants of bank performance as unemployment, bank size, bank liquidity, ratio of external funding to bank liabilities. The study remarked that impact of bank liquidity and performance is depends on the model used.

Saleh (2014) investigated the effect of liquidity risk on bank performance of Jordan banking system. The study established that loans to deposit ratio, current ratio holds a significant relationship on the banks return on equity and return on investments. In general the study concluded that liquidity risk is an endogenous determinant of bank performance in Jordan.

Abzari, Fathi and Kabiripour (2013) in their empirical study on effects of illiquidity on capital gain Iranian market evidence. The study confirmed that due to short investments horizons, illiquidity

characteristic is a crucial factor for capital gains growth. The study results established that illiquidity inhibits a negative relationship with capital gains. Akram (2014) studied the effects of liquidity on stock returns in Pakistan. The outcomes of the study established that liquidity holds a negative relationship with stock returns.

Chikore et al. (2014) conducted a study on the relationship between stock liquidity and returns at Zimbabwe Securities Exchange. The study used measures of market liquidity namely: bid-ask spread, trading volume and turnover. The results indicated that the volatility of stock liquidity is vital to investors since they use liquidity risk premium in pricing stocks. The study concluded that market liquidity negatively affects stock returns at Zimbabwe Stock Exchange.

Lakorito, Muturu and Nyang'au (2014) conducted an assessment on the impact of liquidity on profitability of banks in Kenya. The results of the study established that liquidity holds a significant positive relationship with banks return on assets. The study described short term liquidity holdings as key in facilitating revenue generation such as meeting demand on deposits and funding of loan obligations.

2.3.4 Capital Risk and Stock returns

Acharya, Hamid and Anjan (2010) in their study of impact of leverage change on firm value developed a model based on Modigliani and Miller Model to explain the reaction of stock returns in association with issuer exchange offers. The study established that positive debt level information influences wealth transfers across security class. Mathuva (2009) study findings supported Central bank of Kenya move to increase bank capital by 2012 to increase efficiency and profitability. The study sought to establish a relationship between Capital adequacy and cost income ratio on performance of commercial banks in Kenya. The empirical study found a significant positive relationship between tier 1 core capital to risk weighted asset ratio and profitability and a negative effect of equity capital ratio on profitability.

Berger and Brouman (2011) pursued a study on capital effect on bank performance during financial crisis. The study tested the effect of capital on three aspect of bank performance namely: Profitability, Market share and survival; during financial crisis and normal times. The study established capital helps banks of all sizes increase chances of survival, market share and profitability during crisis. In general, the study found that capital is essential at all times for small banks but it's crucial for medium and large banks during financial crisis.

Wakid, Arab, Madiha, Waseen & Shabeer (2013) studied the impact of capital structure and financial performance on stock returns a case of Pakistan textile industry. They contended that changes in capital structure and financial performance are significant to ascertain the sensitivity of stock returns. Based on their empirical findings, they concluded that capital structure and financial performance positively affects stock returns of Pakistan textile industry.

Kibet, Neddy and Koskei (2013) investigated the effect of capital structure on share prices of energy sector share listed in Nairobi Securities Exchange in Kenya. The study concluded that equity capital is significant but bears a negative effect on stock prices; debt and gearing ratio were significant determinants of share prices. Annas and Mohamoud (2013) investigated the effect of financial leverage and systematic risk on stock returns for

industrial sector at the Amman stock exchange for the period 2000 to 2009. Systematic risk was measured by beta coefficient while financial leverage was measured by debt ratio. The study concluded that systematic risk and financial leverage influence 4.4% of the variability in stock returns of the industrial companies listed in the Amman stock exchange which was determined by the study as a negligible effect.

2.3.5 Bank Size and Stock returns

Laeven, Ratnovski and Tong (2014) factored importance of bank size with the scope that large banks profit from economies of scale which promote diversification models and risk reductions. However, during recession, large banks were vulnerable due to unstable funding and risky market activities. Based on these contradictions, policy implications have been suggested to optimize the benefits of large banks and minimize the implications of their down fall which includes capital surcharge, restriction on market based activities and reduction of too big to fall perks.

Aga, et al. (2013) researched on the association of liquidity ratios and stock returns at Tehran Stock Exchange during 2006 to 2011. The study used systematic risk and company size as control variables. The study concluded that both systematic risk and firm size carries a meaningful positive impact on stock returns. Contrary to positive association of bank size to stock returns, Shariat and Khosvari (2008) in their study on impact of stock returns due to size, market factor and book to market ratio, established that firm size hold a negative relationship with stock returns.

El Mehdi (2014) used bank size measured as the log of average assets as a control variable and concluded that as bank size increases, profits persist due to economies of scale and ability to handle financial risk improves thus influencing stock returns positively. For banks, Stable and wider asset base characterize higher profitability resulting to higher stock returns. Aga, et al. (2013) remarked that company size is main cause of variability on shareholder value maximization. In this study bank size is operationalized as the log of bank assets.

2.3.6 Financial Risk and Stock returns

Sobia et al. (2015) executed a study to investigate the effect of financial risk on the sensitivity of stock returns. The study was conducted during the year 2003 to 2012 based on the data of 115 companies at Karachi Stock Exchange in Pakistan focusing on financial risk at industry level, firm specific level and that of exporting and non-exporting firms. Stock return was used as dependent variable while independent variable of financial risk was represented by interest rate, exchange rate, financial exposure, and total risk. Firm size was employed as a control variable. The study findings concluded that interest rates and exchange rates at industry level and firm level hold a negative significant relationship with stock returns while total risk, growth rate, firm size and financial exposure was insignificant on industry and firm level. Interest rates held a positive significant relationship on stock returns for exporting and non-exporting while exchange rate held a negative significant relation for the same group.

