EFFECT OF FINANCIAL RISK ON UNIT TRUST PRICE VOLATILITY IN KENYA

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DECLARATION

This thesis is my original work and has not been presented for a degree any other University.

Signature……. Date…….……

Joseph Kimani Mwangi

This thesis has been submitted for examination with our approval as University Supervisors.

Signature……. Date…….……

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Signature……. Date…….……

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DEDICATION

This thesis is dedicated to my beloved wife Jane, Sons Brian, Reign and Kevin, Daughters Ebenezer, Lynn and Ivy.

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ABREVIATIONS AND ACRONYMS

APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Theory
CAC	Cotation Assistee en Continu
CDSR	Current Debt Servicing Ratio
CLTV	Current Loan to Value
CMA	Capital Market Authority
COMBINED	Average of Money Market Fund and Equity Fund
ECM	Error Component Model
EF	Equity Fund
EMH	Efficient Market Hypothesis
EOQ	Economic Order Quantity
FEM	Fixed Effects Model
ICI	Investment Community Institute
LTV	Loan to Value
MPT	Modern Pricing Theory
MMF	Money Market Fund
NAV	Net Asset Value
NSE	Nairobi Security Exchange

REM	Random Effects Model
ROA	Return on Asset
ROCE	Return on Capital Employed
ROI	Return on Investment
UT	Unit Trust
UTPV	Unit Trust Price Volatility
VIF	Variance Inflation Factor
WTO	World Trade Organization

DEFINITION OF TERMS

Default risk is a reflection of the unit trust inability to repay the debt obligations (Jorion, 2007). The default risk as applied in the study was the chance that a company will be unable to make the required payments on their debt obligations

Equity Fund it is a special type of mutual fund or exchange- traded fund that invests in equity securities rather than bonds (CMA, 2001)

Financial risk is the business ability to manage the debt and fulfil the firm financial obligations (Galai & Mark, 2014). In the study, it is used as risk arising due to liquidity risk, default risk, operational risk, market risk and investment risk.

Investment risk is the probability or the likelihood of occurrence of loss relative to the expected return on any particular investment (Stroeder, 2008). In the study, it is used as the risk of investment declining in value as a result of economic development or other events that affect the entire market.

Liquidity risk is the potential loss arising from the firms' inability either to meet its obligations or to invest fund increases in assets as they fall due without incurring unacceptable costs or losses (McNeil, Frey & Embrechts, 2005). Operationally,in the study,it is used when a company may not be able to meet short term financial obligation due to inability to convert a security or hard asset to cash without a loss of capital and income in the process .

Market risk is the risk of a change in the value of a financial position due to changes in the value of the underlying components on which the financial position depends, example, stock and

bond prices, exchange rates and commodity prices (McNeil, Frey & Embrechts, 2005).Operationally, in the study is used as the possibility of an investor experiencing losses due to factors that affect the overall unit trust price leading to variation in the unit trust prices or the risk of losses in positions arising from movements in market prices.

Money Market Fund **its** an open-ended mutual fund that invests in short – term debt securities with the goal of maitaining a highly stable asset value through liquid investments

Operational risk is a loss accrued as a result of inadequate or failed internal processes from people and systems or from external events (Bessis, 2010), Operational risk as used in the study is the risk or losses as a result of inadequate or failed internal processes, people/ employees' errors and systems failures.

Risk it is the future uncertainity about deviation from expected earnings or expected outcome (Raei & Saeidi, 2010).

Unit trust price volatility is the degree of variation of trading unit trust price as reflected by standard deviation of NAV. Unit trust price is based on the fund's net asset value that is total value of the fund less total liabilities divided by number of units outstanding (Galai& Mark, 2014).

ABSTRACT

The purpose of the study was to investigate the effect of financial risk on unit trust price volatility in Kenya. As a result of unit trust price volatility, investors are shifting to real estate and other investments with low price volatility, Unit trusts returns are trails below profitable bonds and equities traded at NSE and the sharp decline in the industry in 2007. This made unit trust price volatility an important issue for investigation. The study was guided by five objectives namely examine the: effect of liquidity risk on unit trust price volatility, effect of default risk on unit trust price volatility, effect of operational risk on unit trust price volatility, the effect of market risk on unit trust price volatility and effect of investment risk on unit trust price volatility in Kenya. A record survey sheet was used to collect secondary data using longitudinal research design. The statistical population of the study consisted of 19 Unit trust firms registered by CMA 2016 and offering money market and equity funds. Census was taken to collect annual data for a period of 9 years from 2009 to 2017.Data presentation was done using panel plots, trend lines and distribution tables. The statistical techniques used are descriptive statistics such as Mean, median and Standard deviation. Correlation test, analysis of variance and Panel regression analysis were also conducted for inferential statistics. The hypotheses of the study were tested using multiple regression analysis. The null hypotheses of the study were rejected significantly. The results of the study revealed that the effect of liquidity risk on unit trust price volatility was strong positive and statistically significant, effect of default risk on unit trust price volatility was strong positive and significant. The effect of operational risk was moderately positive and significant while the effect of market risk on unit trust price volatility was found to be weak negative and significant. The effect of Investment risk on unit trust price volatility was also negative and significant. The overall model was tested using the F-test. This implies that the models can be used for unit trust price volatility prediction though moderately. The null hypotheses for the three models in the research were rejected. The results of the study analysis revealed that all the independent variables had a statistically significant effect on unit trust price volatility in Kenya for money market fund model, equity fund model and combined model respectively. The independent variables contribute significantly in the changes of unit trust price volatility for money market fund, equity fund and combined model respectively. The study made the following recommendations; The Managers of collective investment scheme and capital market authority to increase awareness on existence of financial risk and its effect on Unit Trust Price Volatility. UT management to design internal risk policy as corrective measures to control information systems, reporting systems, internal management rules and internally acceptable procedures to govern operations. UT Management to make viable investment decisions in minimizing occurrence of numerous great profiling of financial failures in the firms' economic development CMA management should ensure that all listed companies have operational websites to make this information public. CMA to tighten surveillance on Unit trust investment decisions and where the funds are invested to minimize collusion to swindle clueless investors. On policy implication, the government should review the CMA act to give the authority the inspection mandate on the unit trust to make them efficient and conform to financial

international standards to be in line with the economic pillar of vision 2030. The unit trust should employ qualified personnel in financial matters.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Unit Trust Fund is an investment scheme that pools money together from many investors who share the same financial objective. The fund was managed by a group of professional managers who invest in a portfolio of securities such as shares, bonds and money market instruments or other authorized securities to achieve the objectives of the fund (CMA, 2007). In Kenya Unit Trusts are regulated by CMA, a corporate body set up in 1989 through an Act of parliament with the mandate of promoting, regulating, and facilitating the development of orderly, fair and efficient capital markets. The act was amended in 2001. The government has put in measures to enhance the capacity of the CMA to enable the institutions to play its respective roles.

The birth of unit trust industry dates back to a European Dutch merchant Adriaan Van Ketwich in 1774. After the financial crisis from 1772 to 1773, he created the first closed-end fund of 2,000 shares (Gilchrist, 1976). These provided diversification for small investors. The main principles for investment decision making are highest returns according to the lowest risk, financial risk and variation in prices of assets. Consequently, the concept of risk has many applications in finance because market participants always inquire about the level of risk on the asset (Bond & Chang, 2013). The investors do not always pay adequate attention to the financial risk concept alongside the return concept (Jamaldeen, 2014). Financial risk and return variables should be considered together. Certain security should be purchased after general analysis of the circumstances affecting the price variation is put into consideration (Raei & Saeidi, 2010). Though this varies from fund to fund, it still offers the best initial purchase cost. With only $2000 in the United State, for example, one can invest in big companies such as Coca Cola, General Motors, IBM, McDonalds and others. Most investors do not consider financial risk as an important criterion for investment (Soh, Cheng & Nassir, 2009)

1.1.1 Global Perspective on Unit Trust Price Volatility

Acute increase in price volatility has been witnessed in most western countries in the past but in nineteen nineties low price volatility was evidenced in the same countries in the Security Market (Liang & Wei, 2012). The mean estimate of annual historical price volatility over the 15 years was below levels of 15 to 20 percentage point experienced between 1994 and 2009 (Tari &Yıldırım, 2009). The CAC index monthly price volatility reached 60% whereas the historical annual price volatility was greater than 38% (Creswell, 2003). The sequence of price volatility in developed markets is similar showing a gradual increase in their correlation for the last 15 years (Tari & Yıldırım, 2009). However, the sequence of price volatility in Japan Market was different.

The financial risk involvement is a major factor that determines the unit trust price (Bond & Chang, 2013). After the second world war, the major concerns in developing financial market theory is own financing, share financing, bond financing and price volatility in determining the capital structure, asset pricing, returns and risk. The theorems base the argument on maximization of returns or funds securing but do not examine the output of the individual actors' collective action on the market as the exit point of the investors. There is a fundamental principle in the field of investment, which states that the capital escapes from risk and tends toward return (Isik, Acar & Işık, 2004). As a result, the investors who escape from financial risk prevent their capital from entering to a business situation that is risky and dangerous or the future of their principal and returns is uncertain (Bekaert & Harvey, 2005). However, is there any investment, which does not involve risk? Abzari, Samadi and Teimouri (2008) claim that there is a financial risk or danger of losing one's principal and interest in every business situation. Some investments have high levels of financial risk and some others have lower levels of financial risk. Therefore, investors expect adequate returns according to the level of financial risk involved in investment**.**

Rael and Saeidi (2010) believe that financial risks have direct influence on the returns of companies and can even lead to their breakdown. Soh, Cheng, and Nasir

(2009) assessed the effect of interest risk and other financial risks on the price volatility in Thailand bank stock and found that interest risk and other financial risks had a significant effect on the price volatility in Thailand bank stock. Cheng and Nasir (2010) investigated three risk factors affecting NAV in China unit trusts and found that liquidity risk had significant effect on NAV. Liang and Wei (2012) and Bond and Chang (2013) have investigated the relationship between liquidity risk and stock price volatility and found that there is a strong relationship.

Unit trusts are faced with liquidity problem when it is not able to sell the products, cannot receive cash for sale and extensively increase or decrease in costs. In recent years, the liquidity crisis has occurred in many international and local companies such as chase bank, imperial bank among others. Therefore, identify this risk of liquidity correctly because it is a common risk and some strategies to manage the crisis more properly (Raei & Saeidi, 2010). The cash on hand of the fund plus the short- and long-term assets held by the fund are put into consideration. The fluctuation in the net asset value is due to several outstanding factors that is changing total value of the fund, which is based on the closing prices of the unit trust (Hull, 2012).

The inability of unit trust to either fulfill its financial obligations or invest fund increase in assets without incurring unacceptable costs or losses in acceptable liquidity is a potential loss that is predictable. The excess of unused funds in a firm is also unacceptable liquidity or inability to meet the financial obligation and hence this complicates the liquidity risk as a subject. The inability of financial institutions to commit adequate resources to manage liquidity risk due to unavailability of clear standards in defining problems related to liquidity risk and its measurement is an issue that needs to be addressed with urgency. The liquidity risk measures in the study was current and quick ratios. The problems of liquidity risk can be brought about by a decrease in the value of firms' equity position, which leads to a loss of potential return on its investment (Jamaldeen, 2014). The realization of liquidity risk is very often not detected until a financial crisis occurs which may lead to disastrous repercussions to the firm.

If the income flows are sufficient to meet the periodic payment without undue financial burden, then unit trusts refrain from loan default accordingly. Under the credit default theory, the CLTV ratio, which measures the equity position of the borrower, is considered the most important factor in default decisions (Spierdijk, 2010). By contrast, under the ability-to-pay model, the current debt-servicing ratio (CDSR) defined as the monthly repayment obligations as a percentage of current monthly income, which captures the repayment capability of the borrower, plays a critical role in accounting for defaults. Recent research has attempted to incorporate trigger events, such as divorce, loss of a job, and accident or sudden death, in influencing default behaviour (Miller, 2013). The Workout plans helping borrowers who are faced with financial hardships provide an alternative to default.

The issue of default is a thorny due to the financial health of the borrower. The leader may resolve these issues in different ways to avoid possible default by loan restructuring, extending repayment period or refinancing the loan. Spierdijk (2010) argued that post closure on debt collection and initiating possible petition on bankruptcy by creditors played a major role as a deterrent to default in Hong Kong. If the value of the property taken as security of the loan is below the outstanding amount of loan, the borrower does not default hence the lender influences the terms of lending. The default behavior of unit trust equity and affordability has little empirical work support and conclusions. Most of the research done argue that equity position is the major determinant in unit trust default decision but others reveals that other non-equity factors such as income have a significant effect. These other non-equity variables should not be ignored by overstating the importance of loan to value ratio.

The risk that is not classified as market risk, credit risk or default risk is referred to as residual risk and operation risk is always categorized as residual risk. The estimate of operation risk is based on unit trust financial and income statement. In these statements, an extract on the impact of default losses and gains or losses from market risk exposure are considered. The variance in the income is attributed to the operation risk which is the loss arising from failed internal processes, systems and people or from external interference (Basel Committee, 2001). The operation risk

also arises from an increase in the unit trust operation cost or a reduction in revenue which also interacts with credit and market risk.

The financial industry rapid growth has led to larger and complex financial institutions resulting to significantly global concern on operation risk in the last 20 years (Jorion, 2007). Jorion (2007) argue that failure in many financial institutions is because of this most pernicious risk. The financial institution should be willing or able to control internal operations but the macroeconomic variables influences external factors (Hull, 2012). Scanty empirical work is available on the interaction of operation risk and other risks facing financial institutions and the risk management techniques.

The decline in unit trust firm's equity position fair value depends on Equity investment risk bearing in mind that the financial institutions instruments are based on equity investment. The loss in returns on investment and capital invested arise because of decline in the value of equity position, which depends on the direct and inverse investment (Jamaldeen, 2014). The unit trust investing behaviour based on their risk return should be considered significantly to reduce the asset – liability mismatch arising as a result of greater investment risk with an aim of higher expected returns thereby affecting the benefits of the unit trusts in the long run (Soh, Cheng & Nasir, 2009). The reduction in unit trust actual and future payoff has arisen from the erosion of its financial position as a result of the financial markets crisis adversely affecting investment risk (Bchini, 2013). Some investors take more investment risk in unit trust than other is an issue that was investigated by this study for a period of nine years (2009 – 2017).

The percentage of equities in the investment portfolio is the measure usually used for investment risk, which is referred to as equity allocation (Bchini, 2013). Volatility of balance sheet and income for liability - driven investors is exposed by Equity investment. Mean reverting for equity prices can be achieved through rebalancing to avoid losing the entire capital which is the essence of risk but annual mean reversion of at most 5% and high volatility is the empirical evidence (Balvers, 2000; Spierdijk, 2010). The reduction of returns under mean reversion can be because of upward

markets behaviour in feedback trading which is also risky but provides experience to investors in risk taking over time (Bouch, Clark & Groslambert, 2004).

In establishing a financial model, risk is an essential component to be considered in developed markets. There is a continuing cognition in the financial market as to whether investors choose unit trust based on the different characteristics they possess or just on the premise of choosing the easiest way out by placing money in the so-called safe haven- unit trust (Cheng, 2013). Bond and Chang (2013) indicate that investment is the major income source of unit trust and hence financial risk is considered to be a significant risk in price determination. The main objective of unit trust fund managers is to maximize shareholders' wealth, which is usually affected by variation in unit trust price, and the managers should evaluate the cash flows in consideration to the assumed risk before utilizing financial resources. The importance of financial risk in unit trust is due to its ability in affecting the unit trust price volatility.

The unit trust industry has experienced strong growth in assets in the past two decades globally. The U.S. unit trust industry remained the largest in the world with $19.8 trillion in assets at year-end 2015, accounting for half of the $35.4 trillion in unit trust assets worldwide. The growth of literature explaining the performance of unit trust has been stimulated by increasing growth of unit trust in U.S. and other developed countries. In USA, the family ownership of unit trusts rapidly grew over this period of six years from 1992 to 1998 hence increasing the unit trust assets extensively. Unit trust also grew extensively in Sweden and other Scandinavian countries.

The unit trust industry has developed in most of the countries in the world except few countries in Asia (Glosten & Milgrom, 1985). The members countries of European Union experienced an increase in unit trust assets from $0ne trillion to $2.6 trillion for a period of six years between 1992 to 1998.Total net assets increased by nearly $830 billion from the level at year-end 2014, boosted primarily by growth in equity fund assets. New net cash flow into all types of unit trusts fund summed up to $102 billion in 2014 (Wells Fargo, 2014). China's unit trust industry is currently small but

statistical analysis indicates that it could change over the next several decades. If that occurs, ICI Global' statistical analysis suggests that China's long-term unit trust assets could reach $11.8 trillion by 2050. This assumes that China has no defined contribution (DC) plan system allowing participants to invest in unit trust.

1.1.2 Regional Perspective of Unit Trust Industry

In Africa, there were 1000-unit trust across approximately 48 management companies as at 30 June 2015. The most recent Alexander Forbes survey of unit trust investment funds managers shows total assets under management in South Africa of R 3.6 trillion as at 30 June 2016, compared to R3.1 trillion as at 30 June 2010, representing growth of under 6%. According to the World Bank global, economic prospects June 2015 report, "on aggregate the region's asset managers grew at 4.4% in 2015." The report continues that the region is expected to record 4.9% growth in 2016, 5.2% in 2017 and 5.4% in 2018 (KPMG, 2015).

Unit trust forms an important part of every county's financial sector these days and it has become one of the biggest contributors in the financial sector. Unit trusts have grown to be a financial intermediary and hence contributing significantly to the wealth of nations (Vijayakumar, 2013). The growth of unit trust has been attributed to the presence of multinational financial institutions, increase in global financing in developed countries and significant increase in performance of equity and bond (Purnamasari, Herdjiono & Setiawan, 2012). The significant increase in demographic aging population seeking for safe heaven investment in unit trust developing countries has also contributed to the development of unit trust industry globally. Unit trust fund safely hold liquid financial assets that earn long-term returns.

1.1.3 Local Perspective on Unit Trust Industry

In Kenya, the idea of unit trust did not begin until the enactment of the Capital Markets Authority (CMA) that is empowered under Section 30 of the Capital Markets Act to approve institutions to promote Collective Investment schemes under Capital Markets (Collective Investment Schemes Regulation, 2001). A copy of

prospectus is deposited and approved by CMA identifies the unit trust functions and funds.

Unit trust provide individual investors who do not want to actively buy or sell securities on their own, the opportunity to still pursue their desire of investing in financial securities by acting as a form of financial intermediary (Gachiri, 2013). The total value of a fund less total liabilities all divided by the number of outstanding units is referred to as net asset value where unit trust price is based (Kamau & Kariuki, 2014). Kariuki and Kamau (2014) argue that market risk occurrence is due to several variables such as rate of return, benchmark and price volatility risk. The factors affecting market risk can be categorized as rate of return, bench marking and price volatility, which also affect the financial instruments that are asset based or equity-based owing to their special characteristics (Economic Survey, 2012). The book to market equity and other price ratios is different from momentum effect of market risk. The investment corporate bond leads to debt security price risk due to the unit trust prices variation. The investment in corporate bonds exposed Ivesco fund to debt securities market risk (Economic Survey, 2014). In managing this risk, management monitors the performance of key economic indicators to ensure that it continuously maximizes returns to shareholders. The risk – return preference of unit trust investment behaviour is significant and need to be considered in any natural investment decision (Shikuku, 2012).

The unit trusts return trails below the returns of bonds and equities traded in NSE though a positive growth is projected by CMA to be higher in future (CMA, 2015). Most of the research done is on political risk, interest risk, county risk, market risk and force majule risk. Malcom and Dowd (2012) classified financial risk into Liquidity, credit, default, market, operational, business, county, interest, political, force majule risk and investment. Therefore, considering the important role of financial risk in investment, this study attempted to investigate the effect of five

types of financial risk, namely liquidity, default, Market, operation and investment risk on unit trust price volatility. The financial risk for the purpose of the study were liquidity, default, operational, other researchers have studied market and investment risk since a combination of other financial risk. Little documentation is available on the relationship between financial risk and unit trust price volatility.

