

**THE EFFECT OF FINANCIAL PERFORMANCE ON SYSTEMATIC RISK OF
STOCKS LISTED AT THE NAIROBI SECURITIES EXCHANGE**

JOANNE SYOKAU MULLI

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
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DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

Name: Joanne Syokau Mulli

D61/80121/2012

Signed..... Date.....

This research project report has been submitted for examination with my approval as university supervisor.

Dr. Fredrick Ogilo

Lecturer, Department of Finance and Accounting

School of Business, University of Nairobi

Signed..... Date.....

DEDICATION

To my parents Mr and Mrs John Mulli and brother Pius Mulli for the special part they occupy in my life and for the support they accorded me during the entire period of study.

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ABSTRACT

This study sought to establish the effects of firms' financial performance on systematic risk. Specifically the study sought to establish the effect of operational efficiency, liquidity, leverage and profitability on systematic risk of firms listed at the Nairobi Securities Exchange. The study used a descriptive research design. The target population was 62 companies listed at the Nairobi Securities Exchange by the end of 2013. Judgmental sampling was used to select the sample of study by which a sample of 20 companies that were continuously traded between 2009 and 2013 excluding the financial institutions was selected. Secondary data obtained from the Nairobi Securities Exchange handbook and authorized data vendors was used. The data was analyzed using regression analysis with beta coefficient as the dependent variables and total assets turnover, current ratio, debt to assets ratio and net profit margin as the independent variables. The regression model was evaluated using the coefficient of determination R^2 while the overall significance of the regression results was tested using F statistic at a 5% level of significance. The significance of the independent variables was tested using t-test at 5% significance level. The study found that the following measures of financial performance; total assets turnover, current ratio and net profit margin had a positive but statistically insignificant effect on systematic risk. Leverage was found to have a positive and statistically significant effect on systematic risk. The regression model had a coefficient of determination R^2 of 7.5%. The F-test for the significance of the overall regression indicated that the regression was not significant at 5% level of significance. The study concluded that financial performance measure; total assets turnover, current ratio and net profit margin had a positive but statistically insignificant effect on beta while debt to assets ratio had a positive and statistically significant effect on beta coefficient. The study recommends that since debt ratio had a positive and significant effect on beta coefficient managers should be aware of the increasing effect of systematic risk on the cost of capital due to leverage. It also recommends that since assets turnover, liquidity and net profit margin did not have a significant effect on beta managers should not focus on managing operational efficiency, liquidity and profitability as measures of altering the companies systematic risk exposure.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

The financial position of the corporate sector may influence the performance of the real economy and the stability of the financial system through its contribution to aggregate demand and its links to the banking system and capital markets. Thus, for instance, excessive indebtedness may restrict the ability of companies to access additional external funds. The underlying goal of most firms is to achieve maximization of shareholders wealth. If corporate financial managers indeed seek to pursue this goal, they need to know something about the significant affects of decisions pertaining to financial policies on the systematic risk. An appreciation in the company's stock price is considered to be a common measure of wealth creation. (Ali, 2000) asserts that preparing financial statements mainly aims at providing users with the required information in order to help them make economic decisions. Current and potential investors are regarded as information users which are composed of diverse aspects. Investors seek to predict the future stock yields and this can be done through investigating the future stock prices. Hence, predicting future stock price is an essential aspect considered by potential investors.

According to Capital asset pricing model theory (Sharpe, 1964) Beta (β) is the only variable capable of predicting returns. The recent studies demonstrate that there exist other variables which outperform stock return predictability potential of the Beta. Included among such variables are debt-to-equity, dividend yield, earnings-to-price, and

asset turnover ratios. (Knight, 1921) who states that risk relates to subjective probabilities and probabilistic model can be given. Attempts to quantify risk has led to the notion of a risk measure. A risk measure is a function that assigns a numerical value to a random variable which is interpreted as a loss.

The Nairobi Securities Exchange is an important avenue for attracting foreign investments and to encourage local residents to invest in shares, Kenyan companies may engage in voluntary disclosures as a means to enhance the value of their stocks hence investor confidence (Barako,2007).Ensuring investor confidence enhances investors' participation in the market activities and encourages saving and channeling of savings into productive real investment therefore fostering capital accumulation and efficiency in investment and real sector development. It is however debatable whether protection of investors promotes market efficiency. To enhance the customers' confidence, a market in which the public interest and the interest of investors rather than immediate profits is the primary aim of those concerned. (Shiller, 2000)

1.1.1 Financial Performance

The financial performance of companies is a subject that has attracted a lot of attention, comments and interests from both financial experts, researchers, the general public and the management of corporate entities. Selecting out the most successful firms has always proved to be a difficult task to many as a firm may have a high level of profitability, but at the same time be in a very bad situation regarding its liquidity.

The Financial performance of a firm can be analyzed in terms of profitability, dividend growth, sales turnover, asset base, capital employed among others. However, there is still debate among several disciplines regarding how the performance of firms should be measured and the factors that affect financial performance of companies (Liargovas & Skandalis, 2008). A single factor cannot reflect every aspect of a company performance and therefore the use of several factors allows a better evaluation of the financial profile of firms. According to Iswatia, & Anshoria (2007) performance is the function of the ability of an organization to gain and manage the resources in several different ways to develop competitive advantage. Financial performance emphasizes on variables related directly to financial report.