Naser et al. (2011) conducted a study to investigate the effect of credit and exchange risk on stock returns of banks in Australia using GARCH family models. The study established that credit

risk and market risk influence the behavior of stock returns. The study concluded that credit risk and market risk significantly positive in influencing bank stock returns and therefore the financial risk was useful tool for investors in return maximization. Haque and Wani (2015) undertook to examine the relationship between financial risk and financial performance of Indian banks. The study also investigated the influence of financial risk on financial performance of Indian banks. Financial risk was defined as interest rate risk, liquidity risk, credit risk, capital risk and solvency risk. The findings established all financial risk studied depicted a relationship with financial performance. The study concluded that solvency risk, credit risk and capital risk significantly influenced financial performance while interest rate and liquidity risk was insignificant to financial performance.

Mehri (2015) investigated the effects of financial risks (liquidity risk, credit risk, and solvency risk) on the relationship between earnings and stock returns. The findings revealed that there exist significant positive relationship between stock returns and earnings. Additionally, credit risk and solvency risk has a negative effect on the relationship between earnings per share and stock returns. Liquidity risk has insignificant effect on the relationship between earnings per share and stock returns.

Purnamasari et al. (2012) conducted an empirical research on the effect of financial risk and growth on the relationship between earnings and stock returns. Preliminary findings established that earnings were negative and significantly related to stock returns. This was due to volatility of EPS causing investors to react adversely to bank performance. Solvency risk exhibited a significant relation to earnings and finally to stock returns. The effect of liquidity risk and credit risk proved insignificant to relationship between earnings and stock returns.

III. METHODOLOGY

This study adopted descriptive and correlational research design. Mehri (2015) used descriptive correlational research design in the analysis of effects of financial risks on the relationship between earnings and stock returns.

Target population comprised of all 43 commercial banks licensed by the Central Bank of Kenya in operation as at 31st December 2015. Accessible population will comprise of 11 commercial banks licensed by CBK and listed at Nairobi Securities Exchange. The study assumed stratified purposive sampling technique to objectively select sample elements which best represent the population.

The sample of secondary data comprised of 9 commercial banks listed in Nairobi Securities Exchange between years 2006 to 2015 namely: Barclay, CFC Stanbic, Diamond Trust, Equity, Housing Finance, Kenya Commercial Bank, National Bank of Kenya, National Industrial Credit Bank (NIC) and Standard Chartered. The study dropped the effects of corporate events such as M & A and rights issues around the announcement dates with an event window of ± 10 days. This is because corporate events contain temporary effects on stock returns which are not related to financial risk (Predescu & Stancu, 2011).

10 year annual secondary data for the period 2006 to 2015 was obtained from Kenya National Bureau of Statistics, Nairobi Securities Exchange, Central Bank of Kenya, Listed financial institutions historical financial statement and Banking surveys

manuals. Data from Central bank of Kenya was used to show the rate of change of exchange rate between the USD and KSh. Data in financial institutions was used to provide financial ratios that describe respective financial risks. Data on Nairobi securities exchange was used to calculate the stock returns for the listed banks. The study incorporated method of data collection based on quantitative and qualitative data collection approaches. Econometric techniques were used to describe the influence of financial risk on stock returns of commercial banks listed in Kenya. The data was first subjected to diagnostic test of normality using Jacques Bera test, Breusch-Godfrey test was used to test autocorrelation where acceptance of the null hypothesis for zero autocorrelation was deemed appropriate, stationary test done using Augmented Dickey Fuller test. R statistical software was applied for generalized least square regression analysis. T-test was used to administer for significance of financial risk on stock returns of commercial banks listed in Kenya. The model is as described below

Multiple Linear Regression Model

Model on bank size moderating effect on influence of financial risk on stock returns

$$R_{it} = \alpha_0 - \beta_1 FR_{it} + \beta_2 ZS_{it} + \beta_3 FR_{it} * ZS_{it} + \epsilon_{it}$$

Full Model Specification

$$R_{it} = \alpha_0 - \beta_1 NPG_{it} - \beta_2 FX_{it} - \beta_3 LDR_{it} - \beta_4 CWA_{it} + \beta_5 ZS_{it} + \epsilon_{it}$$

Where:

- R_{it} = Stock Returns
- NPG = Ratio of Non-Performing Loans to Gross Loans measuring credit risk
- FX = Rate of change of Exchange rate between Ksh and USD measuring market risk
- LDR = Ratio of Loans to Deposit measuring liquidity risk
- CWA = Ratio of Core Capital to Weighted Average Asset measuring capital risk
- FR = Composite Financial Risk (Average ratio of NPG, FX, LDR, and CWA)
- ZS = Bank Size denoted as log of asset base
- FR*ZS = Interaction term between bank size and financial risk denoting moderating effect of the moderator variable
- ε = Error term and
- α = constant
- β = coefficient of independent variables

IV. DATA ANALYSIS AND DISCUSSIONS

4.1 Descriptive Results

Table 4.1 provides the summary of descriptive statistics of the sample showing mean, standard deviation, skewness, kurtosis, minimum and the maximum of the study variables. The results show that a 10 years investment in the banking stocks obtained an average stock return of 6.34% with a deviation of 3.52%. The banking industry average credit risk measured by ratio of non-performing loans to gross loans (npg) averaged 6.4% slightly below the industry bench mark of 7% with a deviation of 3%.