Investment decision making is a significant process for investors in order to maximize profit and hence optimize wealth in the long- run (Kamau & Kariuki, 2014). The process of decision-making requires an investor to consider all available information on the investment. In securities market, all decisions related to investment are influenced by information sources. The information is collected from some sources such as news media, financial analysts, financial statements of companies and even securities market prices (CMA, 2015)

Unit trust has been termed as safe haven for less complicated and less capitalized conservative investors in the market that is proving complicated. Investors can invest any sum of money in a unit trust, thus it is an easier way of investment diversification (Cheruiyot, 2021). It is important to understand the risk associated with the instruments that the management companies invest in, as it depicts the overall risk of the fund. The collective investment scheme offers regular income plan, growth plan, equity funds, debt funds and balanced fund schemes.

The main category of funds presently in the market consist of equity fund which primarily deals in listed equities, fixed income is invested in government securities such as treasury bonds and corporate bonds (Cheruiyot, 2021). Money market fund investing in short term instruments such as treasury bills, fixed deposits among

others and finally balanced fund which invest primarily in a balanced mix of both equity and fixed income instruments (CMA, 2015). There was a sharp decline in the unit trust industry at the beginning of 2007, accounting for over 32%-unit trust price drop. As a result of this decline, the industry suffered and was only able to experience an upswing in price at the start of 2009 (CMA, 2010).

In an effort to further deepen the capital market, the CMA has been facilitating the growth of areas such as Islamic Capital Markets products. Consequently, this saw the licensing of the first ethical fund an Islamic unit trust, first ethical opportunities fund, sponsored by First Community Bank in April 2012, (Business Today, 2012). In addition, Gachiri (2013) highlights the approval by CMA in March 2013 of Genghis Capital to start selling Islamic unit trust, which was known as Iman fund.

The unit trusts return trails below the bonds and equities traded in NSE though CMA to be higher in future projects its growth CMA, 2010). Lack of popularity and poor performance of unit trusts has been evidenced in Kenya despite the increased intellectual assets investments (CMA, 2015). The effect of macroeconomic variables in solving the issues facing unit trust price variation is questionable which is among the financial concern for investor in the long- run. According to the Capital Markets Authority (CMA, 2015) report, unit trusts have grown in acceptance and popularity in Kenya from virtually zero in 2001 to twenty-three as per those licensed by May 2015.

Several literatures documented that the total asset of the unit trust that were operating 10 years ago has grown to Ksh 21.6 billion by the end of 2015 (CMA, 2015)**.** However, there was a sharp decline in the industry at the beginning of 2007, accounting for over 32 percent unit trust price drop. As a result of this decline, the industry suffered and was only able to experience an upswing in price at the start of 2011 (CMA, 2012). The industry over the years has proved very popular among investors who see it as a safe haven and this has resulted in the ever-increasing number of unit trusts in the country. To buttress this fact, the number of listed funds in the country now has increased significantly in the last 8 years. As at 2012, there were16 listed unit trusts, but today the figure stands at 23 unit trusts in Kenya.

1.2 Statement of Problem

There was a sharp decline in the unit trust industry at the beginning of 2007, accounting for over 32%-unit trust price drop in Kenya (CMA, 2009). As a result of this decline, the industry suffered and was only able to experience an upswing in price at the start of 2011 (CMA, 2012). The unit trusts return trails below the returns of bonds and equities traded in NSE though a positive growth is projected by CMA to be higher in future (CMA, 2010).

Poor Market condition with unpredictability and uncertainty investment has brought a ripple effect on the performance of unit trust firms leading to a decline on unit trust price 20% in comparison to the year 2005 in Kenya (CMA, 2014).

The trend of the unit trust price is uncertain and unpredictable with annual volatility ranging between 0.52 % to 38% for the last seven years (Economic Survey, 2014). Due to the unit trust price volatility, investors are shifting to real estate and other investments with low price volatility (Economic Survey, 2014). By the nature of its operations, unit trust industry faces a myriad of challenges, which lead to unit trust price volatility (Pretorius & Wolmarans, 2014). However, the variables responsible for the unit trust price volatility is not adequately documented in Kenya. In addition, the collapse of some banking institutions such as Chase bank, Dubai and Imperial bank has a significant impact on the operation of the unit trusts. Genghis, Dry associates, chase assurance and Apollo had 80% of its deposits in some banks that are under receivership (CBK, 2016).

Most of the studies carried out are on political, environmental, interest rate, credit and liquidity risks on firms' performance. In every business decision and entrepreneurial act is connected with financial risk (Stroeder, 2008). Little attention has been paid by scholars in examining the effect of financial risk on the of unit trust price volatility. In view of this gap in knowledge, the study aims to examine the effect of financial risk on unit trust price volatility in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The purpose of this study is to examine the effect of financial risk on Unit trust price volatility in Kenya.

1.3.2 Specific Objectives

The study aims specifically at achieving the following objectives:

1. To examine the effect of liquidity risk on unit trust price volatility in Kenya.
2. To examine the effect of default risk on unit trust price volatility in Kenya.
3. To examine the effect of operational risk on unit trust price volatility in Kenya.
4. To examine effect of market risk on unit trust price volatility in Kenya.
5. To examine the effect of investment risk on unit trust price volatility in Kenya.

1.4 Research Hypotheses

The study was guided by the following hypotheses:

H_{01}: Liquidity risk has no statistical significance effect on unit trust price volatility in Kenya.

H_{02}: Default risk has no statistical significance effect on unit trust price volatility in Kenya.

H_{03}: Operational risk has no statistical significance effect on unit trust price volatility in Kenya.

H_{04}: Market risk has no statistical significance effect on unit trust price volatility in Kenya.

H_{05}. Investment risk has no statistical significance effect on unit trust price volatility in Kenya

1.5 Significance of the Study

The study is of importance to fund managers and unit trust firms, as it provides a more modern approach to the analysis on the effect of financial risk on unit trusts price volatility. They can be able to split the investment return, financial risk and price volatility to various specific micro-economic factors. The research is of importance to investors in investment decision-making hence achieving a suitable investment goal on the unit trust. The allocation of funds is paramount in assessing the claim of superior unit trust price by the fund's management. The analysis of unit trust price volatility is a fundamental concept in investment decision making for the investors.

The study was of particular interest to the CMA and NSE who are the regulators. The study offered informed advice to the relevant authority and investors on financial risk and unit trust price volatility. The study acts as the foundation for further research on the practicability of the model in financial risk and unit trust price volatility locally. The research is useful for scholars and researchers who would wish to further discuss or carry out further research on unit trust price volatility.

The study is also of importance to investors to reflect on their investment decisions into these unit trusts

1.6 Scope of the Study

The scope of the study was the effect of financial risk on unit trust price volatility in Kenya. The independent variable was financial risk. The independent sub variables were liquidity risk, default risk, operational risk, market risk and investment risk. The dependent variable was unit trust price volatility with the standard deviation of net asset value as the indicator.

The study focused on 19-unit trust firms registered by capital Market authority in Nairobi- Kenya (CMA, 2016). There are 19 -unit trusts offering money market and

Equity fund for secondary data from 2009 – 2017 for a period of 9 years (CMA, 2016). The money market fund has minimal risks but with low returns while equity fund has higher long-term returns but with higher risk. Most of the firms offers both funds hence the choice of the funds. Therefore, this study was carried out on all capital market registered unit trust firms

The choice of the components of financial risk is based on the relationship to unit trust price volatility. Credit risk was eliminated since its related to lending contrary to default risk. The study covered five components of financial risk as stated in the objectives of the study. The sharp decline in unit trust industry in 2007 accounting to over 32% unit trust price drop in Kenya motivated the choice of the independent variable and the geographical location.

1.7 Limitation of the Study

The study was limited to unit trust firms holding equity and market money funds in Kenya. The study had various challenges especially in data collection where most of the fund managers treated their financial statements and information as confidential documents and hence not willing to release the information. In the long- run, most of them released the information on conditions of confidentiality in the report writing after pleading and pestering the management and assuring them that the research was purely academic. The University and ministry of education introductory letters and NACOSTI permit convinced the managers. It took time in convincing them to agree to diverge the required information especially of loans repayment, liquidity control and operation of unit trust firms. The condition was only to treat the information with confidentiality. The study also had limitations of not accessing data as targeted and hence unbalanced panel data obtained.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the theories' models and literature relevant to effect of financial risk on unit trust price volatility among CMA listed firms in Kenya. The section is divided into theoretical review, conception framework, review of related literature, critique of related literature, summary of related literature and research gap.

2.2 Theoretical Review

This section reviews five theories related to financial risk and price volatility. The theories to be reviewed are the Modern Portfolio Theory (MPT), Credit Default theory (CDT), Arbitrage Pricing Theory (APT), Capital Asset Pricing Theory (CAPM) and efficient Market Hypothesis (EMH).

2.2.1 Modern Portfolio Theory

Markowitz (1952) proposed the idea of considering a portfolio from a risk-reward point of view. Portfolio construction by investors depends on the risks and rewards of individual securities (Markowitz, 1952). Since the 1980s, companies have successfully applied modern portfolio theory to liquidity risk. The theory states that risk – a verse investor can construct portfolios to optimize or maximize expected returns based on a given level of market risk. The theory emphasizes that risk is an inherent part of higher reward. According to the theory, it's possible to construct an efficient frontier of the optimal portfolios offering the maximum possible expected returns of a given level of risk. Dispersion from the expected return is the measure of price volatility. The reward is described by the expected return of the portfolio and the risk is the standard deviation of the return. The assumption is that a rational investor would prefer the portfolio with a lower standard deviation compared to a portfolio with the same expected return but a higher standard deviation. To manage the risk of a portfolio an upper bound for the standard deviation of the portfolio is

set. The weights of an investment in the assets to compose to the desired portfolio are calculated. In whole, these deficiencies will make portfolio valuation inappropriate. The definition of a portfolio and development of a portfolio value model to accommodate liquidity risk is required.

Markowitz (1952, 1959) developed the basic portfolio model, which derived the expected rate of return for a portfolio of assets and an expected liquidity risk measures. He showed that the variance of the rate of return has a meaningful measure of liquidity risk under a reasonable set of assumptions. The study presented a new framework for determining the value of a unit trust proposed by Acerbi and Scandolo (2008) which gives a consideration of liquidity risk by introducing a so-called liquidity policy on a firm. The standard deviation of portfolio is a function not only of the standard deviations for the individual investment but also of the covariance between the rates of return for all the pair of assets.

The behavioral economics has criticized the modern portfolio theory assumption on investor rational action as misplaced and the idea of investor expectation on potential returns as biased in specific investment (Shikuku, 2012). This is a theory, which uses a simplified version of reality such as the statement that investors attempt to maximize their economic returns. The assumption of efficient market economy leads to the optimal return relate to the unit trust price, which the financial theory assumes to be a function of expected returns (Malkiel, 2003). Hughes (2002), contents that MPT still justifiably provides the cornerstone of liquidity risk.

2.2.2 The Credit Default theory

Robert Merton proposed the credit default theory in 1974 and it was based on the efforts to estimate and manage credit risk exposure in financial institutions and investment (Merton, 1974). The theory of credit default holds that borrowers base their default decisions on a rational comparison of financial costs and returns involved in continuing or terminating unit trust payments. The credit default risk theory arises as a result of loss incurred from a debtor unlikely not being able to meet the financial obligation of repaying in full the outstanding loans. Credit default theory is a function of liquidity failure and negative equity (Dullmann & Trapp,

2004). The alternative is the ability-to-pay theory of default (the cash flow approach). According to this approach, unit trusts refrain from loan default as long as income flows are sufficient to meet the periodic payment without undue financial burden. The rule of default can be used in the credit default theory.

Correa, lee, Sapriza and Suarez (2014) suggested that organizations default risk is apt to increase firm value in the presence of capital market imperfections such as bankruptcy costs, a convex tax schedule, or underinvestment problems. According to Correa, lee, Sapriza and Suarez (2014) default risk can increase shareholder value by harmonizing financing and investment policies. When raising external capital, firms may under invest. Derivatives can be used to increase shareholder value by coordinating the need for and availability of internal funds.

Conflicts of interest between the shareholders and debt holders can also lead to underinvestment. An underinvestment problem can occur when leverage is high and shareholders only have a small residual claim on a firm's assets, thus the benefits of safe but profitable investment projects accrue primarily to shareholders and may be rejected (Kumar, 2013). As the underinvestment problem is likely to be more severe for firms with significant growth and investment opportunities, various measures such as the market-to-book ratio, research and development to sales ratio, capital expenditure to sales, net assets from acquisitions to size are used for testing the underinvestment hypothesis. The credit default theory provides the perspective ideal on the default risk (Bharath& Shumway, 2005).

The usage of the rules leads to consequences to the theory (Neilsen, Saa-Requejo & Santa- Clara, 1993). The credit default theory rarely connects the causes directly to the effect of default and hence not able to evaluate default risk in the dynamic market environment as the unit trust default issues (Basurto, Goodhart & Hofmann, 2006). A rational investor has a direct impulse response of credit default to asset pricing shocks and the asset pricing impulse reaction to the unit trust price volatility.

2.2.3 Arbitrage Pricing Theory (APT)

Ross (1976) proposed the arbitrage pricing theory. The APT is an asset valuation model, which stated that returns are affected by several factors. The theory, commonly known as APT, is used to identify and exploit mispriced assets by tracking a number of macroeconomic factors. It serves as a framework for analyzing risks and returns. The APT is widely applied in investment management practice today. APT separates out non-company factors into as many as proves necessary. The beta of each factor is the sensitivity of the price of the security to that factor. The return generation is stochastic process of n-factors. These n-factors are systematic (their effect can be reduced but cannot be eliminated). The second concept is arbitrage principle, in perfect capital market, two assets having equal risk will have same return and will be sold at same price and investor will earn normal profit. The assets are sold at different prices due to information gap and the investors earn an arbitrage profit that is riskless. The arbitrage pricing theory is based on following assumptions. Investor always wants to maximize their wealth; the borrowing and lending will be at risk free rate and there is no taxes and transaction cost. The company and individual specifics are major factors in the operation of the firms. The n- factors can be internal or external. These affect the systems, people and the firm in general.

Kumar (2013) signalize that arbitrage-pricing theory has been studied under two approaches. The first approach is the factor loading approach derived by Roll and Ross (1976), in which statistical analysis technique has been used to separate those factor form stock returns that cannot be observed and then test pricing mechanism. The second approach is macroeconomic model or equilibrium model, which assume that stock return, can be affected by a wide range economics factor. The industry structure varies from country to country and firm foreign exposure also varies from country to country depending on foreign and domestic demand function. Business groups play their role very well, when capital markets are under developed. The business groups share operational risk of affiliated firms by facilitating income flows and by reallocating resources in between affiliates in times of distress.

The operational risk management is very critical for firm success because risk sharing can help the firms to undertake risky projects and business groups can also absorb shocks in particular sector of economy (Kadduma & Ramadan, 2012). In emerging markets, there is negative effect of groups on operating profitability. The large groups are more significant in providing insurance opportunities in some countries as compare to small. But this theory did not identify name and number of factors. However, these factors can be company specific, industry specific, behavioral factor and statistical in nature. APT assumes the individual factors/ variables affecting the operation of a given firm (Kumar, 2013).The APT theory is relevant to the operation of unit trust firms and operational risk determination as a result of the macroeconomics variables governing the unit trust existence in Kenya.

2.2.4 Capital Asset Pricing Model

CAPM was developed independently by three scholars (Sharpe,1966; Lintner,1965; Treynor,1966). The model is based on portfolio theory and demonstrates how risk and return could be linked together and also specifies the nature of risk and return relationship. Return is directly related to the price volatility of a given asset. In such a simple world, Tobin's (1958) super-efficient portfolio must be the market portfolio. All investors will hold the market portfolio, leveraging or de-leveraging it with positions in the risk-free asset in order to achieve a desired level of market risk. For any unit trust or portfolio, the CAPM decomposes and quantifies the total risk of a portfolio or individual assets into two components: diversifiable (specific risk) and non- diversifiable risk (systematic risk). Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset participates in such general market moves, that asset entails systematic risk. Specific risk is the risk, which is unique to an individual asset. It represents the component of an asset's return, which is uncorrelated with general market moves (Lintner, 1965).

Unsystematic risk is the risk to an asset's value caused by factors that are specific to an organization, such as changes in senior management or product lines. In general, unsystematic risk is present due to the fact that every company is endowed with a

unique collection of assets, ideas and personnel whose aggregate productivity may vary. A fundamental principle of modern portfolio theory is that unsystematic risk can be mitigated through diversification. That is by holding many different assets; random fluctuations in the value of one will be offset by fluctuations in another (Markowitz, 1959). Systematic risk is risk that cannot be removed by diversification. This market risk represents the variation in an asset's value caused by unpredictable economic movements. This type of risk represents the necessary risk that owners of a firm must accept when launching an enterprise. In the CAPM, the risk associated with an asset is measured in relationship to the risk of the market as a whole (Sharpe, 1966). No matter how we diversify our investment it's impossible to get rid of all the risk. As investors, we deserve a rate of return that compensates us for taking on risk.

The CAPM helps us to calculate market risk and what return on investment we should expect. The dependent variable or outcome of the CAPM equation, $Rj = \beta j (Rm – Rf) + Rf.Rj$ is the return on the jth portfolio. The independent variables consist of Rf which is the risk-free rate, βj which is the beta of the jth portfolio and Rm which is the return of the market portfolio. The difference between the market portfolio and the risk-free rate is then multiplied by the beta. Beta, which measures risk, is the systematic component of a security's volatility relative to that of the market portfolio.

This theory has been subject to various criticisms key among them being that the single market beta needs to be supplemented with additional dimensions of risk. Turner and Morrell (2003) argue that CAPM may not be a good model for estimating asset betas because of its weak statistical powers and failure to utilize other information that contribute to the returns of an asset. The argument that low P/E ratio and market risk firms generated higher risk – adjusted returns than high P/E ratio in the study did not acknowledge the interpretation of results.

CAPM is simple and takes into account the overall information, as it is available in the market. The asset-pricing model holds that an asset price is predicted using the linear relationship between assets expected return and the number of factors that affect the asset risk. It projects the future return of a specific asset in a short amount

of time and also volatility is synonymous with market risk and price volatility hence CAPM application is relevant to the market risk.

2.2.5 Efficient Market Hypothesis

Eugene Fama developed the efficient market theory in 1970. Fama (1970) argued that the efficient market theory is an investment theory where by security prices reflect all the relevant information in the market and that generating a consistent alpha is not possible. He also revealed that neither technical nor fundamental technique can produce risk- adjusted return or alpha consistently but inside information can result in the risk – adjusted returns.

Malkiel (2003) described Efficient Market Hypothesis as a hypothesis which claims that financial markets are "informational efficient". This means that financial markets are extremely efficient in the sense that the unit trust and the stock market in general reflect all available information. Malkiel (2003) suggested that neither fundamental nor technical analysis would help investors to identify mispriced unit trust and make returns higher than those obtained by merely selecting a portfolio of individual unit trust randomly.

Malkiel (2003) sited three basic forms of EMH, namely; strong, semi-strong and weak. The strong form of EMH states that it is unlikely for investors to beat the market as market prices reflects all relevant information both public and non-public. The semi-strong form of EMH states that it is unlikely that investors will beat the market by using only publicly available information on prices. The weak form of EMH states that it is unlikely for investors to beat the market using historical information on prices and volume. The concept of EMH is associated with the idea of "Random Walk" model which states that price movements from one period to another are independent and as such they are said to follow a random walk.

The idea behind the random walk model is that if the information flow is unhindered and unit trust prices quickly reflects all information, tomorrow's price change will reflect only tomorrow's news and will be independent of the change in price today. A

large number of empirical evidence has backed this theory and this shows that it may be a herculean task to identify mispriced unit trust.

If this theory holds, it means that it will be a futile venture by fund managers to devote large amount of resources to the search of mispriced unit trust (Sharpe, 1966). According to Hao & Zhang (2007) the concept of EMH suggests that active investors will obtain alphas that are equal to the negative of the cost they incur as a percentage of the assets. Furthermore, Malkiel (2003) argues that it is likely that investors are able to produce higher returns by employing the indexing strategy than they are likely to produce through active management of funds. Despite the continued support of EMH by researchers, especially in the 1970s and 1980s, cracks began to appear in the model in the early 1990s (Malkiel, 1996). The increasing use of dividend yields, price- earnings ratios and market capitalization to predict security returns suggested that returns on security may not actually be independent over time.