1.1.2 Systematic Risk

Systematic risk is denoted as beta (β), it means that change in stock due to change in market or more comprehensively it is covariance of stock returns of capital market (Gu and Kim, 2002). Systematic risk cannot be eliminated from any security by applying diversification technique while unsystematic risk can be removed or lower down with the help of diversification

The evolution of systematic risk as a reliable risk measure and the measurement of systematic risk is related to the work on basic portfolio model theory and the capital asset pricing model theory by Sharpe (1964) and others which, basically, is an extension of the work done by Markowitz (1952). The market model defined the riskiness of a given portfolio, in terms of the average β 's of the stocks comprising the portfolio rather than the

portfolio's variance. The model further illustrated that the riskiness of portfolio as measured by average β 's of stocks comprising the portfolio, is dependent upon the individual β of the stock rather than its individual variance. In addition to that, common stock risk was also classified into two components: the systematic risk and the unsystematic risk.

The risk measure for a given portfolio of assets was first developed by Markowitz (1952, 1959). In his portfolio model, the variance of the portfolio's rate of return was demonstrated to be a significant determinant of the portfolio's risk under a logical set of assumptions. The model further illustrated that, as N increased in a given portfolio, the riskiness of the portfolio as measured by its variance, became dependent on the average covariance of a stock with the other stocks in the portfolio rather than the individual variance of the given stock. That is to say, if a common stock bears a high variance but exhibits a low covariance with other stocks in the portfolio, then the given stock would not be a risky stock to have because the addition of this stock into portfolio will reduce the portfolio's variance (riskiness of portfolio). Thus, for understanding risk, the concept of covariance holds utter importance. Covariance measures the extent to which rates of return of two stocks move together relative to their individual mean values over time. Two stocks are said to have a positive covariance if realized returns for both the stocks are either greater or lower than their mean returns during a specified time period. Whereas, on the other hand, covariance between two stocks tends to be negative if one stock has realized returns greater than its mean return but the other stock has realized returns less than its mean return for a given time interval.

1.1.3 Financial Performance and Systematic Risk of Stocks

Financial performance is company's ability to generate new resources, from day - to- day operations, over a given period of time; performance is gauged by net income and cash from operations. Financial institutions are exposed to a variety of risks among them; interest rate risk, foreign exchange risk, political risk, market risk, liquidity risk, operational risk and credit risk. . Systematic risk (Beta) reflects the market's evaluation of any firm's financial, production and marketing policies (Logue and Merville, 1972). In CAPM, systematic risk is a relevant factor instead of unsystematic risk to determine the required return of an investor (Gu and Kim, 2002).

The theoretical framework for beta (β) as a measure of common stock risk is laid down by the capital asset pricing model (CAPM) of Sharpe (1964). The capital asset pricing model (CAPM) is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that assets non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systematic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset.

1.1.4 Nairobi Securities Exchange

In 1954 the Nairobi securities exchange was constituted as a voluntary association of stockbrokers registered under the Societies Act. The NSE is a stock market that has been characterized by humble beginnings and it has grown considerably over time. The NSE

successfully instituted the central securities depositories (CSD) in November 2004 and installed an automated trading system (ATS) in November 2007. The exchange is also undergoing restructuring of its governance system through demutualization, which was completed by the end of the second quarter of 2012. Characterized by its liquidity, market capitalization and turnover, the NSE may be classified as both emerging market and frontier market. NSE is therefore a model market in view of its high returns, vibrancy and well developed market structure. It therefore, raises interest and sets a precedent for comparison with other emerging markets in Eastern Africa and the world at large (Nyambura, 2005).

There are 62 listed companies which are grouped into Agriculture, Commercial, Manufacturing, Construction and Energy sector (NSE, 2013). The NSE is open for trading from Monday to Friday, and closed during weekends and during public holidays (Mokua, 2003). Given the important role that a capital market plays in the economy, it is crucial to understand the drivers of stock returns in a particular market. It is of great significance to identify the variables affecting risk in emerging markets such as the Nairobi Securities Exchange. Based on this background, this study makes an attempt to examine the effect of financial variables on risk of common stocks listed on the NSE.

Given the important role that a capital market plays in the economy, it is crucial to understand the drivers of stock returns in a particular market. It is of great significance to identify the variables affecting risk of common stock in emerging markets such as the Nairobi Securities Exchange. Based on this background, this study attempts to examine

the effect of financial variables on risk of common stocks listed at the Nairobi Securities Exchange.

1.2 Research Problem

The decisions regarding financial policies significantly affect the systematic risk which in turn influences the stock price, hence, resulting in wealth creation or depletion. It is therefore important to study the concepts because it will help investors' make better investment decisions. Investment in securities of companies listed at the Nairobi Securities Exchange by the local investors has steadily gained momentum over the last few years. The quality of financial information is a controversial issue that has been widely discussed in the accounting and financial literature. Quality of financial information can be measured either by the level of disclosure (Botason, 1997) or by the level of earnings' management (Bhattachary, 2010) The NSE, like many other emerging markets, suffers from risk in the market. Foreign investment on the Nairobi Securities Exchange and foreign ownership of companies is by application. Foreign investment in the local subsidiaries of foreign-controlled companies is banned so as to encourage input into Kenyan companies.