Market risk (fx) increase during the ten year period as evidenced by 3.02% devaluation of ksh against the USD. Market risk returned the highest deviation of 9.26% compared to other variables. On liquidity risk, bank held their ratio of loans to deposit by average 74.03% with a deviation of 4.4%. The liquidity risk ratio (ldr) was higher than the industry practice of 60% implying listed banks were trading dangerous on liquidity. Capital risk measured by the ratio of core capital to risk weighted assets (cwa) was held at an average 14.81% which is remarkably higher than 8% regulatory bench mark. The deviation of capital ratio for the period was 0.96% indicating solid capital base by the listed banks. Bank size average 14.3 billion measured in log of asset size (ZS) with a deviation of 0.5359 billion.

Table 4.1 Descriptive Statistics

Statistic	Rt	npg	fx	ldr	cwa	zs
Mean	0.0634	0.0640	0.0302	0.74025	0.1481	14.3824
Median	0.1572	0.0600	0.0253	0.74395	0.1494	14.4512
Max.	0.4929	0.1410	0.2074	0.833	0.1615	15.1060
Min.	-0.5957	0.0367	0.0933	0.6872	0.1307	13.4810
Std. Dev.	0.3520	0.0307	0.0925	0.0439	0.0096	0.5359
Skewness	0.61467	1.6298	0.4205	0.7158	0.3780	-0.2838
Kurtosis	2.2231	5.0699	2.4660	2.9996	2.1128	1.9374
JB.	0.8812	6.2125	0.4136	0.8540	0.5661	0.6047
Prob.	0.6436	0.0445	0.8132	0.6525	0.7535	0.7391
Observ.	10	10	10	10	10	10

4.2 Diagnostic Test

Normality Test was conducted using Jarque Bera test. The test obtained a p-value of above 5% level of significance for all variables apart from credit risk variable (npg). The exception of non-normality was solved by the generalized least square model. The results of the test are shown in table 4.1. To test for stationarity, the study used Augmented Dickey Fuller test. Results in table 4.2 show the ratio of non-performing loans, ratio of loan to deposits and ratio of core capital to risk weighted assets were stationary at order 1, 0, 0 respectively. Stock returns and rate of change of exchange rate were found non stationary at order 0 and 1 with a p-value of 0.008 and 0.0079 respectively. Stationarity was determined at a point where ADF t-statistic is lower than the critical value at 5% significance level implying unit root does not. We therefore reject null hypothesis and conclude stationarity exist.

Table 4.2 ADF Test

Variable	Test at Levels	ADF Test			
		order	T-Statistic	Critical Value at 5%	P-Value
Returns	z.lag.1 & Intercept	0	-3.5048	-1.95	0.008022
Non-Performing Loans	z.lag.1 & Intercept	1	0.0636	-1.95	0.6788

Rate of change of foreign exchange	z.lag.1 & Intercept	2	-2.1812	-1.95	0.007938
Ratio of loan to deposit	z.lag.1 & Intercept	0	0.4994	-1.95	0.631
Ratio of core capital to risk weighted assets	z.lag.1 & Intercept	0	-0.1839	-1.95	0.8587

Autocorrelation test for time series data was done using Breusch Godfrey test. This test was ideal since it accommodate for higher lag orders of residuals unlike Durbin Watson which is based on lag 1 order of residuals. A table 4.3 shows result of the test with a p-value of 0.1447 which was higher than 5% level of significance. This results imply that we accept the null hypothesis that autocorrelation does not exist.

Table 4.3 Breusch-Godfrey Test

Statistic	2.1269
P-value	0.1447

Pearson correlation test was done to confirm the degree of multi-collinearity amongst the variables. Table 4.4 revealed stock returns are positively correlated to credit risk and capital risk and negatively correlated to market risk, liquidity risk and bank size. The test held correlations coefficients of 0.099, -0.498, -0.224, 0.081 and -0.09 for credit risk, market risk, liquidity risk, capital risk and bank size respectively. The highest positive correlation is 0.099 while the highest negative correlation was -0.498 implying absence of multi-collinearity among selected variables.

Table 4.4. Correlations Matrix

Correlations Parameter	Rt	npg	fx	ldr	cwa	zs
Rt	1					
npg	.099	1				
fx	-.498	-.353	1			
ldr	-.224	.050	.171	1		
cwa	.081	-.365	.024	-.021	1	
zs	-.090	-.717*	.423	.535	.233	1
Observations	10	10	10	10	10	10

Lastly, we examined the errors terms for constant variance using Breusch-Pagan test at 5% level of significance. Test results as shown in table 4.5 below indicate that there was no enough evidence to reject the null hypothesis for presence of constant variance. This therefore means that there was uniform variance in the error terms which is appropriate for the model.

Table 4.5 Breusch-Pagan Test

Statistic	4.3615
P-value	0.4986

4.3 Regression analysis and hypothesis testing

4.3.1 Influence of credit risk on stock returns

To examine the influence of credit risk and stock returns, the study regressed the ratio of non-performing loans to gross loans (npg) as independent variable against stock returns (R_{it}). Table 4.6 shows GLS regression results. Based on correlation structure of ARMA (2, 1) the influence of credit risk on stock returns was found to be positively significance with a p-value of 0.0268 lower than $\alpha = 0.05$. The significant relationship of credit risk on stock returns conforms to risk-return relationship under stable economic environment, according to Modern Portfolio Theory. This finding corresponds to the study of Kang & Kang (2009). The null hypothesis is therefore rejected that credit risk does not influence the stock returns of commercial banks listed in Nairobi Securities Exchange.