Creswell (2003) analyzed the mutual funds' performance and argued that the result obtained disagreed with the notion that research fees and trading expenses are wasted. Due to the lack of alternative theories in the 1990s to reject the claims of EMH, researchers are unable to wholesomely reject the theory. Malkiel (2003) suggested that the strategy of managing a fund passively can only be justified if the market is inefficient. When information about an individual stock surface, such information is usually reflected in market prices almost immediately, thus passive management may become attractive, as the markets appear to be efficient in digesting information and adjusting to them.

The advocates of EMH and the random walk theory suggest three important facts. One is that future performance cannot be predicted by mere use of past performance. The second conclusion is that top managers may not be able to beat the market in the future and lastly, active fund managers may not be able to make higher returns over the passive strategy.

The summary is that fund managers or professional investors do not necessarily need to have superior skills to identify securities or time the market (Cheng & Nassir, 2010). Kamil, Subramaniam, Ali, Musah and Alex (2018) noted that the unit trust

funds ownership allocation is determined by the capital market. The market price provides signals for allocation of resources in which firms make investment decision where investors choose the securities that represent ownership of firms' activities under the assumption that the securities prices at any time fully reflect all available information. Fama (1970) attempted to formalize the theory and organize the growing empirical evidence. He presented efficient market theory in terms of a fair game model, contending that investors can be confident that a current market price fund reflects all available information about a unit trust, which make Efficient Market theory relevant to investment risk on unit trust price volatility.

2.3 Conceptual Framework

To interpret knowledge for empirical application in a comprehensive manner, a conceptual framework was provided by theories in order to hold existing and new knowledge. For the purpose of the study, conceptual framework comprised of five independent variables and one dependent variable.

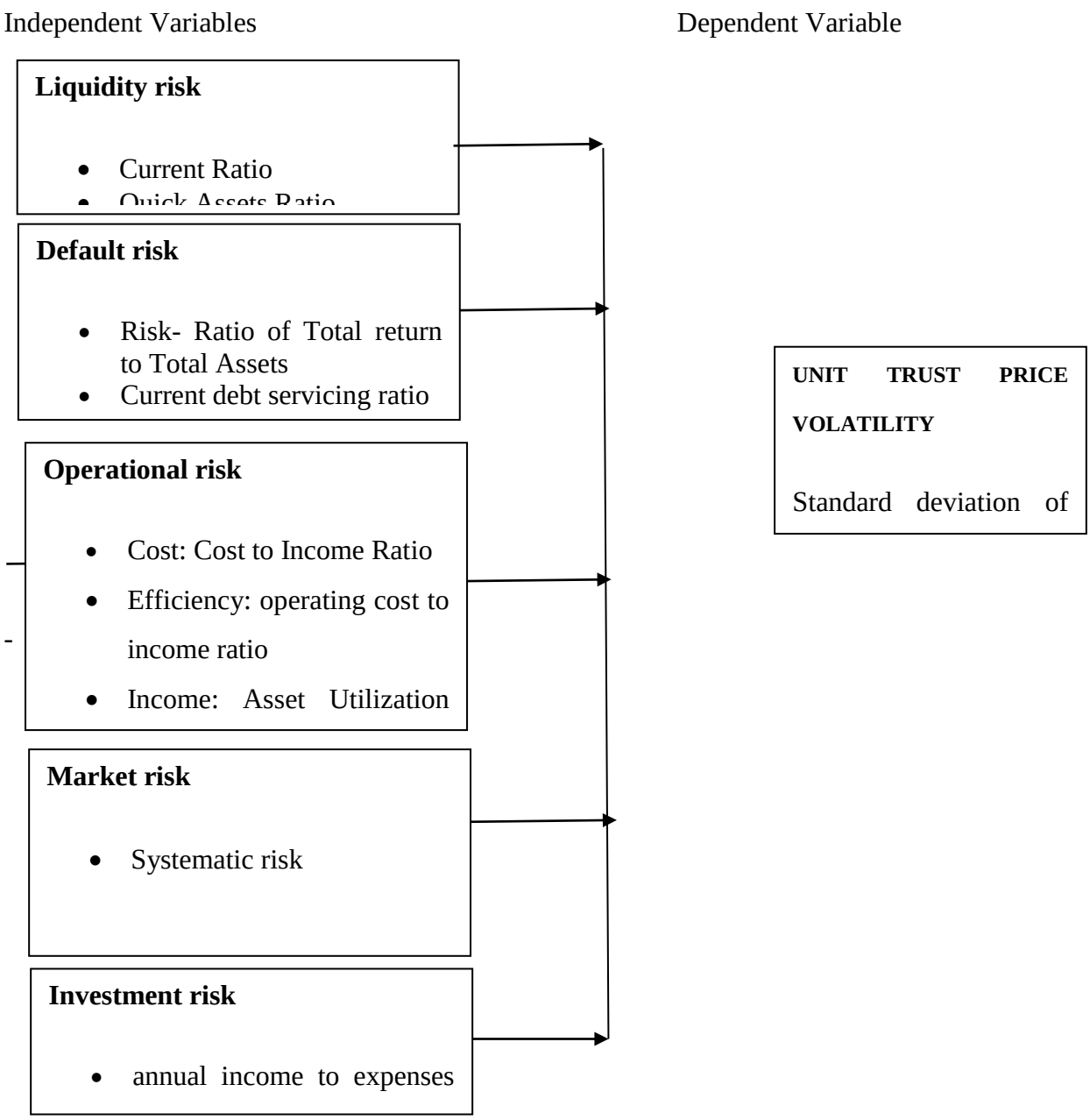

Figure 2.1: Conceptual Framework

Independent and dependent variables related to the study are conceptualized in Figure 2.1. Statistics of independent variables measured the effect of financial risk in the study. The dependent variable is the unit trust price volatility, which was measured using the standard deviation of NAV.

2.3.1 Liquidity Risk

Liquidity risk is the risk stemming from the lack of marketability of an investment. The risk arises out of an inability to execute transactions, which is categorized into asset liquidity risk and funding liquidity risk. The asset liquidity risk arises as a result of insufficient buyers or insufficient sellers against the sell orders or buyers orders respectively. The measure of liquidity risk is current ratio and quick asset ratio. Current ratio indicates the liquidity position of a company. It measures the ability of a company to meet its current liabilities as they fall due. Quick assets ratio measures firm's ability to pay off short term obligations without relying on inventory sales. Quick ratio is computed by getting the sum of accounts receivable, cash and marketable securities and dividing the results by current liabilities.

2.3.2. Default Risk

Default Risk is as a result to fulfil the financial obligations towards the counterparties and it is usually classified into sovereign risk and settlement risk. Default risk is the probability of the firm or an individual being unable to meet the required payment of debt obligation. Investors and lenders are usually exposed to the default risk. Continuing or terminating unit trust payments is a borrowers' default decision based on rational comparison of financial costs and returns as advocated by the equity theory of default. The measure of default risk is Risk- Ratio of Total return to Total Assets and Current debt servicing ratio. The current debt servicing ratio is the repayment capability plays a critical role in accounting for default under the ability – to- pay model and current debt servicing ratio (CDSR) which is defined as the monthly repayment obligations as a percentage of current monthly income. In addition, the ratio of total return to total asset measure a degree of the return on a given investment, which determine the rate of repayment on a loan.

2.3.3 Operational Risk

Operational risk arises out of operational failures that accrued from mismanagement and technical failures. The risk that is not classified as market risk, credit risk or default risk is referred to as residual risk and operation risk is always categorized as

residual risk. The estimate of operation risk is based on unit trust financial and income statement. In these statements, an extract on the impact of default losses and gains or losses from market risk exposure are considered. The variance in the income is attributed to the operation risk which is the loss arising from failed internal processes, systems and people or from external interference (Basel Committee, 2001). The fraud risk and model risk are the major operational risk in an organization that hinders operation. Operational risk defined as a malfunction of the information systems, reporting systems, internal management rules and internally acceptable procedures designed for corrective measures for the internal risk policy rules (Bessis, 2010). The measure of operational risk is Cost which is calculated by a ratio of Cost to Income , Efficiency which is determined by operating cost to income ratio and Income which is computed by Asset Utilization Ratio that is equivalent to Operating Income over total Assets.

2.3.4. Market Risk

Market risk in the study context refer to systematic risk, which affect the entire market. The risk has no limited control and all businesses operating in the market are affected in a similar way. The factors that do affect the entire market usually leads to the price volatility. If an asset is quite illiquid, the market price omits a consideration of liquidity issues since it is difficult to find a buyer of the asset and an increase in the market risk (Omesa, Maniagi, Musiega & Makori, 2013). The measure of market is determine by beta, which is the degree of efficiency in CAPM model. CAPM decomposes and quantifies the total risk of a portfolio or individual assets into two components: diversifiable (specific risk) and non- diversifiable risk (systematic risk). Systematic risk is the risk of holding the market portfolio.

2.3.5 Investment Risk

The decision to invest in a business always undertake a component of risk that the owner must control in order to thrive. Whitman and Diz (2013) revealed that investment risk is a function of business risk and can generally be interpreted as the shortcomings of a specific business or initiative. This is entirely the disturbance in a business financial position setup. Investment risk is measured through computing

the annual income to expenses ratio. The major emphasis on the investor's maximization of returns and minimization of risk in the long- run bring the investors satisfaction on the investment undertaken. The comfortability and satisfaction of an investment depends on returns accrued and the risk an investor can bear

2.4. Empirical Review

The work published by Zikmund, Babin, Carr and Griffin (2013), indicates that an empirical literature review is a careful search for relevant published work that explain theory and details empirical findings specific to the area under review. This section therefore considers previous reviews by other scholars on the study's independent variables in relation to the dependent variable

2.4.1 Liquidity Risk and Price Volatility

The research on the analysis of liquidity risk and UK mutual fund performance sought to examine the role of liquidity risk both as a security characteristic as well as as systematic liquidity risk (Foran and O'Sullivan, 2014). The study established that on average UK mutual funds tilted towards liquid stocks but that, counter-intuitively, liquidity rather than illiquidity, as a stock characteristic is positively priced in the cross-section of fund performance. Further, the study revealed a strong role for stock liquidity level and systematic liquidity risk in fund performance evaluation models.

Pastor and Stambaugh (2003) researched on liquidity risk and expected security returns in U.S between the period 1966 and 1999. The study investigated whether market wide liquidity is a state variable important in asset pricing. The study established that expected security returns are related cross-sectionally to the sensitivities of returns to fluctuations in aggregate liquidity. According to the study, liquidity is abroad and elusive concept that generally denotes the ability to trade large quantities quickly, at low cost and without moving the price.

Ferreira (2012) analyzed the determinants of unit trust performance in twenty-seven countries over 1997–2007 periods. The study established that the adverse scale effects in the USA are related to liquidity constraints faced by unit trust that, by

virtue of their style, have to invest in small and domestic securities. Countries with liquid security markets and strong legal institutions display better performance of mutual funds. Indeed, US funds that invest in small and illiquid securities are the most negatively affected by scale, while this is not the case with non-US funds.

Soh, Cheng and Nasir (2009) studied the liquidity premium and unit trust performance in Thailand. The study looked at the relationship between liquidity and unit trust performance using a return-based stale price measure to quantify the liquidity of the assets contained in the portfolio. The study established that the liquidity of assets contained in the unit trust plays an important part in unit trust returns. Further, the study concluded that the highest liquidity unit trust significantly underperforms the market in contrast to the lowest liquidity, which significantly outperforms the market hence evidence of an illiquidity premium in Thai mutual unit trust.

In the middle of 2007, turmoil in financial markets strongly indicated that liquidity is an important concept to be considered by financial institutions. Funding was reliably attainable for financial institutions at an affordable cost, security and mortgage markets were bullish before the crisis (World Trade Organization, 2007). The selling of Assets without losses became difficult due to harsh economic conditions thus affecting the liquidity of the assets, which was in good shape in the year 2005 and 2006. High asset prices volatility was evidenced as a result of tighter liquidity condition when financial market crisis occurred. Asian financial market crisis also occurred in 1998, reflecting a similar result. These events emphasize on the important of liquidity in financial markets.

Generally, companies are faced with liquidity problems due to a number of reasons when they are notable to sell their products, they cannot receive cash for sale, the costs of production increase extensively and finally the companies' efficiency decrease. In recent years, the liquidity crisis has occurred in many international and local companies such as chase bank, imperial bank among others. Therefore, this risk of liquidity should be identified correctly because it is the most common risk in

Kenya. Some strategies should be applied to manage the crisis more properly (Raei & Saeidi,2010).

There is potential loss arising from the unit trust inability either to meet its obligations or to invest fund increases in assets as they fall due without incurring unacceptable costs or losses in acceptable liquidity. Liquidity risk does not mean just the shortage in financial resources but also the excess of these unused funds. Management of liquidity risk, which is a large and confusing subject, requires commitment of significant resources from financial institutions (Sebastian, 2010). The standard definition of the problem the financial institutions are meant to solve on liquidity risk measure is not clear and thus it's a complex subject. The liquidity risk measures in the study was current and quick ratios.

Current ratio is a comparison of total current assets to total current liabilities. The assets, which can easily be converted into cash within an accounting year, is referred to as the current asset (Pandey, 2008). The claims from outside the firm which are expected to mature for payment within the accounting year is referred to as current liability. Current ratio compares total current assets to total current liabilities and it includes debtors, bills receivables and short-term securities (Pandey, 2008). Current ratio is intended to indicate whether short term assets are sufficient to meet short term liabilities. Current ratio indicates the liquidity position of a company. It measures the ability of a company to meet its current liabilities as they fall due (Weston & Copeland, 2005). If a company has insufficient current assets in relation to its current liabilities, it might be unable to meet its commitments and be forced into liquidation (Saleemi, 1993).

Cornett, Mcruit and Tehrainian (2009) assert that current ratio measures the shilling of current assets available to pay each shilling of current liabilities. Foran and O'sullivan (2013) argue that current ratio is so sector dependent as to be incapable of being defined as generally best. They suggest factors that need to be considered when calculating this ratio. The factors are put in a form of questions. First, what is the norm in this industrial sector? Secondly, is this company significantly above or below that norm? And finally, if so, can this be justified after an analysis of the

nature of these assets and liabilities, and of the reasons for the amounts of each held? Either the ratio when calculated is expressed as a ratio to 1, with current liabilities being set to 1, or as a number of times representing the relative size of the amount of total current assets compared with current liabilities. The most acceptable current ratio is 2:1. Current ratio is computed by dividing current assets with current liabilities.

Quick ratio measures the shillings of more liquid assets that is Cash and marketable securities and accounts receivable that are available to pay each shilling of current liabilities. An asset is liquid if it can be converted into cash immediately or reasonably soon without a loss of value (Pandey, 2008). Quick ratio is found out by dividing quick assets by current liabilities. Inventories are considered less liquid. Inventories normally require some time for realizing into cash; their value has a tendency to fluctuate (Pandey, 2008). Quick assets ratio measures firm's ability to pay off short term obligations without relying on inventory sales (Cornett, Mcruit & Tehrainian,2009). Quick ratio is computed by getting the sum of accounts receivable, cash and marketable securities and dividing the results by current liabilities.

The ideal ratio is 1:1. Scholars have different opinion on the relationship between liquidity ratios and profitability. (Radhika and Azhagaiah, 2012; Singh and Pandey, 2008) revealed that current ratio has a high significant positive correlation co-efficient with profitability in a study carried out on effect of current ratio on profitability in manufacturing industry. Eljelly (2004) found that the relationship between current ratio and profitability is negative also in a similar study. Jason and Niall (2014) found insignificant association between current ratio and profitability. Finally, Radhika and Azhagaiah (2012) found a negative association between quick ratio and profitability.

Liquidity risk measurement in this study was risk of depressing the market price by selling based on trade volume or outstanding securities. The mechanics and rationale of these typical measures and assess their validity relevance to liquidity risk can be described by total equity to total assets ratio, current and quick ratios.

The major issues in liquidity risk are executing trades efficiently, securing access to funding, and protecting against extreme events. Liquidity risk is a small part of total risk and can also be approximately measured by statistics (Cheng& Nasir, 2010). During financial stress, liquidity risk is a larger portion of total risk, which is precisely a misleading standard liquidity risk measure at that time. Liquidity risk monitoring should be considered as part of preparing for financial stress focusing on stress testing and warning signals. If an asset is quite illiquid, the market price omits a consideration of liquidity issues since it's difficult to find a buyer of the asset and an increase in the market risk (Omesa, Maniagi, Musiega& Makori, 2013). Therefore, liquidity risk is compounded to market and cannot be isolated. Liquidity risk is an integral portion of market risk hence market risk measurement should take account of liquidly risk (Dalgaard, 2009). Unit trust firms in the short run may find themselves in a situation whereby the cash outflow exceeds cash inflows. In the study, liquidity risk was measured using the average of current asset ratio and quick ratio test.

2.4.2 Default Risk and Unit Trust Price Volatility

Default risk is the probability of the firm or an individual being unable to meet the required payment of debt obligation. Investors and lenders are usually exposed to the default risk. Continuing or terminating unit trust payments is a borrowers' default decision based on rational comparison of financial costs and returns as advocated by the equity theory of default. The Ability- to -pay of default is an alternative better known as the cash flow approach). Accordingly, if unit trusts income cash flows are sufficient to meet the periodic payment without undue financial burden the unit trust refrain from loan default (Correa, lee, Sapriza and Suarez, 2014). The most important factor in borrowers default decision making under the equity theory is the Current loan to value ratio. Contrary, the borrowers' repayment capability plays a critical role in accounting for default under the ability – to- pay model and current debt servicing ratio (CDSR) which is defined as the monthly repayment obligations as a percentage of current monthly income (Jorion, 2007).

The alternative to default is to provide a workout plan to help borrowers in case of financial hardships through taking into account the financial status of the borrower and as a result, the lender may respond positively to the threat of possible default such as loan restructuring and extended repayment plan or refinancing (Ogilo, 2013). The major deterrents to default in Hong Kong are initiation of bankruptcy and post closure debt collections petition by creditors (Schroeder, 2008). When the value of the property is less than the outstanding amount of loan, the borrower does not default to avoid losses as a result of the lenders influence on transaction costs (Ogilo, 2013).

Most literature finds equity position as the major determinant in unit trust default decision but no empirical work with firms' conclusions on relative significance of equity and affordability in unit trust default behaviour. Kaddumi and Ramadan (2012) argued that non- equity effects such as source of income are more significant and the importance of loan- to value (LTV) ratio can be overestimated if other variables are mutually exclusive in the empirical specification.

Scanty information is available on the effect of default risk on price volatility despite considerable research effort put toward modeling default risk to achieve the valuation of corporate debt and derivative products. Since Unit trust holders are the residual claimants on the cash flows without a promised NAV, the effect of default risk on price volatility is not guaranteed (Miller, 2013). The information in default spread is unrelated to default risk despite the previous research that examine the effect of default risk on return that focus on the ability of the default spread to predict returns.

The spread of default can only be explained by 85%, which is in fact a reward for bearing systematic risk, which is unrelated to default risk. The findings indicated that default spread does not independently predict or influence equity returns. In other wordings, scanty information is available on the effect of default risk on price volatility. The growth securities have lower default risk than the value securities and there exist a monotonic relationship between international business machine and default risk (Crouhy, 2014). The firms undertaking a higher default risk earn higher

returns than lower default risk taking firms. Dennis, Forazi and Rothman (2013) argued that default risk is related to macroeconomic variables in the business cycle.