Koech (2011) studied on the relationship between liquidity and return of stock at the NSE. The objective of the study was to ascertain whether there exists a relationship between liquidity and return of listed firms at the Nairobi Securities Exchange. He found that there is a non-linear relationship between Liquidity and the Return of listed firms at the Nairobi Securities Exchange. Muturi (2006) studied on the fundamental accounting

variables and stock return. These studies were conducted in both developed and emerging markets. The research sought to find out the factors that explain stock return at the Nairobi Stock Exchange in view of the findings of past studies that there existed factor that outperform beta in explaining the stock returns. The study examined empirically the relationship between fundamental accounting variables and common stock returns at the Nairobi Stock Exchange The study did not find any significant explanatory power of Cash Flow from Operations to Size ratio.

None of these studies focused on the effect of financial performance on systematic risk of stocks listed at the Nairobi Securities Exchange in Kenya. The researchers had examined the relationship between varieties of financial variables effect on stock return. Some researchers examined only one financial variable on performance of stock returns while others investigate the influence of several variables on performance of stock returns. The study sought to answer the following question: What is the effect of financial variables on systematic risk of stocks listed at the Nairobi Securities Exchange?

1.3 Research Objective

To establish the effect of financial performance on systematic risk of stocks listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The study will offer valuable contribution to theory and practice. The study will add value to the discipline of corporate financial management especially in the area of stock market efficiency and will form the basis of further research by identifying the knowledge gap that arises from this study.

Investment practitioners such as investors, money managers, stockbrokers and security analysts will find this study useful since they will get better insights in the selection of the accounting variables and financial ratios to use in investment analysis. Individuals, institutional investors and the general public will find this study useful in guiding them in making sound investment decisions.

Practicing Accountants and Auditors, may use the findings of this study to sensitize the professional accounting community in the country to the immense fiduciary duty and ethical responsibility that lies on their shoulders to ensure that the statements are prepared in accordance with international financial reporting standards and international auditing standards.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter evaluated the literature on the various models that provide explanation on the various financial variables and their effect on risk of stocks. The chapter was organized as follows; the first part looked at the various theories related to this study followed by the empirical review and then a summary of the theories and studies analyzed concluded.

2.2 Theoretical Review

A theory is a set of systematically interrelated concepts, definitions and propositions that are advanced to explain and predict phenomena or facts. In this sense, we have many theories and use them continually to explain or predict what goes on around us. Theory can be used to predict further facts that should be found (Schindler & Cooper, 2003)

An insight of the relevant theories related to this study is explained in details. The theories include Portfolio theory, Capital Asset Pricing Model, Arbitrage Pricing Theory and Capital Markets Theory.

2.2.1. Portfolio Theory

Markowitz (1952) introduced the theory in his paper 'Portfolio Selection' which was published in the Journal of Finance in 1952. The theory suggests a hypothesis on the basis of which, expected return on a portfolio for a given amount of portfolio risk is attempted to be maximized or alternately the risk on a given level of expected return is attempted to be minimized. This is done so by choosing the quantities of various

securities cautiously taking mainly into consideration the way in which the price of each security changes in comparison to that of every other security in the portfolio, rather than choosing securities individually. In other words, the theory uses mathematical models to construct an ideal portfolio for an investor that gives maximum return depending on his risk appetite by taking into consideration the relationship between risk and return. According to the theory, each security has its own risks and that a portfolio of diverse securities shall be of lower risk than a single security portfolio. Simply put, the theory emphasizes on the importance of diversifying to reduce risk.

James (1958) added to the Portfolio Theory by introducing the Efficient Frontier. According to the theory, every possible combination of securities can be plotted on a graph comprising of the standard deviation of the securities and their expected returns on its two axes. The collection of all such portfolios on the risk-return space defines an area, which is bordered by an upward sloping line. This line is termed as the efficient frontier. The collection of Portfolios which fall on the efficient frontier are the efficient or optimum portfolios that have the lowest amount of risk for a given amount of return or alternately the highest level of return for a given level of risk.

The basic portfolio model was developed by Harry Markowitz (1952, 1959), who derived expected rate of return for a portfolio of assets and an expected risk measure; under a reasonable set of assumptions. The portfolio theory was build around the assumptions that: Investors consider each investment alternative as being represented by a probability distribution of expected returns over some holding period; Investors

maximize one-period expected utility and their utility curves demonstrate diminishing marginal utility of wealth; Investors estimate the risk of the portfolio on the basis of the variability of expected returns; Investors base decisions solely on expected returns and risk, so their utility curves are a function of expected returns and expected variance (or standard deviation) of returns only; For a given risk level, investors prefer higher returns to lower returns; similarly, for a given level of expected return, the investors prefer less risk to more risk. Under these assumptions, a single asset or portfolio of assets is considered to be efficient if no other asset or portfolio of assets offers higher expected returns with the same (lower) risk or lower risk with the same (or higher) expected returns (Brown, & Reilly, 2009).

In 1990, he along with Merton Miller and William Sharpe won the Nobel Prize in Economic Sciences for the Theory. The Portfolio Theory also known as Modern Portfolio. The absence of a correlation between volatility and return for individual stocks is a problem because that troubles the portfolio method and its exponents.

2.2.2 Capital Markets Theory

The capital markets theory builds on the portfolio theory, in that it extends portfolio theory by developing a model for pricing all risky assets. (Brown & Reilly, 2009) stated that the capital markets theory depends on existence of risk free asset, which in turn leads to the designation of market portfolio because capital market theory derives from the Markowitz portfolio model. It requires the same assumptions together with additional ones. All investors are Markowitz – efficient in that they seek to invest in tangent point,

and the specific portfolio selected will depend on the individual investors' risk – return utility function.