Table 4.6: Regressing NPG on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
npg	1.003965	0.3800543	2.641634	0.0268

Significance of influence of credit risk on stock returns conforms to the study of (Naser et al., 2011; Mehri, 2015; Kang & Kang, 2009). Positive association was related the study of Alshatti (2015) who found credit risk positively related to stock returns. This is contrary to the study of Naser et al. (2011) which established credit risk is negatively related to stock returns. The final model of study can be concluded shown as below.

$$R_{it} = -1 + 1.003965 \text{ NPG}$$

4.3.2 Influence of market risk on stock returns

To establish the influence of market risk on stock returns, the study regressed the rate of change of exchanges rate on KES against US (fx) as independent variable against stock returns (R_{it}). Table 4.7 shows the Generalized Least Square regression results. Based on correlation structure of ARMA (2, 2), the influence of market risk on stock returns was found to be positively significant with a p-value of 0.0414 which is lower that 5% level of significant net of constant. This finding is in accordance to the theory of Modern Portfolio Theory. The null hypothesis is therefore rejected that market risk does not influence the stock returns of commercial banks listed in Nairobi Securities Exchange.

Table 4.7: Regressing FX on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
fx	1.326789	0.5579081	2.37815	0.0414

Significance of influence of market risk on stock returns conformed to the study of Hyde (2007), Sukcharoensin (2013) and Mouna and Anis (2015), Syed & Anwar (2012). Positive association was related the studies of Mouna and Anis (2015) which found exchange rate positively or negatively related to stock returns depending with the period and hedging capacity of the bank. This is contrary to the studies Ryan and Andrew (2004) that held foreign exchange insignificant to stock returns. The study model is concluded below as:

$$R_{it} = -1 + 1.326789 FX$$

4.3.3 Influence of liquidity risk on stock returns

In order to determine the influence of liquidity risk on stock returns, the study regressed bank loans to deposit ratio as independent variable against stock returns (R_{it}). Table 4.8 shows generalized least square regression. Based on correlation structure of ARMA (2, 1), the influence of liquidity risk on stock returns was found to be positive conforming to liquidity preference theory that foregoing, liquidity must be compensated with a premium under stable economic conditions otherwise the relationship is negative. Table 4.3.3 shows t-test result with a p-value of 0.0095 which is lower than 5% level of significance net of constant. The findings implied that there existed a significant relationship between liquidity risk and stock returns. The null hypothesis is therefore rejected that liquidity risk does not influence the stock returns of commercial banks listed in Nairobi Securities Exchange.

Table 4.8: Regressing LDR on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
ldr	0.0835274 5	0.0254262 8	3.28508 3	0.009 5

The significant influence of liquidity risk on stock returns conformed to the study of Aga et al. (2013), Dick-Nielsen, et al. (2013), and Cheng and Nasir (2010). Positive association was related to the study of Janssen (2012) which found liquidity risk was positively related to stock returns. Akram (2014) established liquidity risk to have a negative influence on stock returns. Contrary, Mehri (2015), Purnamasari et al. (2012) and Haque and Wani (2015) established liquidity risk was not significant to stock returns. The final model of study can therefore be concluded as:

$$R_{it} = -1 + 0.08352745 LDR$$

4.3.4 Influence of capital risk on stock returns

To assess the influence of capital risk on stock returns, the study regressed the ratio of core capital to risk weighted asset (CWA) as independent variable against stock returns (R_{it}). Table 4.9 show the regression results from generalized least square method. Based on correlation structure of ARMA (2, 1), the influence of capital risk on stock returns was found to be positively significant which conform to expectation of Trade off theory and on capital

relevance where the value of levered firm is higher than the value of unlevered firm. Table 4.3.4 showed t-test result with a p-value of 0.0108 net of the constant. The regression results confirmed that there exists a significant influence of capital risk on stock returns. The null hypothesis is therefore rejected that capital risk does not influence the stock returns of commercial banks listed in Nairobi Securities Exchange.

Table 4.9: Regressing CWA on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
cwa	0.08352745	0.1262293	3.285083	0.0108

The significance of influence of capital risk on stock returns was related to the study of Purnamasari et al. (2012), Mehri (2015), Acharya et al. (2010), Wakid et al. (2013). Positive association was found related to the studies of Acharya et al. (2010) and Wakid et al. (2013). However, the findings were contrary to the study of Mehri (2015) that established that capital risk/solvency risk bears a negative correlation to stock returns. Annas and Mohamoud (2013) established that the relationship between financial leverage and stock returns held a negligible effect. The final model of study can be concluded as:

$$R_{it} = -1 + 0.08352745 CWA$$

4.3.5 Moderating effect of bank size on the influence of financial risk on stock returns

In order to determine the moderating effect of bank size on the influence of financial risk on stock returns, the study regressed a composite factor of financial risk (FR), bank size (ZS), and moderating factor (FR*ZS) against stock returns (R_{it}). Table 4.10 show the regression results from generalized least square method. Using a correlation structure of ARMA (3, 3), the moderating effect of bank size on the influence of financial risk on stock returns was found negatively significant with a p-value of 0.0254 which is lower than 5% level of significance net of the constant. The results indicated that large banks are likely to be affected more during depressions period. The regression results concluded that there exists moderating effect of bank size on the influence of financial risk on stock returns. The null hypothesis is therefore rejected that bank size does not have a moderating effect on the influence of financial risk on stock returns of commercial banks listed in Nairobi Securities Exchange.

Table 4.10: Regressing FR, ZS, FR*ZS on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
fr	16.3443	6.3026	2.5932	0.0358
zs	46.6624	17.5679	2.6561	0.0327

fr*zs	-423.3927	149.5732	2.8306	0.0254
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The significant negative moderating effect of bank size on the influence of financial risk on stock returns builds up on empirical evidence that risk in small firms is easily managed compared to risk in large firms especially during periods of depressions. These findings are therefore related with study of Shariat and Khosvari (2008). However, the study findings contradict with the studies of Aga et al. (2013) and Laeven et al. (2014).