The bust of the housing bubble in 2007 has depressed the global economy leading to credit crunch, which resulted to serious financial crisis across unit trust, security market and the entire economy. The risk from complicated financial derivatives have a significantly influence on investors poor decision making on default (Bharath & Shumway, 2005). As a result, the unit trust has underestimated the systematic risk arising from the default. The institutional strategy to minimize the default risk can be through loaning funds to a specific industry to avoid indefinite fate incase default occurring and as a last result, getting acceptable guarantees and collateral to control default risk (Rael & Saeidi, 2010)

2.4.3. Operation Risk and Unit Trust Price Volatility

Operational risk defined as a malfunction of the information systems, reporting systems, internal management rules and internally acceptable procedures designed for corrective measures for the internal risk policy rules (Bessis, 2010), Crouhy, Michael, Galai and Mark (2014) noted that operational risks could arise both internally and externally**.** Risk from external events covers many different uncontrollable factors, such as natural disaster, terrorism attack that might cause damage to the Customs Division's properties and cause revenue losses. Saghir, Hashmi and Hussain (2012) claimed that internal processes would be closely tied to a firm's specific products and business lines; they should be more specific than the risks due to external events.

The exposure of operational risk can have a significant effect on the price and net worth on unit trust firms. Operational risk leads to operational loses which are an extra cost to the firm (Erb, Harvey & Viskanta, 2005). Operational risk should be addressed systematically and consistently in order to reduce inconsistent operation and earning shocks for the shareholders (Bodie, Kane & Marcus, 2008). The pricing of operational risk should cover adequately the losses accrued. The risk that is not classified as market risk, credit risk or default risk is referred to as residual risk and operation risk is always categorized as residual risk (Saghir, Hashmi & Hussain,

2012). The estimate of operation risk is based on unit trust financial and income statement. In these statements, an extract on the impact of default losses and gains or losses from market risk exposure are considered. The variance in the income is attributed to the operation risk which is the loss arising from failed internal processes, systems and people or from external interference (Isik, Acar & Işık, 2004). The operation risk also arises from an increase in the unit trust operation cost or a reduction in revenue which also interacts with credit and market risk.

The financial industry rapid growth has led to larger and more complex financial institutions resulting to significantly global concern on operation risk in the last 20 years (Jorion, 2007). He further argues that failure in many financial institutions is as a result of this most pernicious risk. The financial institution should be willing or able to control internal operations but the macroeconomic variables influences external factors (Hull, 2012). The notable large firms which have ever had large operational losses include Salomon brothers $303 million, (1993), Knight Capital $ 460 million, (2012), Societe Generale $ 4.9 billion, (2008) and others (economic survey, 2012).

Scanty information is available on the relationship between operation risk and other risk facing financial institutions and the management to the risk exposure (Erb, Harvey & Viskanta, 2005). The literature based on measurement issues and statistical properties on operational losses have a significant growth due to the news of large operational losses due to operational errors, which are small but occurring frequently in large firms.

Jorion (2007) found that the discussion and recognition of operation risk is well documented in leading risk management books which emphasis on the influence of operation risk on the financial institution investment decision within a simple but changing asset allocation work plan. The measurement and estimate techniques are based on the extreme value theory, which has some difficulties since the amount of capital held for operational risk may exceed capital for market risk (Crouhy, Galai & Mark, 2014).

Hull (2012) argues that reduction of operational losses can be attributed to the level of funds capital, which provides incentives in the operation. Operation risk depends on optimal reactions of financial institutions but not entirely exogenous variable. The destruction of investors' value can as a result of high operational risk but the behaviour of investor chasing returns is not affected by the funds exposure to risk (Brown, Goetzmann, Liang & Schwarz, 2012).

2.4.4 Market Risk and Unit Trust Price Volatility

The adverse price variation arises from market risk such as systematic and unsystematic risk (Hull, 2012). The economic value of an asset depends on interest rate, foreign exchange rates and equity prices, which has a major impact on the market risk. Market risk is determined by the overall economic factors, which are beyond the control of any firm (Aruwa & Musa, 2012). The degree of financial leverage ratio determines the level of market risk. The study emphasized on foreign exchange and interest rate risks as the major market risk indicators.

Nimalathasan and Pratheepkanth (2012) carried out a research on effect of systematic risk on productivity of financial institutions in Sri-lanka between 2007 – 2012. The findings revealed that systematic risk had statistically significant effect on productivity of the selected financial institutions. The research made use of financial leverage and operating leverage values to measure systematic risk. The target population is based on secondary data. The factors affecting market risk is categorized as rate of return, bench marking and price volatility, which affect the financial instruments that are asset based or equity-based owing to their special characteristics (Dowd, 2005).

The investment in corporate bonds exposed Ivesco fund to debt securities market risk (Economic Survey, 2014). In managing this risk, management monitors the performance of key economic indicators to ensure that it continuously maximizes returns to shareholders. As at 31 December 2015, an increase/ (decrease) of 5% (2014: 5%) on the prices of quoted securities would result in an increase/ (decrease) in profit or loss of kShs 185,550 (2014 kShs 191,850) (Ivesco fund financial statement, 2015).

The government securities, corporate bonds and deposits with financial institutions are financial assets, which are at fixed rate. These financial assets are not exposed to cash flow interest rate risk. Saunders, Lewis and Thornhill (2007) present comparative data for 60 large pool schemes in Kenya, Europe and USA. The data revealed that in Kenya, 50.2% of the fund is invested in real estate compared to 34.2% and 53.1% in Europe and USA respectively. Bonds and bills took up 16.3% of the Kenyan fund while they took up 12.6% and 22.7% of the European and American funds respectively. Offshore investments only formed 5.5% of the Kenyan fund compared to 26.5% and 11.1% of the European and USA funds respectively. The fund managers have a good reason for making such investment decision. The different proportions in the different countries could be due to the different factors in these countries.

2.4.5 Investment Risk and Unit Trust Price Volatility

Whitman and Diz (2013) revealed that investment risk is a function of business risk and can generally be interpreted as the shortcomings of a specific business or initiative. This is entirely the disturbance in a business financial position setup. The occurrence of numerous great profiling of financial failures in the recent past that include security market crash of 1987 (Carlson, 2006). The Asian Contagion that is also referred to as financial crisis of 1997 – 1998 (Lowenstein, 2000). "The Big short" of 2007 – 2008 financial crisis (Lewis, 2010). The authors implied that investment risk has proven a difficult issue in financial management.

The theory of risk- returns emphasis on the investor's maximization of returns and minimization of risk in the long- run. The comfortability and satisfaction of an investment depends on returns accrued and the risk an investor can bear (Brooks, 2013). Hence , risk returns trade off states that an investor must be willing to accommodate greater risk to acquire greater returns (Pandey, 2008). Return = Risk – free rate + β(Risk premium) is the association between risk and returns which are direct proportional. This proves Pandey (2008) argument on risk and returns that the higher the risk, the higher the returns in the long- run but proper balance maintained to maximize the value of firm's shares. In the start- up stage, higher risk investors

often perform below lower risk investors in the short run but contrary investors' expectation is for higher risk investments to earn higher returns in the long -run (Cornett, Mcruit &Tehrainian, 2009).

The decline in unit trust firm's equity position fair value depends on Equity investment risk bearing in mind that the financial institutions instruments are based on equity investment (Brown, Keith& Reilly, 2000). The loss in returns on investment and capital invested arise as a result of decline in the value of equity position which depends on the direct and inverse investment (Jamaldeen, 2014).

The unit trust investing behaviour based on their risk return should be considered significantly to reduce the asset – liability mismatch arising because of greater investment risk with an aim of higher expected returns thereby affecting the benefits of the unit trusts in the long- run (Purnamasari, Herdjiono & Setiawan, 2012). The reduction in unit trust actual and future payoff has arisen from the erosion of its financial position because of the financial markets crisis adversely affecting investment risk (Bchini, 2013). Some investors take more investment risk in unit trust than other is an issue that needs to be investigated by this study for a period of ten years (2009– 2017).

The percentage of equities in the investment portfolio is the measure usually used for investment risk that is referred to as equity allocation (Bchini, 2013). Volatility of balance sheet and income for liability - driven investors is exposed by Equity investment. Mean reverting for equity prices can be achieved through rebalancing to avoid losing the entire capital which is the essence of risk but annual mean reversion of at most 5% and high volatility is the empirical evidence (Balvers, 2000); (Spierdijk, 2010). The reduction of returns under mean reversion can be because of upward markets behaviour in feedback trading which is also risky but provides experience to investors in risk taking over time (Bouch, Clark & Groslambert, 2004).

2.5 Critique of the Existing Literature Relevant to the Study

The variation in interest by shareholders, managers and debtors as a result of asymmetries in the distribution of earnings is a risk taking and hedging management

technique, which leads to investors taking too much risk neglecting the positive net value of the investment (Jason& Niall, 2014). The study did not bring out clearly how the managers should deal with risk to enhance the earning of a firm, effect of financial risk and how the agency problem can be minimized to increase profitability of the firms. Nance, Smith and Smithson (1993) in their analysis of risks argued that the higher the probability of a firm experiencing financial risk, the greater the reduction in the cost of financial risk. They only looked at financial risk and its cost leaving out how financial risk may affect the performance of the firms and the researcher examined all the variables in the study by looking at how financial risk affects profitability of firms.

A rising debt-to-equity ratio implies lower securities price and investment return. The reason for this phenomenon is the fact that a great amount of the income of banks is transferred to the creditors' account from shareholders' account (Purnamasari et al.2012). Because of the importance of the issue of risk, earnings and returns in investment and their relationships and effects on each other, there have been many investigations in this field. The study by Tari and Yıldırım (2009) demonstrated that earnings surprise was significantly correlated with price volatility and overnight returns.

The various researches done, are based on the effect of financial risk on returns. Soh, Cheng and Nasir (2009) assessed the effect of interest risk and other financial risks on the returns in Thailand bank stock. Cheng and Nasir (2010) investigated risk factors effective on NAV coefficients in China unit trusts. The results of study demonstrated that the liquidity risk had a significantly effect on the NAV. Purnamasari et al. (2012) evaluated the effect of financial risks and growth on the relationship between earnings and abnormal stock returns in Indonesia. They studied twenty-two commercial banks, which were in Indonesia stock exchange from 2008 to 2010. The results of their study proved that there was a significant relationship between unexpected profit and abnormal stock return. Then the effect of growth and three financial risks (i.e., liquidity, credit, and solvency risks) on this relationship was assessed and it was found that growth and solvency risk had negative effect on

the security returns, but liquidity and credit risks had no significant effect on security return.

However, the relationship between financial risk and returns has been studied separately. Chang (2013) examined the effect of liquidity on returns of securities and found that liquidity significantly affected returns on securities. Bekaert (2007) found that liquidity measures could significantly predict future returns. The cross-sectional association of expected security returns and sensitivity of security returns to variation in aggregate liquidity was demonstrated in the study effect of liquidity risk on security returns (Pastor & Stambaugh, 2003). Jun (2003) found a positive correlation stated between security returns and aggregate market liquidity as estimates of turnover ratio, trading value and turnover- volatility multiple.

Salehi (2011) investigated the effect of liquidity on the security returns of Tehran security market and found that security returns were negatively correlated to liquidity. Cao and Petrasek (2014) conducted a research on liquidity risk and institutional ownership to examine the effect of liquidity risk on security returns. They found that the market risk, which was calculated by market beta, could properly predict abnormal stock return during liquidity crises.

In contrast, abnormal stock return during liquidity crises, which had strongly negative association with liquidity risk, was assessed through the simultaneous movement of stock return with market liquidity. Loukil, Zayani and Omri (2010) examined the effect of liquidity on security returns in the Tunisian stock market and found a significant and positive premium for firms with high price impact and low trading occurrence. They also demonstrated that there was a non-linear relation between potential delays of execution and stock returns. These findings had profound consequences on controlling liquidity risk of stock exchange.

Default risk on stock returns has been studied by Steiger (2010); Kang &Kang (2009); Correa, Lee, Sapriza &Suarez (2014); Friewald, Wagner &Zechner (2014). The results of the study by Steiger (2010) revealed that default risk and implied volatility had great explanatory power with respect to stock returns. Nethra and Kushalappa (2015) argued that the financial position of a firm determines its

performance on the security market implying that firms with stable financial position performs better than unstable financial position firms in their assessment on effect of financial risk on liquidity risk and returns.

Aruwa and Musa (2012) found out that the relationship of risk components and financial performance of banks was significant in their investigation on the effect of credit risk and other risk components on financial performance of banks. To improve on the research done on effect of credit risk management on Jordanian commercial banks financial performance, Boahene, Dasah and Agyei (2012) indicated that there was a significant effect of credit risk on the profit of the banks.

Maina (2013) sought to establish the relationship between the risk and return of investment channels available to insurance companies in Kenya and found that risk and return had a no significant effect on investments held by insurance companies. The study was carried out on ten insurance companies based on the investments data for the period1st January 1997 to 31st December 2001.The objectives of the study were to establish if there are differences in return across companies for investment in similar assets. Whether there existed a correlation between the risk and return on investments undertaken by insurance companies in Kenya. The study established that there was no relationship between mean rate of return and risk on investment. From the findings, there appears to be very little correlation between the return and risk of investments held by insurance companies. Maina (2013) revealed that return and risk have a relationship does not hold for investments held by insurance companies in Kenya.

The emergence of risk and uncertainties as a result of crisis in the economies was brought about by the globalization process of change. Gathering information on the trend of the national economies and their competitive edge is determined by investigation on financial risk is gaining momentum globally. Bchini (2013) states that examination on the financial risk effects on securities returns globally is widespread emphasizing on economic, financial and political risk premiums calculations. The major observation of the researches is that risks negatively affect the security prices in both developed and developing countries. Financial, economic

and political risk premiums significantly affect the security market performance and expected return estimates as conducted in the 10 central Asia and African countries for the period of 1997 – 2002 (Hassan, 2003).

Erb(2005) carried out a research using a sample of 117 countries between 1993-2004 and concluded that a significant relationship existed between country risk index and the security market expected returns. Bchini (2013) used data of 13 countries for the period 2007 – 2012 and found that financial risk factors negatively and significantly affected securities returns. Also, Girard and Omran (2007) examined International County risk guide (ICRG) economic risk and financial risk premium of 9 south and central African countries and revealed that financial risk premiums negatively and significantly affected securities and security market performance but the countries with lower country risk were higher. Correa, lee, Sapriza and Suarez (2014) also found that political, social, financial and economic stability affected the investment risk.

Foran and O'sullivan (2013) found a negative significant effect of economic, political, financial and country risks on security prices. Spiegal (2006) studied the Russian security market and revealed a significant sensitivity of security prices to macroeconomic variables but economic risk had a price declining effect on security prices. Girard and Omran (2007) conducted a research on Arab capital markets and found that large security market outside America had a greater risk than small security markets in respective country risk but a negative effect on security returns was noted for economic and political risks. In another study, Girard and Omran (2007) found that political risk had significantly greater effect on security prices than economic risk.

In the examination of developed markets in Europe and Toronto security market by Seashole & Hendershoot (2014) and Harvey (2005) respectively, both concluded that macroeconomic variables and security returns were not directly related. Harvey (2005) conducted another study using twenty developing markets data and revealed a significant positive effect of macroeconomic risk factors on security prices but with higher returns as compared to developed markets. In a different study on the level of

price volatility in developing markets, Bekaert and Harvey (2005) revealed that the market offered higher prices despite the existence of macroeconomic risk factors. Bekaert and Harvey (2005) also carried out a study in Hong kong security market on the effect of financial risk premiums on security price volatility and found a positive correlation between the variables in the period 1997 – 2003.

Bouchet, Clark and Kassimatis (2004) examined financial risk premiums in six Latin American countries and revealed that financial risk premium in five countries was significantly affecting security markets performance but a decrease in financial risk premiums had a positive effect on the security prices. Cakmakli and Dijk (2010) carried out a research examining the German economy in 2000 – 2010 and found a significantly positive effect of political risk on security prices. Kim &Mei (2001) carried out a research on political development and security market prices in Hong Kong security market and stated that political development has a significant negative effect on security market prices and a decline in political development has a greater effect than increased political development. In a period of unpredictable political development, financial crisis is evidenced thereby affecting the security market prices negatively as revealed in a research carried out in 22 developing countries (Whitelaw & Guo, 2006). Zhang &Zao (2004) examined the Chinese security market and revealed that political risk has a significant effect on the firms' value.

Omonyo (2003) observed that risk and return are the key considerations in investment practices of unit trust in Kenya. Abd-Karim (2010) in his study on the characteristics and performance of Islamic funds in Malaysia concluded that Islamic funds‟ performance is significantly influenced by fund managers‟ investment skills that enables the fund managers to outperform in any given market condition.

Maiyo (2012) carried out a study the effect of asset allocation on financial performance in Kenya on and revealed a significant effect of asset allocation on unit trust financial performance. The decline in unit trust financial performance as compared to improvement of securities returns by 18% in the 2011is evidenced (Maiyo, 2012). Maiyo (2012) revealed that equity fund is the most dynamic fund is faced by high risk which commensurate high returns. These funds are also popular

among the unit trust investors as they comprise over 50% of all the total unit trust funds held. The unit holders in Kenya are risk averse implying that as the return increases so does the risk. The money market fund representing the less aggressive investments had low return as well as low risk. In comparison against the benchmarks the study showed that equity funds under performed in the NSE-20 share index, while the money market fund on the other hand outperformed the 91-day Treasury bill rates.

Maiyo (2012) carried out a research on the effect of risk and asset size, portfolio turnover on the mutual funds returns involving 150 mutual funds in the period 1997 – 2006 and revealed that portfolios taking higher risk are likely to earn high returns as CAPM predicts. The developed portfolios diversify their assets hence reducing the risk taken than undeveloped portfolios. Allen and Rachim (2012) revealed that the most aggressive portfolios had the highest risk level in comparison to other unit trust funds with lowest risk levels in his research on the assessment of explanatory power on funds behaviour in determination of fund performance of Australian unit trust between 2002 and 2011.

2.6 Research Gap

Limited empirical studies on effect of financial risk on unit trust price volatility have been carried out. Much of the research done on the Price volatility of unit trusts and financial risk has been carried out in the developed economies where pooled funds are at very advanced stages. The unit trust price volatility depends mainly on the expertise of the fund managers and the price of the underlying assets or securities. In addition, most of the research work carried out has been on whether the funds outperform the market, persistence of the fund returns and effect on certain attributes on the fund performances, regarding the financial liquidity and returns.

Nethra and Kushalappa (2015) found that firms with stable financial position performed well in the security market in comparison to firms with unstable financial position in their study assessing the impact of financial liquidity on security

profitability. To conclude, it should be mentioned that although there have been many investigations on market and credit risk which are components of financial risk and returns, effect of financial risk on share prices, there have been very few studies on the effect of financial risks factors on the unit trust price volatility.

Most of researches done dealt on political risk, country risk, interest risk, force majule risk, economic risk and liquidity risk. The choice of the components of financial risk was on the basis of relationship to unit trust price volatility. Credit risk was eliminated since its related to lending contrary to default risk. In addition, there have been many controversies and limitations in the prior investigations about these issues. Therefore, all these shortcomings made it necessary to conduct a more extensive research on the effect of financial risk on unit trust price volatility among CMA listed firms in Kenya

2.7 Summary

Studies have been carried out mainly in US, Great Britain, Thailand, China, Indonesia, Australia and Japan. Very few studies outside these countries have been done due to the fact that unit trusts are relatively new investment in many parts of the world. Regarding the financial liquidity and returns, Nethra and Kushalappa (2015) found that firms with stable financial position performed well in the security market in comparison to firms with unstable financial position in the study assessing the impact of financial liquidity on security profitability. Saunders, Lewis and Thornhill (2007) present comparative data for 60 large pool schemes in Kenya, Europe and USA.

The data revealed that in Kenya, 50.2% of the fund is invested in real estate compared to 34.2% and 53.1% in Europe and USA respectively. Bonds and bills took up 16.3% of the Kenyan fund while they took up 12.6% and 22.7% of the European and American funds respectively. Offshore investments only formed 5.5% of the Kenyan fund compared to 26.5% and 11.1% of the European and USA funds respectively. The fund managers have a good reason for making such investment

decision. The different proportions in the different countries could be due to the different factors in these countries.

Bouchet, Clark and Kassimatis (2004) examined financial risk premiums in six Latin American countries and revealed that financial risk premium in five countries was significantly affecting security markets performance but a decrease in financial risk premiums had a positive effect on the security prices. The examination on financial risk was not carried out.