Investors can borrow and lend any amount of money at the risk free rate of return .All investors have homogenous expectations to mean they estimate identical probability distribution for future rates of return. All investors have the same one period time horizon such as one month or one year. All investments are infinitely divisible, which means that it is possible to buy or sell fractional shares of any asset or portfolio. There are no taxes or transaction costs involved in buying or selling of assets. There is no inflation or any change in interest rates or inflation is fully anticipated. Capital markets are in equilibrium which means that we begin with all investments properly priced in line with their risk levels.

Capital Market theory did not have a specific mode of measuring risk, this led to the development of a measure of risk is called the beta coefficient and which calculates the level of security's systematic risk compared to that of the market portfolio. The major implication of the model is that the expected return of an asset will be related to a measure of risk for that asset, its beta. The exact manner in which expected return and beta are related is specified by the Capital Asset Pricing Model (Sharpe, 2004).

2.2.3 Capital Asset Pricing Model Theory

Sharpe (1964) and Lintner (1965) invented the CAPM theory. The capital asset pricing model (CAPM) is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that

asset's non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systematic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset.

CAPM suggests that an investor's cost of equity capital is determined by beta. Beta values are now calculated and published regularly for all stock exchange-listed companies.

2.2.4 Arbitrage Pricing Theory

Ross (1976) primarily developed the Arbitrage Pricing Theory (APT) and it is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. Ross argues that if equilibrium prices offer no arbitrage opportunities over static portfolios of the assets, then the expected returns on the assets are approximately linearly related to the factor loadings. (The factor loadings, or betas, are proportional to the returns' covariance's with the factors.) The model is used to identify the mispriced assets, it has three major assumptions; that: capital markets are perfectly competitive; Investors always prefer more wealth to less wealth with certainty; the stochastic process generating asset returns can be expressed as a linear function of a set of K risk factors (or indexes), and all unsystematic risk is diversified away.

In an efficient market, return differentials should not occur, meaning that either the markets are not efficient for extended periods of time or the market prices are efficient, but there is something wrong with the way in which single factor models like CAPM measure risk. Financial economists began to consider the second possibility and this led to the development of Arbitrage Pricing Model (Brown,& Reilly, 2009).

The arbitrage pricing theory does not indicate what the underlying factors are and how many factors are needed to form the formula. The pervasive and systematic influences on the asset price are vague in theory – unlike CAPM, which reduces all the macroeconomic variables into one well-defined factor, the return on the market portfolio. The gap between the theory and application can be possibly reduced in searching the empirical factors which can explain the relation between return and risk.

2.3 Determinants of systematic risk of listed stock

To detect the influence of financial policies on systematic risk, different types of variables have been used in prior studies (Logue and Merville, 1972). In current study liquidity, leverage, operating efficiency, profitability, dividend payout, firm size, growth, tax rate, market value of equity and financial risk has been used to determine the systematic risk. These variables are very essential from investor's point of view because they can make inter firm assessment.

Liquidity is one of the specific factors that affect the systematic risk of stocks. According to prior studies, liquidity has both positive and negative impact on systematic risk. Jensen

(1984) disclosed a positive relationship among systematic risk and liquidity. He contended that with increase in liquidity agency cost of free cash flows of the firms also increase and this also increases systematic risk. Most investors use liquidity ratios at the time of investment to forecast the current position of any firm.

Operating efficiency is another factor that affects the systematic risk of stocks. More operating efficiency means generating more profit and due to more profit the systematic risk is reduced (Gu and Kim, 2002). Generally researchers show the negative impact of operating efficiency on beta.

Profitability is a factor that affects the systematic risk of stocks. Success of any firm depends upon profitability and in profitable firms the chances of systematic risk reduce (Logue and Merville 1972). Previous findings of Scherrer and Mathison, (1996); Gu and kim, (2002); Lee and Jang (2006); Rowe and Kim (2010) indicated a negative relationship between profitability and systematic risk. However, in some particular industries this relation goes inversed. Borde et al. (1994) concluded positive relationship of profitability and systematic risk in insurance companies and gave the reason that in finance companies more profit lead towards greater risk and reason behind this greater risk is that finance companies become more profitable when they take more credit risk. For calculating the profitability, return on asset is used.

2.4 Empirical Review

The capital asset pricing model which is a determinant of the equilibrium prices for all stocks in the market provides theoretical support for the Beta to be a meaningful risk determinant. In context of the capital asset pricing model, the systematic risk coefficient, β , is the only variable that determines the differential returns among common stocks. The capital asset pricing model asserts that there exists a linear relationship between the systematic risk and the stock return, that is, the higher the risk the greater the stock return, when other things are held constant.

Kinyeki (2010) researched on a test of relationship between stock market price volatility and unit trust returns. The objective of the research paper was to test the relationship between stock market price volatility and unit trust returns. The study used risk adjusted returns of unit trusts using Sharpe's index which is based on total risk and Treynor's index which uses systematic risk. Companies participating in equity based unit trusts in the Kenya financial Markets between the periods 2005 to 2010 were taken into consideration while the NSE 20 share index is used as the proxy index. This benchmark was chosen because it matched trading objectives of equity based mutual funds. By the end of year 2010, 12 companies were trading in unit trusts though there were fewer companies in this market before then. For the purpose of the research project, Net Asset Value information which represents buying prices of units was made available by the Planning, Policy and research department of the Capital Markets Authority. The findings of the study concluded that the volatility of the stock market transcends to the unit trusts. However the unit trusts performance did not surpass that of the stock market. From year

2005 to 2010 the unit trusts portfolio underperformed the stock market. This was clearly demonstrated by the rankings of Sharpe's and Treynor's indices which show that the stock market had superior risk adjusted returns compared to the unit trusts portfolio.