4.3.6 Influence of financial risk on stock returns

To determine the influence of financial risk on stock returns, the study through GLS model regressed predictor variables: credit risk (npg), market risk (fx), liquidity risk (ldr), capital risk (cwa) and bank size (ZS) on stock returns (R_{it}). Full model regresses all predictor variables including bank size as the control variable as presented in table 4.11. The results indicated negative coefficients compared to the regression model based on individual variables (risks) which exhibited a positive coefficient on stock returns as outlined by tables 4.6, 4.7, 4.8 and 4.9.

All coefficients of financial risk in the full model regressed collectively carried a negative sign indicating that when risk is combined, it bears a systemic effect to the point where any increase in risk results into a decrease in stock returns. The model coefficient signifies the rate of change of the dependent variable for every 1 unit change on the explanatory variable ceteris paribus. Stock returns (R_{it}) decreases by -5.14 (-) for every increase in 1 unit of credit risk in the full model. Comparable illustrations can be deduced with other coefficient values except for the control variable of bank size which bears a positive coefficient of 0.6 indicating that large banks are likely to be less affected by risk hence high returns.

Regression Model: Full Model

Table 4.11: Regressing NPG, FX, LDR, CWA, ZS on R_{it}

Predictors	Dependent Variable : Stock Returns			
	Coefficient Value	Standard Error(S.E)	t-value	p-value
npg	-5.1437	1.20808	-4.2578	0.0080
fx	-6.2034	1.134326	-5.4688	0.0028
ldr	-7.8726	2.292468	-3.4341	0.0186
cwa	-22.0239	4.88892	-4.5048	0.0064
zs	0.6690	0.16156	4.1412	0.0090

Based on the GLS regression (full model), the study tested the collective influence of financial risk on stock returns incorporating the control variable of bank size. The model established that influence of credit risk (npg), market risk (fx), liquidity risk (ldr) and capital risk (cwa) on stock returns was negatively significantly with a correlation structure of ARMA (p=2, q=0) with p-values of 0.008, 0.0028, 0.0186 and 0.0064 respectively. The control variable of bank size on stock returns was found positively significant with a p-value 0.009. The results of the p-values on the t- test statistics was lower than $\alpha = 0.05$ and hence the general

conclusion of study that financial risk influences stock returns for commercial banks listed at Nairobi security exchange. This signifies that investors consider financial risk and bank size critical components in their investment decisions.

The results from the collective GLS regression model are negatively significant which is contrary to single variable regression of financial risk on stock returns which indicated a positive correlation with stock returns (Table 4.3.1 to 4.3.4). The findings illustrate that under an environment of combined financial risk, the pro-cyclicality of financial risk and the contagion of systemic effect negates the benefits of incurring incremental risk to boost returns. These findings are in line with theoretical foundations of MPT theory and related to empirical studies according to Sobia et al. (2015), Naser et al. (2011), Mehri (2015) and Haque and Wani (2015). The resultant model can hence be stated as:

$$R_{it} = -1 - 5.144 \text{ NPG} - 6.2035 \text{ FX} - 7.873 \text{ LDR} - 22.0239 \text{ CWA} + 0.6691 \text{ ZS}$$

The model can be interpreted to mean that other factors held constant a marginal increase in credit risk (NPG) would result to a marginal decrease of stock returns (R_{it}) by 5.143781. The same can be said regarding market risk (FX), liquidity risk (LDR) and capital risk (CWA). However a marginal change in one unit of bank size (ZS) would lead to an increase in 0.669069 of stock returns.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

5.1 Summary of Findings

5.1.1 The influence of credit risk on stock returns

Hypothesis testing results indicated that credit risk measured by the ratio of non-performing loans to gross loans negatively and significantly affect stock returns when regressed alongside other financial risks. The results met the expectation of study and conform to the basics of Modern Portfolio Theory and agency theory. The results are similar to Naser et al. (2011). However, the direction of influence was opposite when credit risk was regressed individually on stock returns. This signifies that over a long period, ignoring presence of other financial risk and size of the financial institution under stable conditions; credit risk will boost investment in stocks. This is in line with the study of Alshatti (2015) which found credit risk is positively related to stock returns. Overall indication is that investors consider non-performing loans as a critical aspect in their investment decisions.

5.1.2 The influence of market risk on Stock returns

GLS regression result on the influence market risk on stock returns confirmed a negative significant relationship when regressed alongside other variables of financial risk and bank size. This signifies that bank size and all risk put together bears a cyclical and systemic effect that yields a negative effect of market risk on stock returns. Similarly, under depressed economic conditions, any additional risk is undesirable as it reduces shareholder market value. This result conforms to theoretical framework of risk versus

returns in Modern Portfolio Theory. The findings are also related with the conclusions according to Sobia et al. (2015) and Mouna and Anis (2015).

Individual regression of market risk on stock returns indicated that an increase in market risk will increase stock returns. The results conform to relationship of risk and returns during stable economic period. These results are related to the findings of Naser et al. (2011). Cheng and Nasir (2010) established a contrary view that market risk is not significant on stock returns. Overall conclusion of the study is that market risk influences stock returns at Nairobi Securities Exchange. The significance of either or both direction depending on period is supported by Mouna and Anis (2015), Syed & Anwar (2012) and Cheng and Nasir (2010).

5.1.3 The influence of liquidity risk on stock returns

Hypothesis testing results indicated that liquidity risk measured by loans to deposit ratio negatively and significantly affect stock returns when regressed collectively alongside other financial risks. The results met the expectation and conform to the basics of Modern Portfolio Theory and Liquidity Preference Theory. This result relate to the studies of Akram (2014) which signify that inadequate liquidity measured by increase in loans increase over bank deposits is counter-productive on investment in banking stocks.