Omonyo (2003) observed that risk and return are the key considerations in investment practices of unit trust in Kenya. He dealt on effect of general risk on returns. Foran and O'sullivan (2013) found a negative significant effect of economic, political, financial and country risks on security prices. Spiegal (2006) studied the Russian security market and revealed a significant sensitivity of security prices to macroeconomic variables but economic risk had a price declining effect on security prices. Both Spiegal (2006) and Foran and O'sullivan (2013) concentrated on political, economic, country and financial risk and other macroeconomic variables. The effect of financial risk on price volatility has not been discussed.

In Kenya Unit Trusts are regulated by CMA, a corporate body set up in 1989 through an Act of parliament with the mandate of promoting, regulating, and facilitating the development of orderly, fair and efficient capital markets. It was amended in 2001. In 2017 there were 24 registered unit trusts compared to 526 funds operating in South Africa. In 2020, 19 UTs were active while 5 were inactive.

There have been many investigations on the determinants of unit trust performance and the effect of financial risk on returns. Most of the risks covered in most of the studies are political, economic, country and general financial risks. Several studies have been carried on Credit risk and market risk management but establishment in estimates of financial risks components and price volatility has not been adequately covered.

There have been very few studies on the effect of financial risks factors on the unit trust price volatility. In addition, there have been many controversies and limitations

in the prior investigations on financial risk and returns. Therefore, all these shortcomings made it necessary to conduct a more extensive research on this issue. From the above review of literature, it's evident that few studies have been carried out in financial risk and volatility of unit trust price in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodological design that was used to achieve objectives of the study. It discusses the research design and the justification of choosing the research design, the target population, sample frame, sample size and sampling technique, research instruments, data collection procedures, pilot test, data analysis, statistical model and hypothesis testing that was used in the study.

3.2 Research Philosophy

The philosophy is classified into three major components namely ontology, epistemology and axiology which are significant in research. The philosophical approaches are the best enablers in decision making on the research methodology to adopt based on the objectives (Saunders, Lewis and Thornhill, 2009). A research philosophy is a framework that guides how research should be conducted based on ideals about reality and nature of knowledge (Collis& Hussey, 2014). The two main research philosophies represent two fundamentally different ways that we as humans make since of the world around us in positivism, reality is independent of us and researchers can therefore observe reality objectively. In interpretivist, reality is seen as highly subjective since its shaped by perception. The study opted for positivism reality. The study is concerned with the 'being' component and the validity, scope and method of acquiring the effect of financial risk on unit trust price volatility in Kenya. The data collection and hypothesis formulation were adopted, tested and confirmed to be used for further research.

3.3 Research Design

An elaborate plan is required from the objectives and hypothesis writing to analysis of data in a research. It implies how research objectives were achieved and how the problem encountered in the research were tackled (Mugenda, 2004).

The study used longitudinal research design because this research design attempts to explore effect to make predictions on the longitudinal data. The method is also appropriate because only a set of subjects with five variables were used. Therefore, this research design was used to identify, describe, show relationships and analyze variables of financial risk that affect unit trust price volatility in Kenya. The main objective of a longitudinal research design is the discovery of effects of the association among different variables (Cooper & Schindler, 2011). Thomson, Diamond, McWilliams and Snyder (2005) argue that longitudinal evidence is more informative when exemplary practices are followed as regards to measurements, quantifying effects, avoiding common analysis errors and using confidence intervals to portray the range of possible effect and the precision of the effect estimates.

Two most recent studies that used longitudinal research designs are Mousavi and Jari (2012), Kaddumi, and Ramadan (2012). Mousavi and Jari (2012) used longitudinal research design in their study to investigate the relationship between financing and corporate performance of companies listed in the Tehran stock exchange. Kaddumi and Ramadan (2012) used longitudinal research design to investigate the effect of project financing on profitability on Jordan industrial firms listed at Amman Stock Exchange.

3.4 Target population

The target population for the study was 19-unit trusts as per the CMA listing in May 2016 that offer equity and money market fund. The equity fund and money market fund are common in almost all the 19 unit trusts except in 5 that are inactive. The 24-unit Trusts are as shown in appendix VII.

Cooper and Schindler (2011) defines a population as a collection of all objects on which inferences are made. The definition of a population is a large collection of elements from where a sample is drawn (McMillian & Schumacher, 2010); Zikmund, 1997). Kothari (2004) defines population as a universe where all subjects are considered in any field of inquiry. Kitchenham and Pfleeger (2002) define a target population as a group of subjects to whom the study applies. The conclusions and inferences are made from the collection of items (Enarson, Kennedy & Miller, 2004).

A researcher generalizes the findings of the study from a target population (Mugenda & Mugenda, 2004).

3.5 Sampling Frame

For the purpose of this study sampling frame constituted of unit trust firm that were contained in the CMA ‘s 2016 directory. Cooper and Schindler (2011) define a sample frame as a list of subjects where a sample is actually drawn. It is a list containing items from which the sample is drawn (Kothari, 2004).

3.6 Sample Size and Sampling Technique

The study sampled 19-unit trusts firms, which operate money market and equity fund setting aside 5-unittrusts that operate other funds. Bryman (2008) and Spiegal (2006) define a sample as subset of a population. However, Kothari (2004) defined sample as a collection of elements chosen from the universe to represent the population. The sample should be as representative as possible of the entire population. Mugenda (2004) reveals that sampling error was determined by the size of the sample, the smaller the sample and the larger is the sampling error and the larger the sample, the smaller the error. Mugenda (2004) indicates that a sample size of the target population should be large enough to allows for reliable data analysis by cross tabulation, provides desired level of accuracy in estimates of the large population and allows for testing the significance of differences between the estimates.

Nimalathasan and Pratheepkanth (2012) carried out a research on effect of systematic risk on productivity of financial institutions in Sri-lanka between 2007 – 2012. The findings revealed that systematic risk had statistically significant effect on productivity of the selected financial institutions. The research made use of financial leverage and operating leverage values to measure systematic risk. The target population was based on secondary data. For the purpose of this research, census was used since the population size is small.

3.7 Data Collection Instruments

The study used a record survey sheet to obtain secondary data. Data for both the dependent and independent variable was collected from financial statements and fact sheets of unit trust firms using a record survey sheet. Using record survey sheet, important figures from financial statements of comprehensive income and financial position was recorded for subsequent analysis. Data was obtained from CMA, NSE, kenstel survey on returns and web sites of different unit trust firms. The data was collected for a span period of nine years covering 2009 to 2017. The reason to restrict the period of the study to nine years was to collect the latest data available for the period 2009 to 2017 and satisfy the statistical acceptability of the small population.

Saunders (2007) indicates that most longitudinal data studies use record survey sheet. Newing (2011) and Bryman (2008) explain that a record survey sheet consists of a series of specific, usually measurable variables that can be obtained from the financial statements of the relevant firms. A record survey sheet was used to collect data for both independent and dependent variables. Soh, Cheng, and Nasir (2009) to collect data on the effect of interest risk and other financial risks on the returns in Thailand bank stock also used a record survey sheet in. Cheng and Nasir (2010) used a record survey sheet to collect data on the investigation of seven risk factors effective on NAV coefficients in China unit trusts.

3.8 Data Collection Procedure

The researcher got permission from the Board of post graduate school of Jomo Kenyatta University of Agriculture and Technology, then obtained a research permission from the National Commission for Science, Technology and Innovation (NACOSTI) and other relevant government agencies in Kenya. A list of unit trust firms was obtained from Capital market authority official website of which 19-unit trusts were identified to participate in data collection. The data was collected using a record survey sheet. Record survey sheet was used to collect secondary data from financial statements and factsheets that was obtained from CMA, unit trust firm offices, kestrel survey on unit trust returns, performance and fund management and

the firms' websites. Cooper and Schindler (2011) argue that collecting secondary data using record survey sheet in studies is cheaper in comparison to other methods.

In the recent past the use of record survey sheet method was used in Thailand by Soh, Cheng, and Nasir (2009) in the assessment of effect of interest risk and other financial risks on the returns and also Cheng and Nasir (2010) used record survey sheet method in the investigation of seven risk factors effecting NAV coefficients in China unit trusts. In order to observe the characteristics of each unit trust firm over a given period and across geographical space, panel data using longitudinal research design should be used (Baltagi, 2005; Gujarati, 2003). The secondary analysis of secondary data is sufficient and economical since it has been established that data collection is the most time consuming and expensive part of research (Thomas, Diamond, McWilliams& Snyder, 2005).

3.9 Data Analysis

The data was organized and financial ratio computed using Excel software in order to obtain the research variables. As a result of unbalance data for cross-sectional units, the average per year of independent and dependent variables was computed depending on the number of unit trust firms. The unobserved or immeasurable variables were controlled by panel data in longitudinal research design. The mean, skewness, kurtosis and standard deviation of the average financial ratios were computed. Jason and Niall (2014) used average in the study liquidity risk and the performance of UK mutual funds.

The balanced research variables were analyzed quantitatively by use of panel regression using STATA and Gretel analysis tool. The objectives of the study guided data analysis. In the past, a number of studies used STATA and Gretel program to analyze their data with a similar theme of financial risk management and profitability (Raheman. 2010; Saleem and Rehman, 2011, Afza and Nazir, 2009; Radhika &Azhagarah, 2012; Hussain, 2012; and Kaddumi and Ramadan 2012).The data set is collected from an individual element over a period of time to provide several observations (Hsiao, 2003). These collected data enable a researcher to analyze

economic factors which are usually forgotten using cross- sectional data set(Wooldridge, 2001).

Kennedy (2008) reveals that longitudinal data is an observation of same element at different time period. A set of data having several components, each having repeated measurement at various periods is referred to as panel data (David, Patrick & Philip, 2010). Panel data can be analyzed through fixed effect and/or random effect models depending on individual effect, time effect or both. In the study, time- invariant factor in longitudinal research design is a component that need to be considered and hence trend line of each variable against time was plotted. Hausman test was used to decide whether to use fixed effect model or random effect model analysis. The fixed effect model and random effect model estimators are not significantly different forms the null hypothesis. This test has the characteristics of chi- square distribution. The rejection of null hypothesis implies that random effect model is not appropriate for that particular panel data; hence, the inference statistics depends on the particular sample.

Wooldridge (2001) argued that the measurement error and choice of random effect and fixed effects has no simple rule despite the improvement over cross- sectional data. Random effects model can also be fitted through likelihood ratio test. Spiegel (2008) argued that a null hypothesis estimator in the likelihood ratio test is on the bounder of the estimator region since it's from the asymptotic theory. The conservativeness of p- value shows that within the group statistics dependence is insignificant and hence advisable to use ordinary linear model without random effect.

The stationary structure of the longitudinal data was tested using the Durbin-Wu-Hausman test for the results obtained from the regression analysis to reflect the actual relationship since non stationary structure series yields to spurious regression problems (Granger & Newbold, 1974; Gujarati, 2004). Sudden shocks on stationary series may cause some deviation from the expected value but the values converge to the mean in the long run. Permanent shocks hinder the convergence of variables to a particular value in the long run which is indicated by the unit root. Garson (2012) argues that the unpredictable characteristic of shocks leads to the trend of non-

stationary characteristics and hence disregard the convergence of variables to a particular value.

3.9.1 Descriptive Statistics

The statistical techniques used were descriptive statistics such as Mean, median and Standard deviation. Descriptive analysis was the first step in the analysis. In the second step, the study applied quantitative analysis.

3.9.2 Diagnostic Test for Parametric Data

Parametric statistics is a branch of statistics that assumes that sample data comes from a population that follows a probability distribution based on a fixed set of parameters. These parameters are tested for sufficiency, consistency and biasness.

Test for Multcollinearity

Johnson (1984) argues that the predictors can be linearly predicted with significant degree of precision if two or more variables in multiple regression models are highly correlated. To detect multicollinearity the researcher will use variance inflation factor. $VIF_k = 1/ 1 - R^2_k$. if VIF = 1, the indication is that the variables are not correlated, if VIF exceeds 4, it warrants further investigation and if VIF exceeds 10, there are signs of serious multicollinearity requiring correction (Gujarati,2004). Gujarati (2004) indicates that the signs of multicollinearity as estimation of coefficient differ from model to model. If the t statistics for specific gradient are not significant at $p>0.05$ but F- test for all the gradients simultaneously zero significant at $P<0.05$ then there a large correlation among parts of predators' variables.

Test for Autocorrelation

If the least squares regression underestimates the standard errors of the coefficients, the adjacent observations are correlated implying that the explanatory variables are significant when in actual sense they are not. The presence of correlation when in the real sense it does not exist detects the presence of autocorrelation in the residuals.

Durbin Watson statistics determine whether the correlation between adjacent errors is zero as conditioned on the order of observation in rows (Gujarati, 2004).

Tests for Serial Correlation.

Serial correlation occurs when the error terms from different time periods are correlated. It also occurs in a time series study when the error terms associated with a specific time period proceed to a future time period and it considered for variables collected for a period 20 – 30 years (Gujarati, 2004). If errors in one-time period are directly correlated with the error in next time period, it is referred to as first order autocorrelation. The errors might be considered lagged if the data is quarterly collected. Granger and Newbold (1973) indicated that errors in one-time period are positively correlated with errors in the proceeding time period which is referred to as positive serial correlation. Durbin-Watson statistic is the best test for serial correlation with a range between zero and four. The value near two indicate no first order serial correlation, the value below two indicate positive serial correlation and the value above two indicate negative serial correlation. The interpretation of the exact Durbin- Watson statistics is difficult (Pindyck& Rubinfeld, 2006). As a result of Durbin – Watson statistics being difficult to interpret, the researcher opted to use Wooldridge Drukker test whose interpretation is based on the p- value statistics. The p- value < 0.05, then the conclusion was that there is no serial correlation and vise – versa.

Hausman Test

The application of either OLS, fixed or random effects regression model is the standard operation with panel data. Using the Joint significance of differing group means: the ANOVA test, A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative. Using Breusch-Pagan test statistic: The Null hypothesis for the estimates is consistent asymptotic test statistic with Chi-square value and p-value. (A low p-value less than 0.05 counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative.). In case of a tie between random and fixed effect, Hausman test is required. The effect controls the unobserved heterogeneity of

the data being analyzed. The Durbin- Wu-Hausman test for the null hypothesis that the independent variable and the error are uncorrelated (Verbeek, 2004). The parameter estimators are compared for consistency and stationarity structure of the data under both the null and alternative hypothesis and the one that consistent under the null hypothesis only. In case the difference is significant, the null hypothesis is unlikely to hold. The Hausman test was used for the regression model in this study where the p-value which indicated if a fixed or random effects model is suitable.

Test for Heteroskedasticity

Gujarati (2004) reveals that one of the assumptions of OLS regression is that Heteroskedasticity of residual should not occur. The response of variance of residuals should be inversely proportional to the fitted values of predictor variable. The occurrence of Heteroskedasticity in the application of regression analysis is a major concern since it affects the statistical tests significantly by assuming that the modeling errors are uncorrelated and uniform and thus the variance do not change with effect being modeled (Gujarati, 2004). In estimating the linear regression estimators with occurrence of heteroskedastic error term, the Breusch – Pagan and modified Wald- test was used in this study as proposed by Wald in Econometrics.

Test for Normality of Residue

The valid Normality test is to be able to reliably use t-statistics on coefficients using Chi- square, moments, and empirical distribution, regression and correlation tests. The central limit theorem doesn't say anything about many observations making the data come from a normal distribution. To test for normality of the error term in panel data, Shapiro- Wilk test, the histogram and the frequency polygon was used. The test statistics combined with either empirical distribution function or empirical characteristic functions result to estimating the fixed and random components.

The relationship between dependent variable and the independent variables was derived from the panel data regression function and to measure the degree of the relationship, the study adapted Karl Pearson’s correlation. A number of recent studies have used Pearson’s correlation, panel regression and ANOVA analysis.

Kaddumi and Ramadan (2012) used the models to determine the effect of financial risk on the returns of Jordan industrial companies listed at Amman stock exchange. Hussain, Farooz and Khan (2012) used these three models to determine the association between financial risk and returns in Pakistan manufacturing firms.

The study determined the partial correlation analysis between variables. The separate measure of the relationship between variable eliminating the effect of one variable at a time pointed out the partial coefficient of the correlation (Kothari, 2004). The objective is to measure the influence of one independent variable on the dependent variable holding others constant as guided by the research hypothesis. Panel data regression analysis was used. Panel data regression analysis was used in the past by Uremadu, Egbide and Enyi(2012) in their study on effects of financial risk and liquidity on corporate profitability among Nigerian quoted firms. They used random effects analytical models to estimate the relationship between the level of corporate profitability and four independent variables; liquidity, credit risk, market risk, operation risk and investment risk.

3.9.3. Correlation Analysis

The relation between the explanatory variables is established through correlation analysis. To ascertain the strength of the relationship, a correlation coefficient was derived from the actual measurement of the variables.

3.9.4. Regression Analysis

The violation of assumptions of OLS method that the variables are not strongly collinear impairs the estimation of its parameters. The insertion of additional variable gradually improves the equation estimation and its effect on coefficients, t- values and the adjusted R^2(Gujarati, 2004). If the additional variable improves adjusted R^2 with acceptable coefficients, the variable is useful and should be retained as an explanatory variable (King'oriah, 2004). If the additional variable does not improve adjusted R^2 and affect significantly the individual coefficient, the variable is excluded from the regression equation.

Park (2008) argues that the additional variable should be excluded if it adversely affects the sign of the coefficient value and does not improve the adjusted R^2. The relation between the explanatory variables was established through correlation analysis. Regression analysis and ANOVA were used to test the effect of financial risk variables on the unit trust price volatility. The dependent variable was unit trust price volatility (Y) and the five independent variables were liquidity risk (LR), default risk (DR), operation risk (OR), Market risk (MR) and investment risk (IR). The relationship between the dependent and independent variables was determined as;

$$Y= \beta_o + \beta_1 LR + \beta_2 DR + \beta_3 OR + \beta_4 MR + \beta_5 IR + \varepsilon \quad \text{.....Eqn3.1}$$

Descriptive analysis used frequency distributions and means, median and standard deviation as measured by percentages.

3.9.5. Definition and Measurement of Variables

Table 3.2 below shows the variables, their symbols and how they are measured.

Table 3.1: Variables Used in the Model

Variable	Definition	Measurement
Unit trust price volatility ($UTPV_t$)	Degree of variation of unit trust price.	Unit Trust Price volatility (standard deviation of NAV)
Liquidity risk (LR_t)	Potential loss arising from firms' inability to meet its financial obligation.	Quick acid ratio test use cash, marketable securities and account receivables. Current ratio test =current assets/current liabilities
Default risk (DR_t)	Unable to meet the required payment on debt.	Total return to total asset Current debt servicing ratio
Operation risk (OR_t)	Loss resulting from inadequate or failed internal or external processes.	Efficiency: total expense to income ratio Asset utilization ratio = Operating income to total assets Cost income ratio= operation cost / income
Market risk(MR_t)	The effect of price, exchange rates, interest rate and other macroeconomic factors on the value of financial position.	Beta value β
Investment risk (IR_t)	The risk of investment declining in value because of economic development or other events that affect the entire market.	Annual income to expenses ratio

Table 3.2:. Summary of Data Analysis

	Research Hypothesis	Variables		Statistical Analysis
		Independent	Dependent	
H_{01}	Liquidity risk has no statistically significant effect on unit trust price volatility in Kenya.	Liquidity risk	Unit Trust Price Volatility	Regression model: $UTPV = \beta 0 + \beta 1LR$
H_{02}	Default risk has no statistically significant effect on unit trust price volatility in Kenya.	Default risk	Unit Trust Price Volatility	$UTPV = \beta 0 + \beta 2DR$
H_{03}	Operational risk has no statistically significant effect on unit trust price volatility in Kenya.	Operational risk	Unit Trust Price Volatility	$UTPV = \beta 0 + \beta 3OR$
H_{04}	Market risk has no statistically significant effect on unit trust price volatility in Kenya.	Market risk	Unit Trust Price Volatility	$UTPV = \beta 0 + \beta 4MR$
H_{05}	Investment risk has no statistically significant effect on	Investment risk	Unit Trust Price Volatility	$UTPV = \beta 0 + \beta 5IR$

3.10 Statistical Model and Hypothesis Testing

The significantly relationship between financial risk and unit trust price volatility was determined by panel data regression analysis. The assumption of panel data analysis is that a subset of similar elements can be interpreted as a major driving force representing the entire dataset. It is possible to include large explanatory variables in panel data regression which may not be feasible in standard regression due to insufficient degrees of freedom. This inclusion of many predictors variable in panel data analysis guards the loss of information or increases the certainty of the model. The panel data regression analysis has been used in several studies globally. Ludvigson and Ng (2009), Bai (2010) and Cakmakli & Dijk (2010) used panel data regression analysis in the study forecasting performance of latent similar elements for security market returns and volatility, Watson (2002) in a study on predictive performance of output growth and inflation and also Monch (2008) used panel data regression analysis in determination of yield curve accuracy.