Koech (2011) studied on the relationship between liquidity and return of stock at the NSE. The objective of the study was to ascertain whether there exists a relationship between liquidity and return of listed firms at the Nairobi Securities Exchange. The research design was correlational and the population of the study consisted of all the 57 firms currently listed at the Nairobi Securities Exchange. The sample consisted of 41 firms which were listed between the years 2007-2011, secondary data for the period was collected from NSE data bank. Purposive sampling of companies quoted on the NSE during the period 2007-2011 was carried out with exclusion in the sample of firms that were listed in the course of the study period and those which were suspended. Turnover rate was used as a proxy for liquidity. It was computed as monthly trading volume divided by the number of outstanding shares issued then expressed as a percentage. Monthly return for each security was determined as sum of capital gains/losses and dividends expressed as a percentage of the beginning of period investment value. Simple regression model was used for the purpose of analysis to determine the nature of the relationship. Correlation coefficient for liquidity and return of stock was found to be small. This showed that there was a very weak correlation between Liquidity and return of listed firms at the Nairobi Securities Exchange. It was concluded that there is a non-linear relationship between liquidity and the return of listed firms at the Nairobi Securities Exchange. However, it was recommended that studies should be undertaken to

determine other factors that might influence Return of firms other than Liquidity.

Meharani ,Ramasamy and Chun (1989) studied on accounting variables as determinants of systematic risk in Malaysian common stocks. The objective of the paper was to examine the relationship between financial accounting variables and systematic securities risk in a small and developing capital, market, namely the Kuala Lumpur Stock Exchange. Factor analysis was used to group and identify the financial variables into independent dimensions. The possible bias due to multicollinearity between accounting data was ameliorated by selecting one representative variable from each factor profile of the firm. Evidence has shown that financial ratios/profitability ratio and, to a certain extent, activity ratio are important determinants of the systematic risk of a common stock. Contrary to most of the reported findings in other markets, the results showed a negative relationship between leverage ratio and systematic risk, for which they have no explanation.

Muturi (2006) studied on the fundamental accounting variables and stock return.Evidence from Nairobi Stock Exchange.These studies were conducted in both developed and emerging markets.The research sought to find out the factors that explain stock return at the Nairobi Stock Exchange in view of the findings of past studies that there existed factors that outperform beta in explaining the stock returns. The study examined empirically the relationship between fundamental accounting variables and common stock returns at the Nairobi Stock Exchange for the period 2000 to 2007. It examined the explanatory (predictive) power of five fundamental accounting variables:

Market Value of Equity (MVE), Book to Market Value of equity (BTM), Debt to Equity ratio (DER), Cash Flow from Operation to Size (CFO/MVE) and Dividend Yield (DY). It applied Univariate portfolio analysis and the Fama and Macbeth (1973) regressions to test this predictive power. Findings from the study showed that Market Value of Equity, Book to Market Value of Equity, Debt to Equity ratio and Dividend Yield possessed significant explanatory power of common stock returns. Of the four variables Dividend Yield possessed the highest explanatory power. The study did not find any significant explanatory power of Cash Flow from Operations to Size ratio.

Nguu (2006) studied on the relationship between accrued earnings, assets growth and future profitability of the companies listed at the NSE. The study aimed at determining whether there is any relationship between current accrued earnings, growth in long-term net operating assets and future profitability for the companies listed on NSE. The period of the study was from 1999 to 2004, the year 1999 is a base year. Out of 49 companies listed on the NSE during the period only 35 companies qualified for this study. Financial reports for companies used in the study were obtained from NSE handbook and Capital Markets Authority (CMA) library. The multiple regression analysis was performed on the collected data with aid of statistical package (SPSS), to establish relationship between current accrued earnings, growth in long-term net operating assets and future profitability, for the companies listed on NSE. After performing statistical tests on the sample of the study, it was found that there was no relationship between accrued earnings, growth in long-term net operating assets and one-year-ahead return on assets for the companies listed on NSE.

Quadir (2012) studied on the effect of macroeconomic variables on stock returns on Dhaka Stock Exchange. The research investigated the effects of macroeconomic variables of Treasury bill interest rate and industrial production on stock returns on Dhaka Stock Exchange for the period between January 2000 and February 2007 on the basis of monthly time series data using Autoregressive Integrated Moving Average (ARIMA) model. The paper took the overall market stock returns as an independent variable. It did not consider the stock returns of different companies separately. Though the using Autoregressive Integrated Moving Average (ARIMA) model finds a positive relationship between Treasury bill interest rate and industrial production with market stock returns but the coefficients have turned out to be statistically insignificant.

Quang-Ngoc, Thomas and Jonathan (2005) studied on size and book-to-market effects in the returns on information technology stocks. The paper explored the relationship between size, book-to-market, beta, and expected stock returns in the U.S. Information Technology sector over the July 1990–June 2001 period. Two models, the multivariate model and the three-factor model were employed to test these relationships. The risk-return tests confirmed the relationship between size, book-to-market, beta and stock returns in IT stocks is different from that in other non-financial stocks. However, the sub-period results (the periods before and after the technology crash in April 2000) showed that the nature of the relationship between stock returns, size, book-to-market, and market factors, or the magnitude of the size, book-to-market, and market premiums, is on average unchanged for both sub-periods. This result suggested the technology stock

crash in April 2000 was not a correction of stock prices.