However, the direction of influence was opposite when liquidity risk is regressed individually on stock returns. This signifies that ignoring other financial risk and size of the financial institution under stable conditions; constraining liquidity at the expense of bank lending boosts investment in stocks in the banking industry. This is in line with the study of Fontaine et al. (2013), Dick-Nielsen, et al. (2013) and Chikore et al. (2014) which found liquidity risk positively related to stock returns. Mehri (2015) and Purnamasari et al. (2012) found liquidity risk insignificant to stock returns. This study therefore concludes that investors in the stock market consider liquidity risk a critical aspect in their stocks investment decisions (Cheng & Nasir, 2010; Abzari et al., 2013; Aga et al., 2013).

5.1.4 The Influence of capital risk on stock returns

GLS regression result on the influence capital risk on stock returns confirmed a negative significant relationship when regressed collectively with other financial risk. The results signify that holding too much money on capital is detrimental to shareholder market value. These results could signify adverse effects of the increased cost of leverage on stock returns. Study findings conform to Static theory of capital and Capital structure puzzle by Myers (1984). It also conforms to trade off theory of capital structure where the cost of distress is said to supersede tax advantage. The findings are related with the conclusions made in the study of Acharya et al. (2010).

The results based on individual regression of capital risk on stock returns showed that an increase in capital adequacy will increase stock returns. These results related to the findings of Mehri (2015) and Berger and Brouwman (2011) that banks with solid capital are probable to have a diversified and broad risk appetite leading to higher incomes, dividends and consequently high capital gain due to demand on their stocks. Overall, the study concluded that capital risk influences stock returns. The direction of significance on influence of capital risk was established to depend on the period

and this is supported by Wakid et al. (2013), Anas & Mohamoud (2013) and Purnamasari et al. (2012).

5.1.5 The Moderating effect of bank size on the influence of financial risk on stock returns

Hypothesis testing result on the effect bank size on stock returns revealed a positive and significant relationship. This result implies that big banks categorized by the size of assets are able to withstand a higher risk appetite. The results also imply big banks are in a position to diversify risk culminating to discounted risk exposure associated with a risk premium. This finding conforms to the study of Berger and Brouwman (2011), El Mehdi (2014) and Aga, et al. (2013). From the findings investors seem to prefer large banks because they are resilient to systemic and related financial risk. Large banks are found permissible to diversify their portfolio and therefore reduce their overall risk on their investment (Laeven et al., 2014).

The result on moderating effect of bank size on the influence of financial risk on stock returns indicated that bank size as moderator is negatively significant in influencing the effect of financial risk on stock returns. These findings indicate that although bank size is key in enabling a bank to risk appetite and diversify, during depressed economic conditions, large banks are highly suspect to shareholder market value due financial risk as was the case during financial crisis (Shariat & Khosvari, 2008; Laeven et al., 2014).

5.1.6 Influence of financial risk on Stock returns

GLS regression model based on 10 years secondary data from 2006 to 2015 was done between financial risk and stock returns. Individual variable regression indicated that for the past 10 years an increase in stand alone risk leads to an increase in stock returns. This is likely to indicate a growth period during the 10 years which is occestrated by a resilient banking industry favourable economic enviroment. Multiple regression of financial risk on GLS regression model indicated that financial risk bears a negative significant effect on stock returns. This is due to joint effect of financial risks on stock returns. Joint effect of financial risk is pro-cyclical and systemic.

Credit risk is triggered by increase in market risk; caused by increasing non-performing loans and high provisions. High credit risk constrain funding liquidity which consequently affects capital adequacy of banks. Large banks were found resilient on financial risk compared to small banks.

Overall conclusion of the regression model confirmed that financial risk influence stock returns of commercial banks listed at Nairobi Securitties Exchange where individual risk are positively significant to stock returns while the combined effect of multiple financial risk is negatively significant. This conclusion is in line with theoretical foundations of MPT theory and related to empirical studies supporting this study of Sobia et al. (2015), Naser et al. (2011), Mehri (2015) and Haque and Wani (2015).

5.2 Conclusion

The study make conclusions based on the findings with regards to objectives of study to establish the influence of financial risk on stock returns of commercial banks listed in Kenya.

The study concludes on the first objective on influence of credit risk on stock returns that the portfolio at risk increased with increased in stock returns. However, when looked at alongside other financial risk the relationship is negative. This is evidence that bank top leadership need to establish the optimal level of credit risk to ensure maximum shareholder return.

The influence of market risk on stock returns was concluded to have a positive relationship with stock returns when evaluated in isolation. That increase in foreign exchange exposure in the balance sheet of commercial banks and consequent depreciation of the Ksh vs Usd, triggers positive returns for investors in the banking industry. Foreign exchange exposure combined with other financial risk yield a negative relationship with stock returns. The study indicate that when faced with multiple financial risk, banks need to hedge some of the risk to minimize on adverse impact on the shareholder market value.

Liquidity risk and Capital risk individually influence stock return positively. This is an indication that investors prefer banks to hold minimum liquidity and capital and invest the surplus funds. However, in presence of other risk, adequate liquidity and capital is vital. Bank size plays a crucial role for investors. The study concludes that big banks are well prepared to handle risk .

The study summarised with a conclusion that financial risks are systemic and pro-cyclical and therefore banks should establish optimal thresholds and risk appetites to safeguard shareholder market value. When risk is too much bank are advised to consider appropriate hedging strategies.

5.3 Recommendations

The subject of financial risk and stock returns is critical to management of commercial banks and policy framework governing financial institutions in kenya. On the significance of influence of credit risk on stock returns, the study recommends bank top magament to profile the risk of borrowers and define the risk appetite for lending. Adequate provisons should be set aside to write-off bad loans without affectng the going concern of the bank. Policy makers and supervisory arms on the other hand should provide an oversight role to ensure banks are complying with general and specific provions.