The model was used in the past by Raheman (2010) in their study on financial risk and financial performance of industrial firms in Pakistan as well as Hussain, Farooz and Khan (2012) in their study on financial risk and profitability in Pakistan manufacturing sector. In this study the panel data regression model has one dependent variable (Y_t) - for unit trust price volatility and five independent variables (X_1, X_2, X_3, X_4& X_5) being X_1 (liquidity risk), X_2 (default risk), X_3 (Operational risk), X_4 (Market risk) and X_{5t}(Investment risk) that was used to show that the stated independent variables have an effect on unit trust price volatility. The regression model was given by the following equation:

$$Y= \beta_o+ \beta_1X_1+\beta_2X_2 +\beta_3X_3+ \beta_4X_4+\beta_5X_5 +\varepsilon \quad \text{.....Eqn 3.1}$$

Where

Y= unit trust price volatility at model.

β_0 = Constant

X_1 = Liquidity risk

X_2 = Default risk

X_3= Operational risk

X_4 = Market risk

X_5 = investment risk

β_1 = Coefficient of variable X_1 (liquidity risk)

β_2 = Coefficient of Variable X_2 (Default risk)

β_3 = Coefficient of Variable X_3 (Operational risk)

β_4 = coefficient of variable X_4 (Market risk)

β_5 = Coefficient of variable X_5 (Investment risk)

ε = Error term

Testing of the study hypotheses was done through the use of probability. The method of hypothesis testing or significance testing is said to be probabilistic only when the sample from the population is determined using probability sampling method (Mosteller, Rourke &Thomas, 2000; King'oriah, 2004).

3.10.1 Overall Model

The overall significance test of coefficients in the panel data regression model involving all the independent variables (liquidity risk, default risk, operation risk, market risk and investment risk) was determined by the use of ANOVA test. To test the significance effect of independent variables (liquidity risk, default risk, operation risk, market risk and investment risk) have no significant effect on dependent variable that is $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ and the alternative prediction that at least

one of the independent variable was not equal to zero that is $\beta j \neq 0; j = 1, 2, 3, 4, 5$. The hypothesis to test is here below stated;

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

H_1: At least one of ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \neq 0$)

The regression model was given by the following equation:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \quad \text{.....Eqn 3.3}$$

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter comprises the results and discussions on the reliability test, diagnostic tests, liquidity risks, default risk, operation risk, market risk, investment risk and price volatility. The results are displayed using the descriptive statistics, trend analysis for all the three models namely money market fund, equity fund and combined model. The chapter also shows the results, correlation analysis results and interpretation of regression analysis showing the effect of financial risks on the unit trust price volatility.

4.2 Response Rate

The financial statements for 14-unit trust firms representing 73.6 % of the respondents were collected either from the firm's websites, main offices or CMA office. The official collected number of observations was 85 representing 67.5% of the observations. Most of the unit trust firms do not submit their financial statements to the CMA neither do they place them in their websites but store them in their offices in soft or hard copies. Kalunda (2012) reported a response rate of 70% in their study on pharmaceutical manufacturing companies in Kenya and their credit risk management practices. Mugenda and Mugenda (2004) assert that a response rate of more than 50% is adequate for analysis. Jones (2012) also asserts that a return rate of 50% is acceptable for analysis and publishing. Jones (2012) also stated that a 60% return rate is good and a 70% return rate is very good.

4.3 Unit Trust Firm Year of Inception

The study sought to establish the period the firms had been in operation. The distribution of unit trust firms' experience is shown in table 4.6. A significant majority of 9-unit trust firms representing (64.28%) of the firms has been in operation for a period above 7 years while the rest has been in operation in a period below 4 years. The study also sought to establish the year of inception on the unit

trust firms and the period the firms had been in operation. The results are as indicated in table 4.6

Table 4.1: Unit Trust Firm Year of Inception

S/N	UNITTRUST	MARKET	EQUITY	NUMBER OF YEARS
1	Britam	2007	2007	11
2	Madison	2011	2011	7
3	Old mutual	2008	2008	10
4	CIC	2011	2011	7
5	Apollos	2016	2016	2
6	ICEA	2011	2011	7
7	Genghis	2012	2012	6
8	Nabo Africa	2011	2011	7
9	Dyer& Blair	2008	2008	10
10	African alliance	2007	2007	11
11	CBA	2007	2007	11
12	Stanbic	2011	2011	7
13	Amana	2008	2008	10
14	Diaspora	2008	2008	10
15	Standard	2016	2016	2
16	Co-op	2016	2016	2
17	Zimele	2011	2012	7
18	UAP	2015	2014	4
19	Pan Africa	2011	2011	7
20	Equity investment		2016	2
21	Dry Associates (E		2008	
22	Sanlam (m)	2014		4
23	Watu (E)		2016	
24	Santra	2016		2

Source: CMA, 2017

4.4 Liquidity Risk on Unit Trust in Kenya

The researcher sought to summarize results of liquidity risk among CMA listed unit trust firms in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.4.1 Liquidity Risk of Unit Trust firms in Kenya for Money Market Fund

The liquidity risk was measured by the average of current ratio and quick ratio for money market fund.

Descriptive Statistics for Liquidity Risk among CMA Listed Unit Trust Firms in Kenya for Money Market Fund

The researcher summarizes the results of liquidity risk for money market fund among CMA listed unit trust firms in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.2.

Table 4.2: Liquidity Risk Descriptive Statistics for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Liquidity risk	2.90	2.83	0.77	0.273	2.88	1.84	4.05
Unit Trust Price Volatility	13.73	12.54	3.77	0.95	2.98	9.33	20.96

The descriptive statistics results in Table 4.2 above indicated that, for the nine years' period (2009 to 2017), liquidity risk recorded a mean of 2.90 with a median of 2.83 and a standard deviation of 0.77. The minimum liquidity risk recorded was 1.84 and a maximum value of 4.05. The mean unit trust price volatility was realized to be 13.73 according to the results presented in Table 4.2. In addition, the minimum value of unit trust price volatility was found to be 9.33 in 2009 and a maximum of 20.96 in 2015. The descriptive statistics also presented a median of 12.54 and a standard deviation of 3.77.

Liquidity Risk Panel Plot and Trend in Kenya for Money Market Fund

The study further sought to establish the trends for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure. 4.1

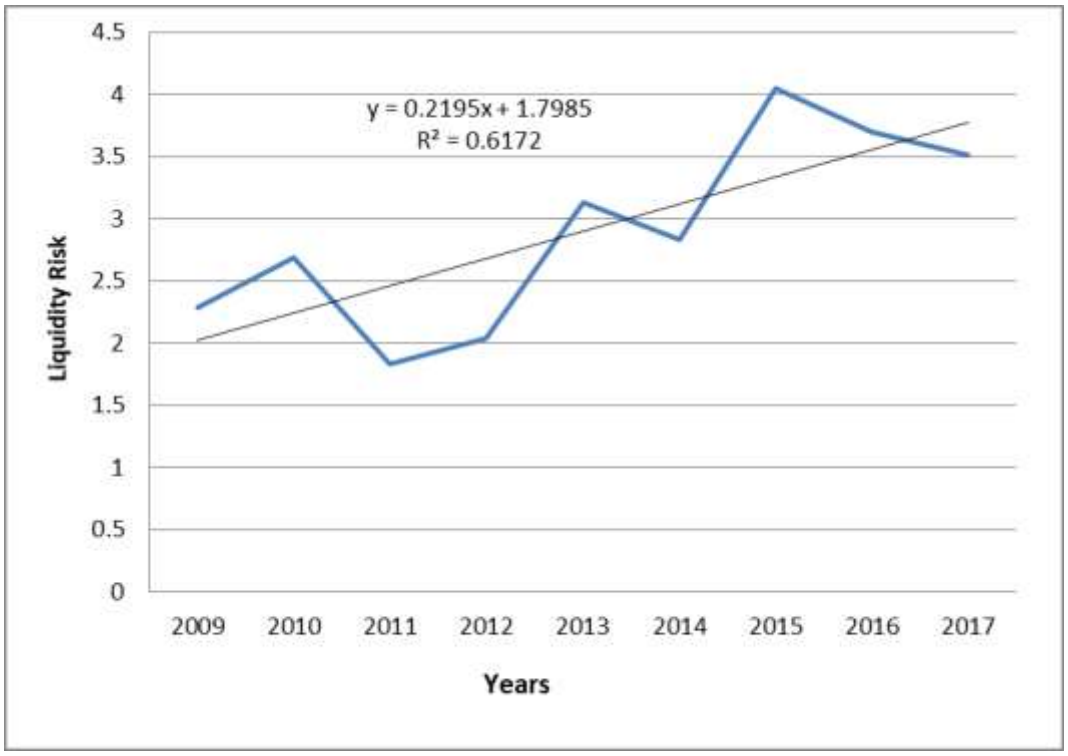

Figure 4.1: The Liquidity Risk Panel Plot and Trend for Money Market fund

The study established a panel plot and trend for the years 2009 up to 2017. The visual impression of the curve showed a peak in the year 2015 and a depression in the year 2011. In relation to the trend line that was fitted to the curve, there is a considerable increment in the liquidity risk with increase in time. This is indicated by the positive gradient of 0.2195 and a y-intercept of 1.7985. Basel committee on banking supervision (2006) reported a positive gradient in the study on liquidity risk in financial groups which concurred with the results. According to the resultant R^2 =0.6172 of the trend line, the change in time explains 61.72% of the change observed by the liquidity risk with only 38.28% explained by the error term.

Unit Trust Price Volatility Panel Plot and Trend for Money Market Fund

The study further sought to establish the panel plot and trend of unit trust price volatility for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable The results are presented in Figure 4.2.

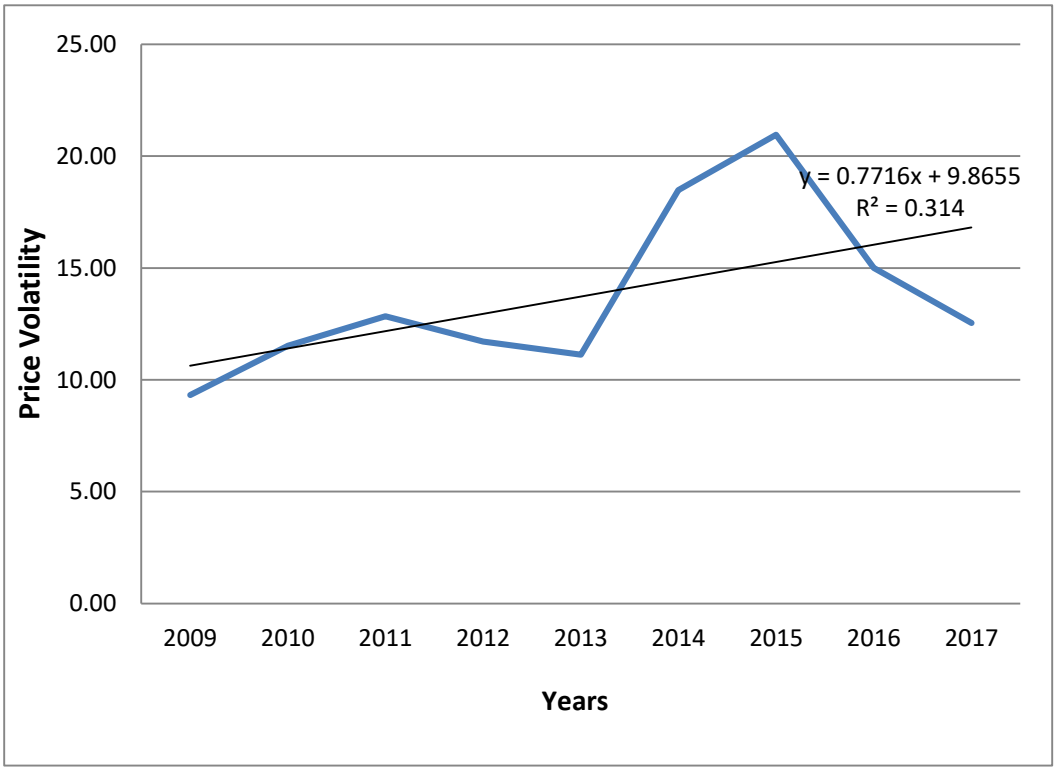

Figure 4.2: Unit Trust Price Volatility Panel Plot and Trend for Money Market Fund

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2015 and the lowest point at the year 2009. According to trend line that was plotted, there is a positive gradient of 0.7716 with a y-axis intercept of 9.8655. The results concur with John, E. M. (1995) who also reported a positive gradient trend in financial markets volatility in the G-7 countries. According to the resultant $R^2 = 0.314$ of the trend line, time as the independent variable explains a proportion of 31.4% of the change observed in the investment risk with 68.6%

being explained by the error term. Schwert, (1999) reported a positive gradient in the research on stock price volatility change over time

Regression Analysis on Effect of Liquidity Risk on Unit Trust Price Volatility for Money Market Fund

The study sought to establish the effect of liquidity risk on unit trust price volatility for the money market fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.3.

Table 4.3: Regression Coefficients for the Effect of Liquidity Risk on Unit Trust Price Volatility for Money Market Fund

	B	Standard Error	Beta	t	p-value
(Constant)	0.248	0.028		8.857	0.000
Liquidity Risk	0.225	0.081	0.263	2.778	0.005

The analysis of the regression model coefficients on liquidity risk and unit trust price volatility for money market fund recorded a coefficient of regression β=0.225, p-value=0.005<0.05 and a constant term 0.248, p-value = 0.000< 0.05. The constant term and beta coefficient contribute significantly to the model. The regression model can be represented as $Y = 0.248 + 0.225X_1$, where Y = Unit trust price volatility and X_1 = liquidity risk. The implication is that a change in one unit of liquidity risk increases unit trust price volatility by 0.225 units. This implies that liquidity risk has a positive effect on unit trust price volatility that is statistically significant at 5% level of significance for money market fund. The results contradict some other researchers such as Soh et al (2009) and Purnamasari (2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of liquidity risk on relationship between earnings per share and stock returns.

4.4.2 Liquidity Risk for Equity Fund

The liquidity risk was measured by the average of current ratio and quick ratio for equity fund.

Descriptive Statistics for Liquidity Risk and Unit Trust Price Volatility of Unit Trust in Kenya

The study sought to summarize results of liquidity risk for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.4.

Table 4.4: Liquidity Risk and UTPV Descriptive Statistics

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Liquidity risk	3.42	3.27	0.79	0.570	2.98	2.12	4.64
Unit Trust Price Volatility	8.92	8.86	1.21	0.15	3.03	6.25	10.23

The findings shown in Table 4.4 revealed that from 2009 to 2017, liquidity risk recorded a mean of 3.42 while the median was 3.27. The descriptive statistics further yielded a standard deviation of 0.786. In addition, the highest value realized was 4.64 in the year 2011 while the least was 2.12 in the year 2015.

The mean unit trust price volatility was realized to be 8.92 according to the results presented in Table 4.4. In addition, the minimum value of unit trust price volatility was found to be 6.25 in 2009 and a maximum of 10.23 in 2015. The descriptive statistics also presented a median of 8.86 and a standard deviation of 1.21.

Liquidity Risk Panel Plot and Trend of Unit Trust in Kenya

The study further sought to establish the panel plot and trends for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable The results are as presented in Figure4.3.

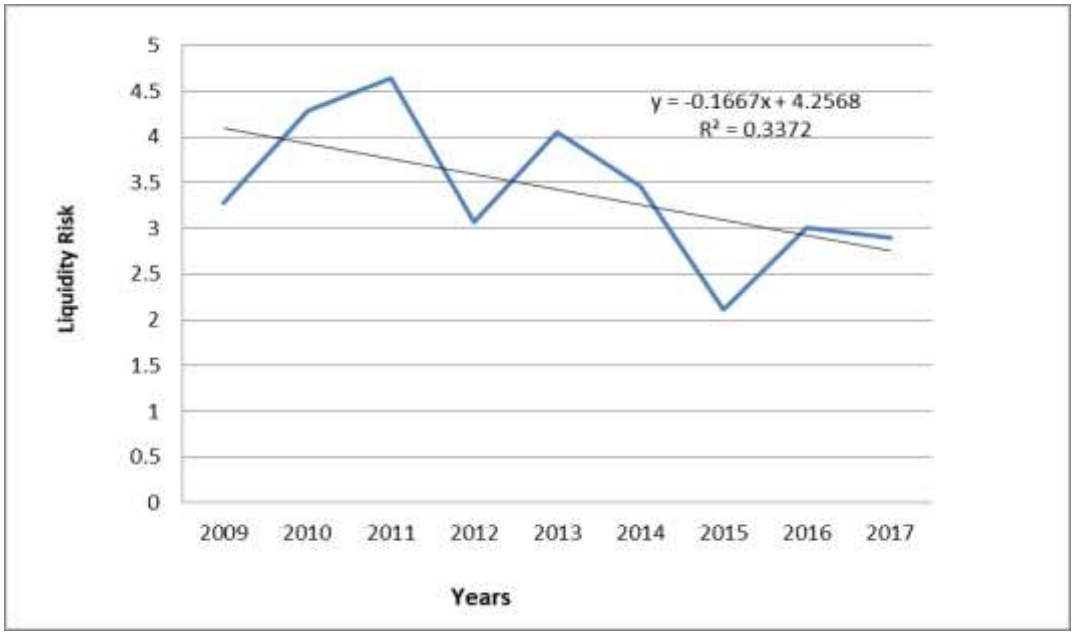

Figure 4.3: The Liquidity Risk Panel Plot and Trend

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2011 and the lowest point at the year 2015. According to trend line that was fitted, there is a steep slope in the liquidity risk with change in time. This is shown by the negative gradient of -0.1667 with a y-axis intercept of 4.2568. Basel committee on banking supervision (2006) reported a positive gradient in the study on liquidity risk in financial groups which contradicted the above results. According to the resultant R^2=0.3372 of the trend line, time as the independent variable explains a small proportion of 33.72% of the change observed in the liquidity risk with a large proportion of 66.28% explained by the error term.

Unit Trust Price Volatility Panel Plot and Trend

The study further sought to establish the panel plot and trend of unit trust price volatility for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.4.