Rebecca (2005) studied on exploration of earnings whispers forecasts as predictors of stock returns. The purpose was to test the Miller Price Optimism Model using a new proxy for heterogeneous expectations and to examine if high differential stocks behave like glamour stocks and low differential stocks behave like value stocks. The design used was analyst forecast differentials which were measured for a sample of stocks, combined into portfolios and held for one month. If the Miller model was supported, high differential stocks were expected to have lower portfolio returns than low differential stocks due to the greater divergence between optimistic whisper forecasts and rational analysts consensus forecasts. The findings were that high differential quintiles had significantly lower future returns than low differential quintiles supporting the Miller model. High differential stocks resembled glamour stocks while low differential stocks behaved like value stocks.

2.5 Summary of the Literature Review

Nguu (2006), Muturi (2006), Koech (2011), Kinyeki (2010), Meharani ,Ramasamy and Chun (1989) in their studies established that there was no relationship between accrued earnings, growth in long-term net operating assets and return on assets for the companies listed on NSE. Quadir (2012) studied on the effect of macroeconomic variables on stock returns on Dhaka Stock Exchange. The research investigated the effects of macroeconomic variables of Treasury bill interest rate and industrial production on stock returns on Dhaka Stock Exchange for the period between January

2000 and February 2007 on the basis of monthly time series data using Autoregressive Integrated Moving Average (ARIMA) model. Though the using Autoregressive Integrated Moving Average (ARIMA) model finds a positive relationship between Treasury bill interest rate and industrial production with market stock returns but the coefficients have turned out to be statistically insignificant.

Research at the Nairobi Securities Exchange has focused mainly on the effect of financial performance on stock returns. Existing studies have research have not examined the effect of financial performance on systematic risk of stocks at the NSE. It is this gap that motivated this research.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter considered the research design, the population of the study, the sample size, the type of data and the data sources that were used and also how the data was analyzed.

3.2 Research Design

This study employed a descriptive research design. Descriptive studies report summary data such as measures of central tendency including the mean, median, mode, deviance from the mean, variation, percentage, and correlation between variables. Descriptive research involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). It often uses visual aids such as graphs and charts to aid the reader in understanding the data distribution. Descriptive surveys are normally used in preliminary and exploratory studies to allow researchers gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2004). This method is appropriate due to its capacity to establish the relationship between financial performance and risk of stocks.

3.3 Population of the study

The population of study consisted of all the companies listed at the Nairobi Securities Exchange (NSE) main segment. A number of 62 listed companies are selected because they are mandated by law to prepare financial statements regularly, and are also the ones whose shares are actively traded, and thus with market share prices data, which is a fair reflection management decisions in running the related firms.

3.4. Sample size and Sampling Techniques

Judgmental sampling was used to select a sample for the study. Bruce (2004) defined judgmental sampling as a sampling technique in which samples are selected after some investigations on some group, in order to ensure that certain items displaying certain attributes are included in the study. The researchers use their special knowledge or expertise about some group to select subjects who represent this population. The sample was selected so to include companies whose variables of interest in the study could be calculated from published financial statements and had been traded continuously between 2009 and 2013. The selection excluded banks, insurance and investment companies. The actual sample of the study comprised of twenty companies.

3.5 Data Collection

The research used secondary data from annual financial statements for companies listed at the NSE and daily stock price list. The financial statements were obtained from the NSE handbook and the stock prices from NSE authorized data vendors.

3.6 Data Analysis

Data was analyzed using regression analysis. Regression analysis was conducted because it includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. In very general terms, regression is concerned with describing and evaluating the relationship between a given variable and one or more other variables. More specifically, regression is an attempt to explain movements in a variable by reference to

movements in one or more other variables (Brooks, 2008).

3.6.1 The Analytical Model

$$Y = \alpha + \beta_1 \text{ OE} + \beta_2 \text{ LIQ} + \beta_3 \text{ LEV} + \beta_4 \text{ PROF} + \varepsilon$$

Where Y = Systematic risk/ Beta coefficient

OE=Operating Efficiency

LIQ = Liquidity

LEV = Leverage

PROF = Profitability

α =the constant term

$\beta_1; \beta_2; \beta_3; \beta_4$ = regression coefficients

ε = Error term

3.6.2 Operationalization of the variables

Variables used in this empirical study included dependent variable (systematic risk) and independent variables. Concepts and measurements of these variables are summarized below.

Table 1: Summary of Measurements of Variables

Y	Systematic risk	$\beta = \text{Cov}(R_i, R_m) / \text{var}(R_m)$
OE	Operating Efficiency	Asset Turnover = Total Revenue / Total assets
LIQ	Liquidity	Current ratio = Current assets / Current liabilities
LEV	Leverage	Debt ratio = Total debts / Total assets
PROF	Profitability	Profitability = Net income / Total assets

3.6.3 Test of Significance

The test of significance will be carried out to analyze the magnitude of the relationship.

The significance of these correlations will be measured by t-test at 5% of significance and ANOVA.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter focused on the analysis of the data collected and discussions of the findings. Data was collected from secondary source; NSE daily price list and the NSE handbook. The study covered the twenty firms sampled. The data was analyzed using regression analysis and the results are presented in the sections that follow.