On market risk, banks should hold balanced and adequate amount of loans and deposits denominated in foreign currency held in their book. Central bank of kenya monetary policy should reguate the Ksh vs USD rate of exchange bearing in mind the exposures in the banking sector. They should always seek to control the volatiltiy of the exchange rate.

Bank managers should provde for adequate liquidity for banks to meet short term liquidity requirements. The ratio of loans to deposit should be optimal enough to allow lending and enable banks meet customers daily requirements. Central banks should ensure the proportion of banks assets held in government securities are adequate for to meet bank's emrgency cash requirement. Manager should also undertake to ensure banks are holding adequate capital by building reserve and ploughing bank profits to build sufficient risk capital to suport day to day bank operations, providing for unepected loses and contingencies.

Central bank supervisory arm may use the findings of study to establish a graduating scale of capital threshold.

5.4 Areas for further research

In the global financial enviroment, the impact of financial risk on stock returns will keep on changing. Further reserch on influence of financial risk measured as a funtion of derivative products such as credit spreads on stock returns could be explored. Similarly, a comparative study of financial risk on stock returns with other emerging market should be explored.

As far as the knowledge of the resercher, this is a pioneer study in Kenya as previous studies have only focused on the effect of financial risk on financial performance and effect of macro-economic on stock returns. These study focused on macro-economic factor and internal institution factors thus taking a holistic approach of financial risk affecting commercial banks in Kenya.

REFERENCES

- [1] Abu, H.N., Sajeda, P., Mustafa, M.C. & Hasanul, M.C. (2015). The Effect of Credit Risk on Banking Profitability: A Case on Bangladesh. *Global Journal of Management and Business Research*.Vol 15 Issue 3.
- [2] Abzari, M., Fathi, S., & Kabiripour, V. (2013). The Effect of Illiquidity on Capital Gain: Evidence from Iran. *International Journal of Academic Research in Economics and Management Science*, Vol. 2, No. 1.
- [3] Acharya, V.V., Hamid, M. & Anjan, V. T. (2010). Caught Between Scylla and Charybdis? *Regulating Bank Leverage when there is Rent Seeking and Risk Shifting*. Working Paper
- [4] Aga, B.S., Mogadam, V.F., & Samadiyan, B. (2013).Relationship between Liquidity and Stock Returns in Companies in Tehran Stock Exchange.*Applied Mathematics and Engineering, Management and Technology* 1(4), 2013: 278-285.
- [5] Aghababaei, H.R., Ataei, S., &Azizkhani, H. (2013). Effects of Credit Risk Indicators on Shareholders' Market Value of Commercial Banks in IRAN.*International Research Journal of Applied and Basic Sciences*, Vol. 6, pp. 1143-1149
- [6] Akram, N. (2014). The Effects of Liquidity on Stock Returns: Evidence from Pakistan. *IOSR Journal of Business and Management*, Vol 16 Issue 2.
- [7] Annas, A., & Mahmoud, L. (2013).The Effect of Financial Leverage & Systematic Risk on Stock Returns in the Amman Stock Exchange.*Research Journal of Finance and Accounting* Vol. 4, No. 6.
- [8] Berger, A. N., & Brouwman C. H. (2011).*How Does Capital Affect Bank Performance During Financial Crisis?*University of South Carolina, Wharton Financial Institutions Centre and Case Western Reserve University and Wharton Financial Institutions Center.
- [9] Bhati, V., & Sultan, J. (2012). Leverage Risk, Financial Crisis and Stock Returns: A Comparison among Islamic, Conventional and Social Responsible Stocks. *Islamic Economic Studies*, Vol. 20, No. 1
- [10] Cheng, F.F., & A. Nasir, (2010).Earning Response Coefficient and the Financial Risk of China Commercial Banks.*International Review of Business Research Papers*, Vol. 6.No. 3.Pp 178-188