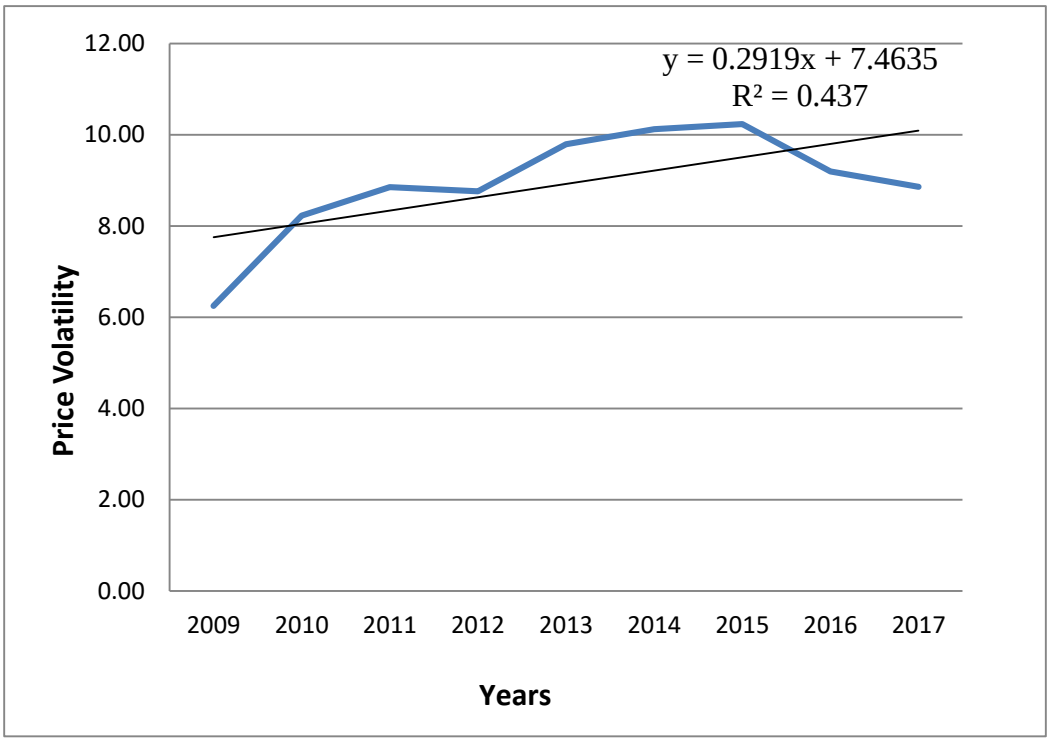

Figure 4.4: Unit Trust Price Volatility Panel Plot and Trend for Equity Fund

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2015 and the lowest point at the year 2009. According to trend line that was plotted, there is a positive gradient of 0.2919 with a y-axis intercept of 7.4635. The results concur with John (1995) who also reported a positive gradient trend in financial markets volatility in the G-7 countries. According to the resultant R^2= 0.437 of the trend line, time as the independent variable explains a proportion of 43.7% of the change observed in the unit trust price volatility with 56.3% being explained by the error term.

Regression Analysis of Effect of Liquidity Risk on Unit Trust Price Volatility for Equity Fund

The study sought to establish the effect of liquidity risk on unit trust price volatility for the equity fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.5.

Table 4.5: Regression Analysis for the Effect of Liquidity Risk on Unit Trust Price Volatility for Equity Fund

	B	Standard Error	Beta	t	p-value
(Constant)	1.912	0.421		4.542	0.002
Liquidity Risk	-0.289	0.141	-0.188	-2.050	0.048

The relationship between liquidity risk and unit trust price volatility for equity fund recorded a coefficient of regression **β**=-0.289, p-value=0.048<0.05and a constant term 1.912, p-value = 0.002 < 0.05. The constant term and Beta coefficient contribute significantly to the model. The regression model can be represented as Y = 1.912 - 0.289X_1, where Y = Unit trust price volatility and X_1 = liquidity risk for equity fund. The implication is that a change in one unit of liquidity risk decreases unit trust price volatility by 0.289 units. This implies that liquidity risk for equity fund have a negative effect on unit trust price volatility that is statistically significant at 5% level.The results contradict some other researchers such as Soh et al (2009) and Purnamasari et al(2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of liquidity risk on relationship between earnings per share and stock returns.

4.4.3 Liquidity Risk among CMA Listed Unit Trusts in Kenya for Combined Model

The liquidity risk for combined model was measured by the average of liquidity risk for money market fund and equity fund.

Descriptive Statistics for Liquidity Risk for Combined Model

The study sought to summarize results of liquidity risk among CMA listed Unit Trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. Results are presented in Table 4.6.

Table 4.6: Liquidity Risk Descriptive Statistics for Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Liquidity risk	3.16	3.21	0.33	-0.455	2.95	2.55	3.59
Unit Trust Price Volatility	4.53	4.49	0.62	0.19	3.00	3.17	5.22

According to the descriptive statistics in Table 4.6 above, the liquidity risk yielded a mean of 3.16 and a median of 3.21. The table further presented a standard deviation of 0.328. A minimum of 2.55 was recorded in the year 2012 and a maximum of 3.59 recorded in the year 2013.The mean unit trust price volatility was realized to be 4.53 according to the results presented in Table 4.11. In addition, the minimum value of investment risk was found to be 3.17 in 2009 and a maximum of 5.22 in 2015. The descriptive statistics also presented a median of 4.49 and a standard deviation of 3.17.

Liquidity Risk Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trends for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable .The results are as presented in Figure 4.5.

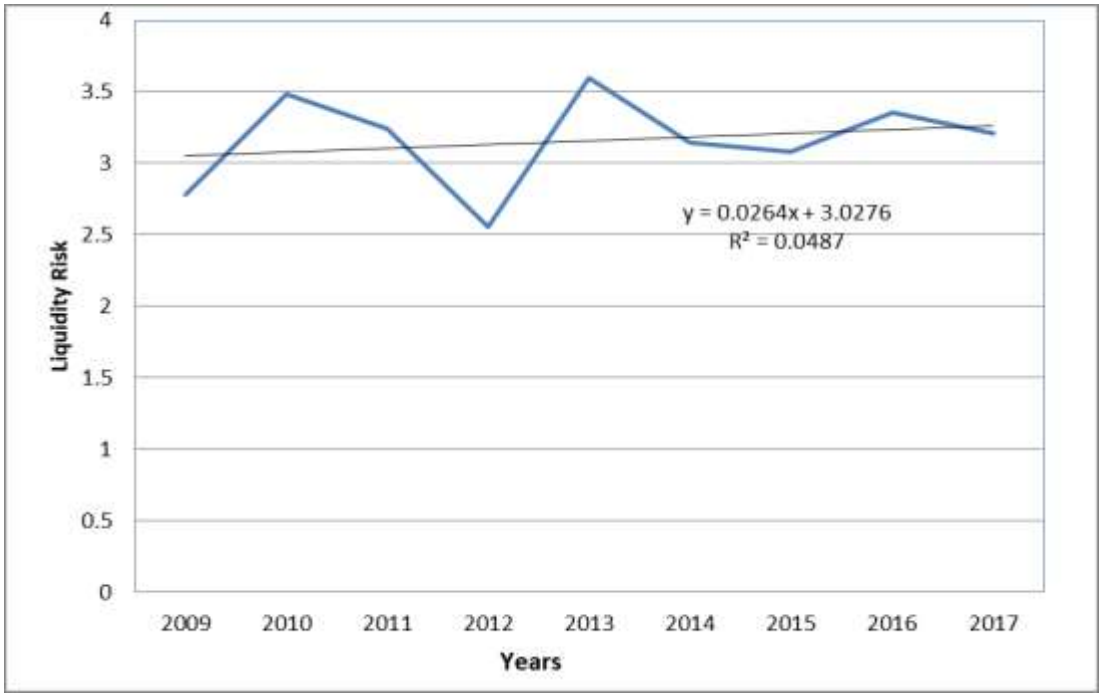

Figure 4.5: Liquidity Risk Panel Plot and Trend for Combined Model

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2013 and the lowest point at the year 2012. According to trend line that was plotted, there is negligible increment in the liquidity risk with change in time. This is shown by the positive gradient of 0.0264 with a y-axis intercept of 3.0276. Basel committee on banking supervision (2006) reported a positive gradient in the study on liquidity risk in financial groups which concurred with the results. According to the resultant R^2= 0.0487 of the trend line, time as the independent variable explains a very small proportion of 4.87% of the change observed in the liquidity risk with a huge proportion of 95.13% being explained by the error term.

Unit Trust Price Volatility Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trend of unit trust price volatility for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.6.

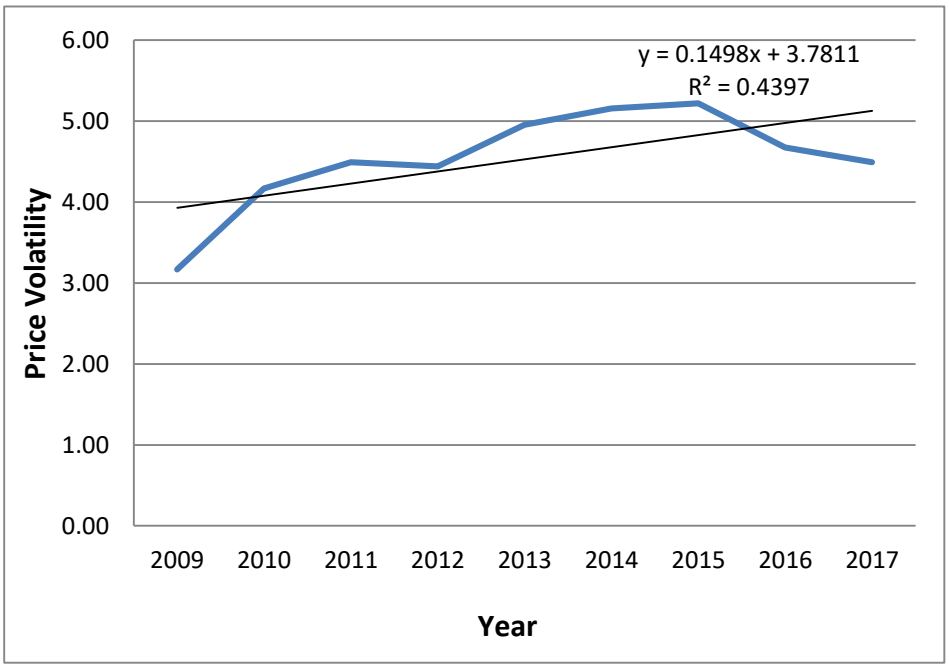

Figure 4.6: Unit Trust Price Volatility Panel Plot and Trend for Combined Model

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2015 and the lowest point at the year 2009. According to trend line that was plotted, there is a positive gradient of 0.1498 with a y-axis intercept of 3.7811. The results concur with John (1995) who also reported a positive gradient trend in financial markets volatility in the G-7 countries. According to the resultant R^2 = 0.4397 of the trend line, time as the independent variable explains a proportion of 43.97% of the change observed in the unit trust price volatility with 56.03% being explained by the error term.

Regression Analysis of Effect of Liquidity Risk on Unit Trust Price Volatility for Combined Model

The study sought to establish the effects of liquidity risk on unit trust price volatility for the combined model by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.7.

Table 4.7: Regression Coefficient for the Effect of Liquidity Risk on Unit Trust Price Volatility for Combined Model

	B	Standard Error	Beta	t	p-value
(Constant)	2.329	2.106		1.106	0.305
Liquidity Risk	0.697	0.263	0.369	2.650	0.024

The effect of Liquidity Risk on unit trust price volatility for the Combined (average of Money market and equity fund) model recorded a coefficient of regression β=0.697, p-value=0.024<0.05 and a constant term 2.329, p-value = 0.305 > 0.05. The constant term does not contribute significantly to the model while the beta coefficient contributes significantly to the model. The regression model can be represented as $Y = 2.329 + 0.697X_1$where Y = Unit trust price volatility and X_1 = liquidity risk for combined model. The implication is that a change in one unit of liquidity risk increases unit trust price volatility by 0.697 units. This implies that liquidity risk for Equity Fund have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The results contradict some other researchers such as Soh et al (2009) and Purnamasari et al (2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of liquidity risk on relationship between earnings per share and stock returns.

As pointed out by Amihud et al. (2013), liquidity varies for a number of reasons. First, it depends in part on the transparency of information about a security's value, which can change over time. Second, the number of liquidity providers and their access to capital is an important determinant of liquidity as argued by Brunnermeier and Pedersen (2009).

4.5 Default Risk on Unit Trusts in Kenya

The section contains the results of default risk among CMA listed Unit Trusts in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.5.1 Default Risk for Money Market Fund

The default risk was measured by the average of total return to total asset ratio and current loan to value ratio for money market fund.

Descriptive Statistics for Default Risk for Money Market Fund

The study sought to summarize results of default risk for money market fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.8.

Table 4.8: Default Risk Descriptive Statistics for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	mini	maximum
Default risk	0.97	0.90	0.82	0.256	3.01	0.20	3.01

The mean default risk according to Table 4.8 above was 0.97 while the median was 0.90. The standard deviation was 0.82 while the minimum value was 0.20 in the year 2011 while the maximum was 3.01 the year 2016.

Default Risk Panel plot and Trend for the Money Market Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.7.

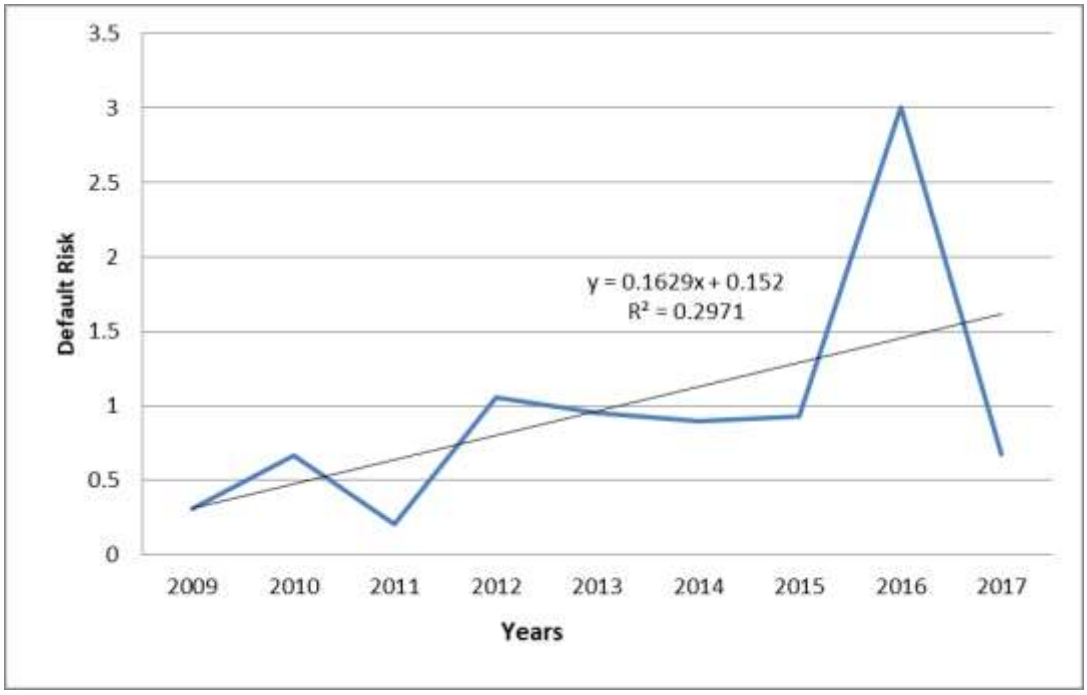

Figure 4.7: The Default Risk Panel Plot and Trend for Money Market Fund

The study established a panel plot and trend for the years 2009 up to 2017. The visual impression of the curve showed a peak in the year 2016 and a depression in the year 2011. In relation to the trend line that was fitted to the curve, there is a considerable increment in the default risk with increase in time. This is indicated by the positive gradient of 0.1629 and a y-intercept of 0.152. Peter and Madstenbo (2012) reported a positive gradient in the study on systematic and idiosyncratic default risk in synthetic credit market. This conforms the above results on the positive gradient. According to the resultant $R^2 = 0.2971$ of the trend line, the change in time explains only 29.71% of the change observed by the liquidity risks with 70.29% explained by the error term.

Regression Analysis of Effect of Default Risk on Unit Trust Price Volatility for Money Market Fund

The study sought to establish the effects of default risk on unit trust price volatility for the money market fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.9.

Table 4.9: Regression Coefficient for Default Risk on Price Volatility for Money Market Fund

	B	Standard Error	Beta	t	p-value
(Constant)	0.126	0.021		6.042	0.001
Default risk	0.112	0.037	0.265	3.027	0.019

The effect of default risk on unit trust price volatility for money market fund recorded a coefficient of regression **β**= 0.112, p-value = 0.019 <0.05 and a constant term 0.126, p-value = 0.001< 0.05. The constant term and beta coefficient contribute significantly to the model. The regression model can be represented as Y = 0.126 + $0.112X_1$, where Y = Unit trust price volatility and X_2 = default risk for money market fund. The implication is that a change in one unit of default risk increases unit trust price volatility by 0.012 units. This implies that default risk for money market fund have a positive effect on unit trust Price Volatility that is statistically significant at 5% level of significance. The results contradict some other researchers such as Soh et al (2009) and Purnamasari et al (2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of credit risk on relationship between earnings per share and stock returns.

4.5.2 Default Risk for Equity Fund

The default risk was measured by the average of total return to total asset ratio and current loan to value ratio for equity fund.

Descriptive Statistics for Default Risk for Equity Fund

The study sought to summarize results of default risk for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median and standard deviation. The results are as presented in Table 4.10.

Table 4.10: Default Risk for Equity Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	mini	maximum
Default risk	0.18	0.22	0.12	-1.00	2.94	-0.02	0.37
Unit Trust Price Volatility	8.92	8.86	1.21	0.15	3.03	6.25	10.23

The results in the above Table 4.10 yielded a mean of 0.18 and a median of 0.22. The results further yielded a standard deviation of 0.12. The highest value recorded was 0.37 in the year 2013 and the lowest was -0.02 in the year 2011.

Default Risk Panel Plot and Trend for Equity Fund

The study further sought to establish the panel plot and trend line for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.8.

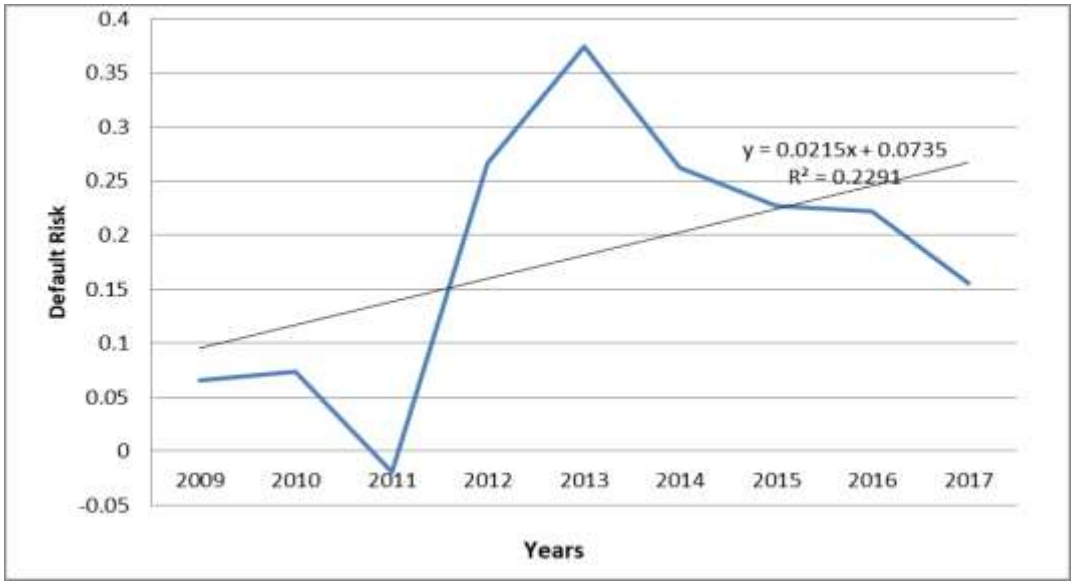

Figure 4.8: The Default Risk Panel Plot and Trend for Equity fund

The study established a panel plot and trend for the research period (2009-2017). The curve revealed a peak in the year 2013 and a depression in the year 2011. In relation to the trend line that was fitted to the curve, there is a considerable increment in the

default risk with increase in time. This is indicated by the positive gradient of 0.0215 and a y-intercept of 0.0735. Peter and Madstenbo (2012) reported a positive gradient in the study on systematic and idiosyncratic default risk in synthetic credit market. This conforms the above results on the positive gradient. In relation to the trend line that was fitted, the resultant R^2=0.2291. Time as the independent variable explains only 22.91% of the change realized by the default risk, with a large proportion of 77.09% being explained by the error term.

Regression Analysis of Effect of Default Risk on Unit Trust Price Volatility for Equity Fund

The study sought to establish the effect of liquidity risk on unit trust price volatility for the equity fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.11.