4.2 Effect of Financial Performance on Systematic Risk

To evaluate the effect of financial performance on systematic risk the beta coefficient was regressed against four measures of financial performance namely liquidity, operational efficiency, leverage and profitability. The measures were represented by the following ratios; current ratio, total assets turnover, debt to asset ratio and net profit margin respectively. The results of the analysis are presented hereunder.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.273 ^a	.075	.036	1.008041986

a. Predictors: (Constant), Profit Margin , Debt Ratio, Current Ratio, Assets Turnover

Table 2 provides a summary of the results of regression. The coefficient of determination, R- square for the model was found to be 0.075. This suggested that profit margin, debt

ratio, current ratio and assets turnover explained 7.5% of the variation in the beta coefficient. This means that 92.5% of the variation in systematic risk was due to other factors.

Table 3: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.775	4	1.944	1.913	.115 ^a
	Residual	96.534	95	1.016		
	Total	104.309	99			

a. Predictors: (Constant), Profit Margin , Debt Ratio, Current Ratio, Assets Turnover

b. Dependent Variable: Systematic Risk

Table 3 above provides the results of which the goodness of fit for the regression was evaluated. The F-ratio had a value of 1.913 with a significance level of 0.115. Since 0.115 is greater than 0.05, the regression results were not significant at the 5% level of significance. The regression model is not statistically significant.

Table 4 : Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.106	.384		.276	.783
	Assets Turnover	.108	.125	.107	.860	.392
	Current Ratio	.018	.093	.021	.192	.848
	Debt Ratio	2.385	.938	.307	2.543	.013
	Profit Margin	.730	1.000	.079	.731	.467

a. Dependent Variable: Systematic risk.

Beta coefficients were regressed against assets turnover, current ratio, debt ratio and net profit margin. The regression coefficients are reported in table 4 above. Assets turnover had a coefficient of 0.108 with a significance level (p-value) of 0.392. Current ratio had a coefficient of 0.018 and a significance level of 0.848. Debt ratio had a coefficient of 2.385 and a significance level of 0.013. While net profit margin had a coefficient of 0.73 with 0.467 significance level. The regression model obtained took the form:

$$Y=0.106+0.108OE+0.018LIQ+2.385LEV+0.73PROF$$

4.3 Interpretation of Results

The study sought to establish the effect of financial performance on systematic risk for firms listed at the Nairobi Securities Exchange. Financial performance was measured using total assets turnover, current ratio, debt to asset ratio and net profit margin. The ratios represented operational efficiency, liquidity, leverage and profitability respectively.

The result of regression analysis in table 4 indicated that operational efficiency had a positive effect on systematic risk with a coefficient of 0.108 and a significance level of 0.392. Because 0.392 is greater than 0.05 the effect of operational efficiency on systematic risk was not significant at 5% level of significance. Liquidity had a positive effect on systematic risk with a coefficient of 0.018 and a significance level of 0.848. Since 0.848 is greater than 0.05 the effect of liquidity on systematic risk was not significant. Leverage had a positive effect on systematic with a coefficient of 2.385 which had a significance level of 0.013. Because 0.013 is less than 0.05, leverage had a significant effect on systematic risk. Profitability was found to have a positive effect on systematic risk with a coefficient of 0.703 and a significance level of 0.467. Since 0.647 is greater than 0.05, profitability had no significant effect on systematic risk at the 5% level of significance.

The regression coefficient of determination R^2 was found to be 0.075 as reported in table 2. This indicated that operational efficiency, liquidity, leverage and profitability explained 7.5% of the variation in systematic risk. With such low explanatory power the

regression model did not provide a good fit. As reported in table 3 the regression had F statistic of 1.931 with a significance level of 0.115. Because 0.115 is greater than 0.05, the overall regression results were not significant at 5% level of significance.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter a summary of the findings from the study, conclusions and recommendations are presented. Also areas for further research are suggested.

5.2 Summary of Findings

This study sought to establish the effect of financial performance on systematic risk for firms listed at the Nairobi Securities Exchange. The indicators of financial performance used were total assets turnover representing operational efficiency, current ratio to indicate liquidity, debt to total assets ratio to indicate leverage and net profit margin to indicate profitability while systematic risk was measured using beta coefficient. Key findings are summarized below.

5.2.1 Effect of Operational Efficiency on Systematic Risk

The study found that total assets turnover had a positive effect on systematic risk with a coefficient of 0.108 and a significance level of 0.392 as reported in table 4. Improvement in operational efficiency of one unit measured by total assets turnover ratio would result in a 0.108 increase in systematic risk. Because 0.392 is greater than 0.05, operational efficiency measured using total assets turnover didn't have a significant effect on systematic risk at 5% significance level.

5.2.2 Effect of Liquidity on Systematic Risk

It was found that current ratio had a positive effect on systematic risk with a coefficient of 0.018 which had significance level of 0.848 as reported in table 4. An increase in current ratio by one unit resulted in 0.848 units increase in systematic risk. Since 0.848 is greater than 0.05, the effect of liquidity on systematic risk was not statistically significant at the 5% level.

5.2.3 Effect of Leverage on Systematic Risk

The study found that ratio of debt to total assets had a positive effect on systematic risk with a coefficient of 2.385 having a significance level of 0.013 as reported in table 4. Increasing leverage by one unit would increase systematic risk by 2.385 units. Since 0.013 is less than 0.05, leverage had a significant effect on systematic risk at the 5% significance level.