- [11] Chikore, R., Gachira, W., Nkomo, D., Chivanza, W. (2014). Stock Liquidity and Returns: Evidence from the Zimbabwe Stock Exchange. *Journal of Contemporary Research in Business*, vol 6, No 3.
- [12] Demircug-Kunt, A., Detragiache, E. & Merrouche, O. (2010). Bank Capital: Lessons from the Financial Crisis. *Journal of Economic Literature*, G21, G28.
- [13] Dick-Nielsen, J., Gyntelberg, J., & Lund, J. (2013). From Funding Liquidity to Market Liquidity: Evidence from Danish Bond Markets. *Journal of Economic Literature*, E43, G12, G21
- [14] El Mehdi, F. (2014). Bank Liquidity and Financial Performance: Evidence from Moroccan Banking Industry. *JEL Business Theory and Practice*, vol 15, pp 351-361
- [15] Fontaine, J., Garcia, R., & Gungor, S. (2013). Funding Liquidity Risk and Cross Section of Returns. *Journal of Economic Literature*, E43, H12.
- [16] Forbes, A. (2016). *Quarterly survey: Poor Earnings on pension fund*. www.alexanderforbes.co.za
- [17] Greuning, H.V., & Bratanovic, S.B. (2009). Analyzing Banking Risk: A Framework of Assessing Corporate Governance and Risk Management, 3rd Edition. World Bank, Washington, D.C.
- [18] Haque, S.M., & Wani, A.A. (2015). Relevance of Financial Risk with Financial Performance: An Insight of Indian Banking Sector. *Pacific Business Review International*, vol 8, issue 5
- [19] Hyde, S. (2007). The Response of Industry Stock Returns to Market, Exchange Rate and Interest rate Risks. *Managerial Finance*, pp 693-709.
- [20] Janssen, L. (2012). *The Effect of Credit Risk on Stock Returns*. Tilburg University, Netherlands.
- [21] Jorion, P. (2007). *Financial Risk Manager: 4th Edition*. Published by John Wiley & Sons, Inc. New Jersey.
- [22] Kang, C., & Kang, H.G. (2009). The Effect of Credit Risk on Stock Returns. *Journal of Economic Research*, Vol. 14, 49-67
- [23] Kibet, B., Neddy, S., Koskei, I., & Kibet, J. (2013). The Effect of Capital Structure on Share Price of Listed Firms in Kenya. A Case of Energy Listed firms. *European Journal of Business and Management*, Vol. 5, No 9.
- [24] Kithinji, A. (2010). Credit Risk Management and Profitability of Commercial Banks in Kenya. University of Nairobi, Nairobi.
- [25] Kolapo, T.F., Ayeni, R.K., & Oke, M.O. (2012). Credit Risk and Commercial Banks Performance in Nigeria: A Panel Model Approach. *Australian Journal of Business*
- [26] Laeven, L., Ratnovski, L., and Tong, H. (2014). Bank Size and Systemic Risk. IMF Staff Discussion Note 14/04.
- [27] Lakorito, S.N., Muturi, W., Ny'ang'au, A.S., & Nyamasege, D. (2014). Assessing the Effect of Liquidity on Profitability of Commercial Banks in Kenya. *Journal of Finance and Accounting*, Vol 5, No. 19.
- [28] Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Assets in Stock Portfolios and Capital Budgets. *The Review of Economic and Statistics*, vol. 47, no1, pp. 13-37
- [29] Machuke, G., Mwitwa, P.N., & Kihoro, J.M. (2014). Measuring Financial Risk in Stock Returns: A Case of Nairobi Securities Exchange. *International Journal of Science and Research*, Vol 3. Issue 4.
- [30] Mathuva, D. M. (2009). Capital Adequacy Ratio, Cost Income Ratio and Performance of Commercial Banks: The Kenyan Scenario. *The international Journal of Applied Economics and Finance* 3(2):35-47
- [31] Markowitz, H. (1952). Portfolio Selection, Efficient Diversification of Investments. *Journal of Finance*, vol 12, pp 77-91.
- [32] Mehri, A.B. (2015). The Effects of Financial Risks on the Relationship between Earnings and Stock Returns. *International Journal of Organizational Leadership*, Vol 4, pp 154-169
- [33] Mouna, A., & Anis, J. (2015). Market, Interest Rate, and Exchange Rate Risk Effects on Financial Stock Returns During the Financial Crisis: AGARCH-M Approach. *Cogent Economic & Finance*, 2016/4
- [34] Naser, S., Mohammad, E., Mohammad, R.H., & Akbar, A.T. (2011). Designing and Identifying the model to Investigate the Effect of Credit and Exchange Risk on Stock Returns of Banks (GARCH Approach). *Australian Journal of Basic and Applied Sciences*, 5(11):1519-1532
- [35] NSE, (2015). *Nairobi Securities Exchange*. www.nse.co.ke
- [36] Ogilo, F. (2008). The Bull and bear Market at the Nairobi Securities Exchange. *Aim Journal of Business*.
- [37] Predescu, O. M., & Stancu, S. (2011). Portfolio Risk Analysis using ARCH and GARCH Models in the Context of the Global Financial Crisis. *Theoretical and Applied Economics*, Vol XVIII, No. 2(2555), pp. 75-88.
- [38] Purnamasari, K., Herdjiono, I., & S et iawan, E. (2012). Financial Risk, Growth, Earnings and Stock returns Relationship: The Case of Indonesia. *International Review of Business Research Papers*, Vol.8, No 7, pp 79-93.
- [39] Ross, S. A. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory*, 13, 341-360
- [40] Ryan, S., & Andrew, C.W. (2004). Market, Interest rate and Foreign Exchange Risk in Australian Banking: GARCH-M Approach. *International Journal of Applied Business and Economic Research* 2(2) pp. 81-103
- [41] Saleh, A. (2014). Bank Liquidity Risk and Performance: An Empirical Study of the Banking System in Jordan. *Journal of Finance and Accounting*, vol 5, no.12
- [42] Shariat, P., & Khosravi, F. (2008). Relationship Between Shares Returns with Firm Size, the Ratio of Market Value to Book Value Benefit Ratio Stock Prices in Tehran Stock Exchange. *Journal of Accounting Research*, No. 20.
- [43] Sharpe, F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. *Journal of Finance*, Vol. 19, No. 3, pp 425-442.
- [44] Sobia, Q., Arshad, H., & Szabo, Z. (2015). Financial Risk & Share behavior. *International Journal of Scientific & technology Research* Vol 4, Issue 4, April 2015.
- [45] Steiger, F. (2010). The Impact of Credit Risk and Implied Volatility of Stock Returns. Working Paper, Harvard.Edu.
- [46] Sukcharoensin, P. (2013). Time-Varying Market, Interest Rate and Exchange Rate Risk of Thai Commercial Banks. *Asian Academy of Management Journal of Accounting and Finance*, Vol. 9, pp 25-45.
- [47] Syed, T.J. & Anwar, U. (2012). Effects of Interest Rates, Exchange Rate and their Volatilities on Stock Prices: Evidence from Banking Industry of Pakistan. *Theoretical and Applied Economics*, Vol.19, pp. 153-166
- [48] Wakid, K., Arab, N., Madiha, K., Waseem, K., Qaiser, K., & Shabeer, A. (2013). The Impact of Capital Structure and Financial Performance on Stock Returns, "A Case of Pakistan Textile Industry". *Middle-East Journal of Scientific Research* 16(2): 289-295

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