5.2.4 Effect of Profitability on Systematic Risk

The study found that net profit margin had a positive effect on systematic risk with a coefficient of 0.730 and significance level of 0.467 as reported in table 4. This suggested that an increase of net profit margin by one percentage point would increase systematic risk by 0.730. Since 0.467 is greater than 0.05, profitability did not have a significant effect on systematic risk at 5% significance level.

The regression coefficient of determination reported in table 2 was found to be 0.075. This meant that assets turnover, current ratio, debt ratio and net profit margin jointly explained only 7.5% of the variation in the beta coefficient. The regression model had F

statistic of 1.931 with a significance level of 0.115 as reported in table 3. Since 0.115 is greater than 0.05 the regression result was found to be insignificant at 5% level. In overall the regression model did not do a good job in explaining beta coefficient.

5.3 Conclusions

This study sought to establish the effect of financial performance on systematic risk for firms listed at the Nairobi Securities Exchange. The study concluded that operational efficiency, liquidity and profitability as measured by total assets turnover, current ratio and net profit margin had a positive effect on systematic risk. However the effect was not statistically significant at the 5% level. Leverage measured by the ratio of long terms debt to total assets had a positive and statistically significant effect on systematic risk 5% significance level.

5.4 Recommendations

The study recommends that financial performance of firms in the NSE should not be reliably used as a basis for projecting systematic risk. The study recommends that total assets turnover, current ratio and net profit margin have a positive but statistically insignificant effect on systematic risk. Leverage has a positive and statistically significant effect on beta coefficient. Accordingly managers should be aware that increasing debt ratio to total assets increases the beta coefficient resulting in increased cost of capital. Since variation in profitability, liquidity and operational efficiency did not have a significant effect on systematic risk, the study recommends that managers should not focus on managing operational efficiency, liquidity and profitability as means of

altering the companies systematic risk exposure.

5.5 Limitations of the Study

The study relied on data from a relatively short period of time. Using data from only five year period may have affected the results. Possibly extending the study to cover a longer period of time may yield differing result. Also the study relied on information reported in the financial statements and related that information with a market determined variable, beta coefficient. The quality of the reported information will have a major effect on the results of the study. Investment practitioners such as investors, money managers, stockbrokers and security analysts should adopt other types of financial performance measures to get the effect of systematic risk.

5.6 Suggestions for Further Research

Further research may seek to establish additional firm specific factors that cause firms to have different beta coefficients. Also further research may be based on different measures of operational efficiency, liquidity, leverage and profitability other than those used in this study. Rather than focusing on the determinants of systematic risk research may focus on the factors that influence total volatility of returns.

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APPENDIX

Appendix 1: Companies listed at the Nairobi securities exchange

<p>AGRICULTURAL SECTOR</p> <p>Eaagands</p> <p>Kakuzi</p> <p>Kapchorua tea company</p> <p>Limuru tea company ltd</p> <p>Rea vipingo plantation ltd</p> <p>Sasini ltd</p> <p>Williamson tea (K) ltd</p> <p>COMMERCIAL AND SERVICES SECTOR</p> <p>Express Ltd</p> <p>Kenya airways Ltd</p> <p>Nation Media Group ltd</p> <p>Standard Group Ltd</p> <p>TPS Eastern Africa (Serena) Ltd</p> <p>Scangroup Ltd</p> <p>Uchumi Supermarket Ltd</p> <p>Hutching Beimer Ltd</p> <p>Longhorn (K) Ltd</p> <p>CONSTRUCTION AND ALLIED</p> <p>Athi River Mining ltd</p> <p>Bamburi Cement ltd</p> <p>Crown Berger ltd</p> <p>East African Cables ltd</p> <p>East African Cement ltd</p> <p>ENERGY AND PETROLEUM</p>	<p>MANUFACTURING AND ALLIED</p> <p>BOC Kenya ltd</p> <p>British American Tobacco ltd</p> <p>Carbacid Investments ltd</p> <p>East African Breweries ltd</p> <p>Mumias Sugar co ltd</p> <p>Unga Group ltd</p> <p>Eveready E.A ltd</p> <p>Kenya Orchards ltd</p> <p>A.Bauman co ltd</p> <p>INVESTMENT</p> <p>City Trust ltd</p> <p>Olympia Capital ltd</p> <p>Centum Investment ltd</p> <p>Trans-Century ltd</p> <p>AUTOMOBILES</p> <p>Car and General ltd</p> <p>CMC ltd</p> <p>Sameer Africa ltd</p> <p>Marshals ltd</p> <p>TELECOMMUNICATIONS AND TECHNOLOGY</p> <p>Access Kenya Group ltd</p> <p>Safaricom ltd</p> <p>INSURANCE</p> <p>Jubilee Holding ltd</p>
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Kenolkobil ltd	Pan Africa Insurance Holding ltd
Total Kenya	Kenya Re-Insurance Corporation ltd
Kengen ltd	CFC Insurance holding ltd
Kenya power and Lighting Co. ltd	British American Investment Co (K) ltd
	CIC Insurance Group
BANKING	
Barclays Bank ltd	
CFC Stanbic Holding ltd	
Diamond Trust Bank ltd	
Housing Finance	
Kenya Commercial Bank ltd	
National Bank of Kenya	
NIC Bank ltd	
Standard Chartered Bank ltd	
Equity Bank ltd	
Cooperative Bank ltd	

Source NSE 2013