Table 4.11: Regression Coefficient for Default Risk on Unit Trust Price Volatility for Equity Fund

	B	Standard Error	Beta	t	p-value	VIF
(Constant)	3.842	0.634		6.060	0.000	
Default risk	2.986	0.949	0.609	3.146	0.008	1.187

The effect of default risk on unit trust price volatility for equity fund recorded a coefficient of regression **β**=2.986, p-value=0.008<0.05and a constant term 3.842, p-value = 0.000< 0.05. The constant term and beta coefficient contribute significantly to the model. The regression model can be represented as $Y = 3.842 + 2.986X_2$, where Y = Unit trust price volatility and X_2 = default risk for equity fund. The implication is that a change in one unit of default risk increases unit trust price volatility by 2.986 units. This implies that default risk for Equity Fund have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The results contradict some other study such as Soh et al (2009) and Purnamasari et al (2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of credit risk on relationship between earnings per share and stock returns.

4.5.3 Default Risk for Combined Model

The default risk is measured by the average of money market fund default risk and equity fund default risk.

Descriptive Statistics for Default Risk for Combined Model

The study sought to summarize results of default risk among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median and standard deviation. The results are presented in Table 4.12.

Table 4.12: Default Risk for Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	mini	maximum
Default risk	0.57	0.58	0.44	-0.068	2.98	-1.53	0.56
Unit Trust Price Volatility	4.53	4.49	0.62	0.19	3.00	3.17	5.22

The study found out that the default risk recorded the highest value of 1.61 in the year 2016 and the lowest value of 0.09 in the year 2011. The mean default risk for the duration was found to be 0.57 with a median of 0.58 and a standard deviation of 0.44.

Default Risk Panel plot and Trend for Combined Model

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.9.

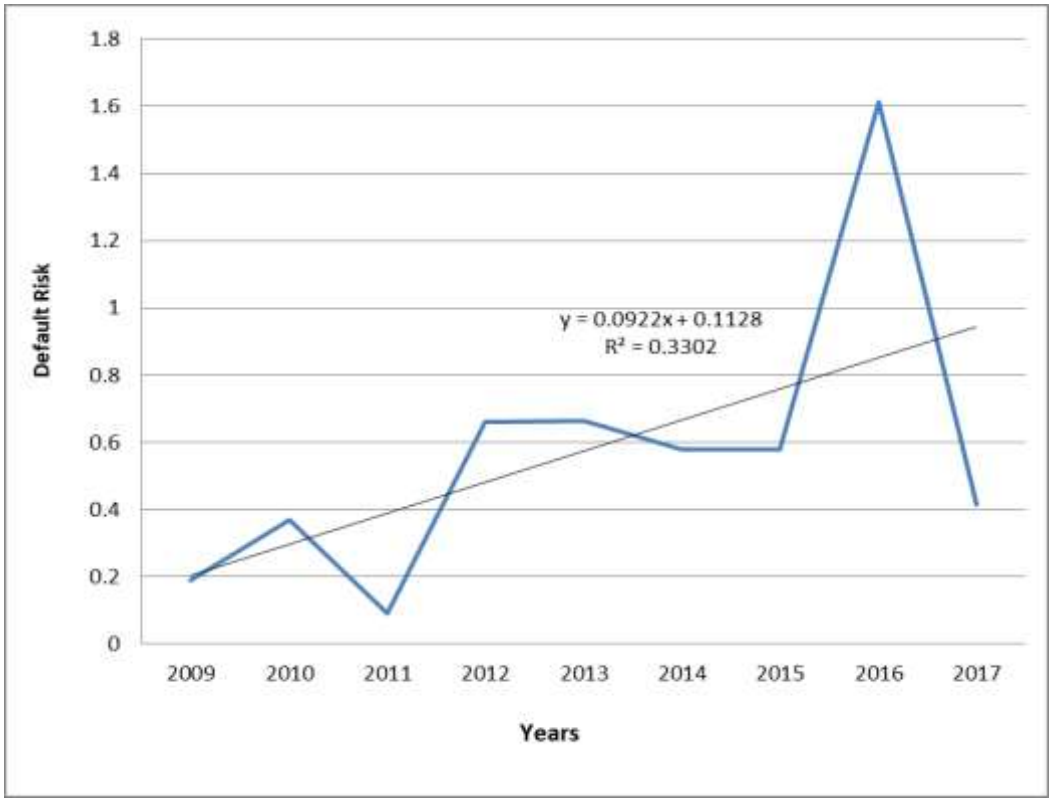

Figure 4.9: Default Risk Panel Plot and Trend for Combined Model

The study established a panel plot and trend for the years 2009 up to 2017. The visual impression of the curve showed a peak in the year 2016 and a depression in the year 2011. In relation to the trend line that was fitted to the curve, there is a considerable increment in the liquidity risk with increase in time. This is indicated by the positive gradient of 0.0922 and a y-intercept of 0.1128. Peter and Madstenbo (2012) reported a positive gradient in the study on systematic and idiosyncratic default risk in synthetic credit market. This confirms the above results on the positive gradient. According to the resultant R^2 =0.3302 of the trend line, the change in time explains 33.02% of the change observed by the liquidity risks with 66.98% explained by the error term.

Regression Analysis of Effect of Default Risk on Unit Trust Price Volatility for Combined Model

The study sought to establish the effect of liquidity risk on unit trust price volatility for the combined model by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.13.

Table 4.13: Regression Coefficient for Default Risk on Unit Trust Price Volatility for Combined Model

	B	Standard Error	Beta	t	p-value
(Constant)	3.236	0.350		9.246	0.000
Default risk	1.524	0.494	1.372	3.085	0.017

The effect of default risk on price volatility for the combined model recorded a coefficient of regression **β**=1.524, p-value=0.017<0.05and a constant term 3.236, p-value = 0.000 < 0.05. The constant term and beta coefficient contribute significantly to the model. The regression model can be represented as $Y = 3.236 + 1.524X_2$, where Y = Unit trust price volatility and X_2 = default risk for combined model. The implication is that a change in one unit of default risk increases unit trust price volatility by 1.524 units. The value of (R^2= 0.2134), implying that default risk contributes 21.34% to the unit change in unit trust price volatility. This implies that Default Risk for the combined model have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The results contradict some other researchers such as Soh et al (2009) and Purnamasari et al (2012) and consistent with the results of Cheng and Nasir (2010) that revealed a positive significant effect of credit risk on relationship between earnings per share and stock returns.

4.6 Operational Risk among CMA Listed Unit Trusts in Kenya

The study sought to summarize results of Operational Risk among CMA listed Unit Trusts in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.6.1 Operational Risk for Money Market Fund

The study measured operational risk as the average of Cost to Income Ratio and Operating cost to income ratio for money market fund.

Descriptive Statistics for Operational Risk for Money Market Fund

The study sought to summarize results of Operational Risk for Money Market Fund among CMA listed Unit Trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.14.

Table 4.14: Operational Risk for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	mini	maximum
Operational risk	0.15	0.40	0.66	-1.136	2.75	-1.53	0.56
Unit Trust Price Volatility	13.73	12.54	3.77	0.95	2.98	9.33	20.96

The results revealed that the highest operational risk recorded was 0.56 and the lowest was -1.53 in the year 2011. However, for the study period (2009 – 2017), the mean Operational Risk was found to be 0.15 with a median of 0.40 and a standard deviation of 0.66 was realized.

Operational Risk Panel Plot and Trend for Money Market Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.10.

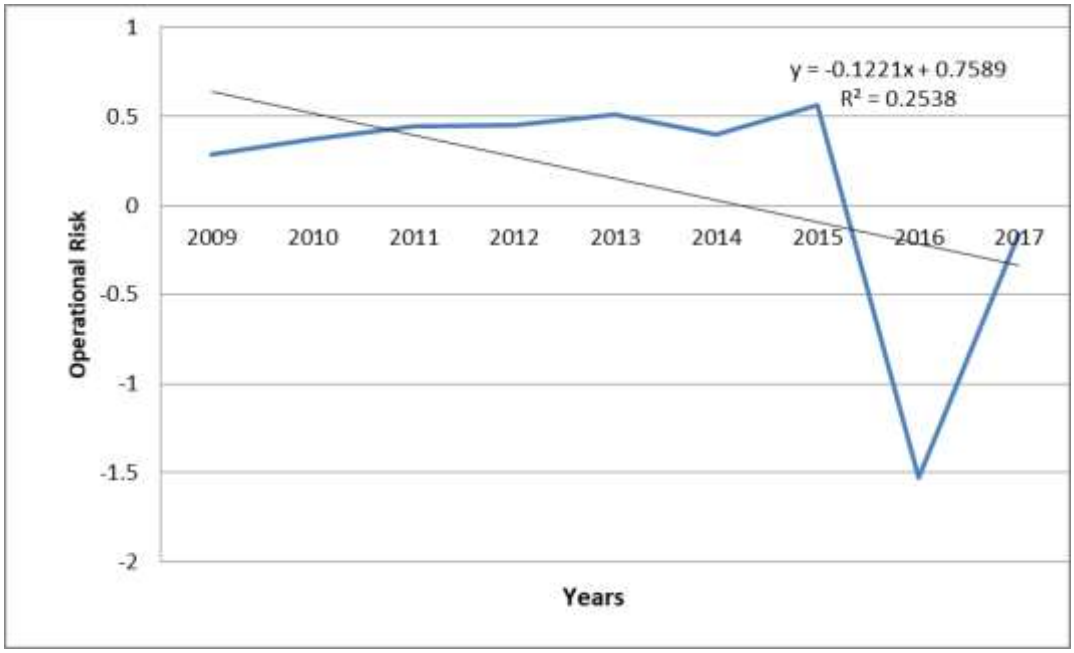

Figure 4.10: The Operational Risk Panel Plot and Trend for Money Market Fund

According to a panel plot and trend that was established by the study, the curve has a peak in the year 2015 and a depression in the year 2016. In relation to a trend line that was plotted, there is a steep slope in change in the operational risk with change in time. This is proved by a negative gradient of -0.1221 and a y-intercept of 0.7589. Paul (2018) also reported a negative gradient in the study on lessons and takeaways from 15 years of operational risk reporting consultancy. According to the resultant R^2 =0.2538 of the trend line, time as the independent variable explains only 25.38% observed by change in operational risk, with 74.62% being explained by the error term.

Regression Analysis of Effect of Operational Risk on Unit Trust Price Volatility for Money Market Fund

The study sought to establish the effect of operational risk on unit trust price volatility for the money market fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.15.

Table 4.15: Regression Coefficient for Operational Risk on Unit Trust Price Volatility for Money Market Fund

	B	Standard Error	Beta	t	p-value
(Constant)	0.137	0.014		9.956	0.000
Operational risk	-0.101	0.021	-0.126	-4.810	0.001

The effect of operational risk and unit trust price volatility for the money market fund yielded a coefficient of regression **β**= -0.101, p-value =0.001< 0.05 and a constant term 0.137, p-value = 0.000 < 0.05. The constant term and beta coefficient contribute significantly to the model despite the beta coefficient contributing negatively. The regression model can be represented as $Y = 0.137 - 0.101X_3$, where Y = Unit trust price volatility and X_3 = operational risk for money market fund. The implication is that a change in one unit of operational risk decreases unit trust price volatility by 0.101 units. This implies that operational risk for the combined model have a negative effect on unit trust price volatility that is statistically significant at 5% level of significance.

4.6.2 Operational Risk for Equity Fund

The study measured operational risk as the average of Cost to Income Ratio and operating cost to income ratio for equity fund.

Descriptive Statistics for Operational Risk for Equity Fund

The study sought to summarize results of operational risk for Equity Fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.16.

Table 4.16: Operational Risk for Equity Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Operational risk	0.29	0.37	0.37	-0.649	2.92	-0.65	0.69
Unit Trust Price Volatility	8.92	8.86	1.21	0.15	3.03	6.25	10.23

The findings shown in Table 4.16 above revealed the mean operational risk to be 0.29 with a median of 0.37and a standard deviation of 0.37. The findings further revealed a minimum of -0.65 in the year 2017 and a maximum of 0.69 in the year 2012.

Operational Risk Panel and Trend for Equity Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.11.

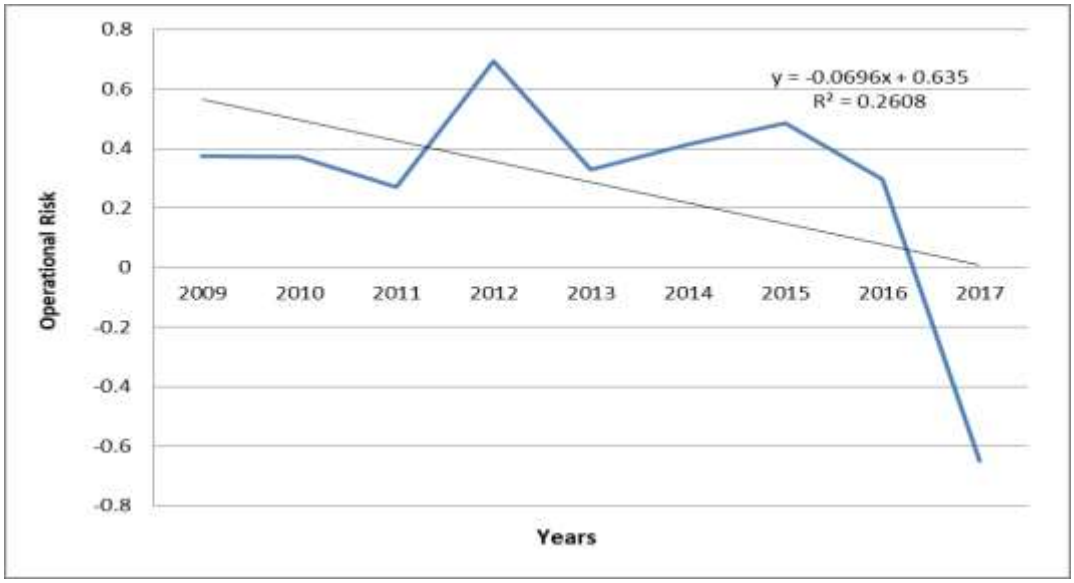

Figure 4.11: The Operational Risk Panel Plot and Trend for Equity Fund

The study established a panel plot and trend for the nine-year period as shown in Figure 4.11 above. The curve has a peak in the year 2012 and a depression in the year 2017. According to the resultant trend line, there is a steep slope in the operational risk with change in time as proven by a negative gradient of -0.0696 and a y-axis intercept of 0.635. Paul (2018) also reported a negative gradient in the study on lessons and takeaways from 15 years of operational risk reporting consultancy. In relation to the resultant R^2=0.2608, time explains only 26.08% of the change observed in the operational risk with the error term explaining a large proportion of 73.92%.

Regression Analysis of Effect of Operational Risk on Unit Trust Price Volatility for Equity Fund

The study sought to establish the effect of operational risk on unit trust price volatility for the equity fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.7.

Table 4.17: Regression Coefficient for Operational Risk on Unit Trust_Price Volatility for Equity Fund

	B	**Standard Error**	**Beta**	**t**	**p-value**
(Constant)	2.885	0.555		5.198	0.000
Operational risk	-0.531	0.223	0.354	2.381	0.038

The effect of operational risk on unit trust price volatility for the equity fund yielded a coefficient of regression **β**=0.531, p-value=0.038<0.05and a constant term 2.885, p-value = 0.000 < 0.05. The constant term and beta coefficient contribute significantly to the model despite beta coefficient contributing negatively. The regression model can be represented as $Y = 2.885 - 0.531X_3$, where Y = Unit trust price volatility and X_3 = operational risk for equity fund. The implication is that a change in one unit of operational risk decreases unit trust price volatility by 0.531 units. This implies that operational risk for the combined model have a negative

effect on unit trust price volatility that is statistically significant at 5% level of significance.

4.6.3 Operational Risk for Combined Model

The study measured operational risk for combined model as the average of operational risk for money market and equity fund.

Descriptive Statistics for Operational Risk for the Combined Model

The study sought to summarize results of operational risk for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.18.

Table 4.18: Operational Risk for the Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Operational risk	0.22	0.37	0.42	-1.07	2.90	-0.62	0.57
Unit Trust Price Volatility	4.53	4.49	0.62	0.19	3.00	3.17	5.22

The results revealed that the highest operational risk recorded was 0.57 in the year 2012 and the lowest was -0.62 in the year 2016. However, for the study period (2009 – 2017), the mean Operational Risk was found to be 0.22 with a median of 0.37 a standard deviation of 0.42 was realized.

Operational Risk Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable.The results are as presented in Figure 4.12.

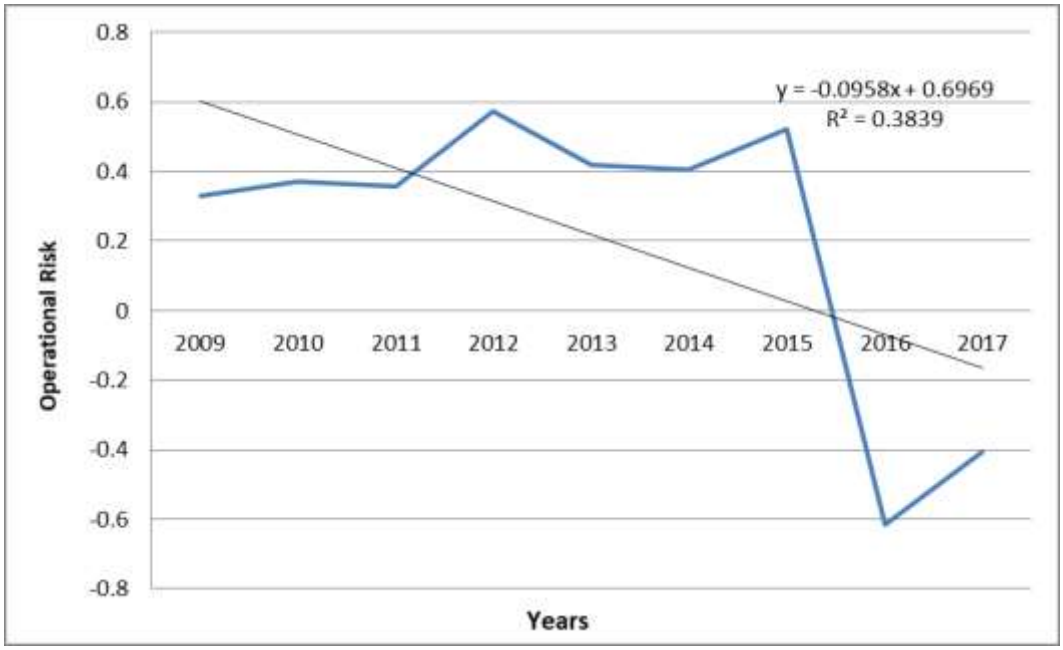

Figure 4.12: Operational Risk Panel Plot and Trend for Combined Model

The study established a panel plot and trend for the operational risk for 2009 – 2017 period. The curve shows the peak at the year 2012 and the lowest point at the year 2016. According to trend line that was fitted to the curve, there is a steep slope in the operational risk with change in time. This is shown by the negative gradient of -0.0958 with a y-axis intercept of 0.6969. Paul (2018) also reported a negative gradient in the study on lessons and takeaways from 15 years of operational risk reporting consultancy. According to the resultant R^2=0.3839 of the trend line, time as the independent variable explains 38.39% of the change observed in the investment risk with 61.61% being explained by the error term.

Regression Analysis of Effect of Operational Risk on Unit Trust Price Volatility for Combined Model

The study sought to establish the effect of operational risk on unit trust price volatility for the combined model by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.19.

Table 4.19: Regression Coefficient of Operational Risk on Unit Trust Price Volatility for Combined Model

	B	Standard Error	Beta	t	p-value
(Constant)	2.519	0.351		7.177	0.000
Operational risk	-0.049	0.022	0.034	-2.227	0.032

The effect of operational risk on unit trust price volatility for the combined model yielded a coefficient of regression **β**=-0.049, p-value=0.032<0.05 and a constant term 2.519, p-value = 0.000 < 0.05. The constant term and beta coefficient contribute significantly to the model though the beta coefficient contributes negatively. The regression model can be represented as $Y = 2.519 – 0.049X_3$, where Y = Unit trust price volatility and X_3 = operational risk for combined model. The implication is that a change in one unit of operational risk decreases unit trust price volatility by 0.049 units. This implies that Operational Risk for the combined model have a negative effect on unit trust Price Volatility that is statistically significant at 5% level of significance.

4.7 Market Risk among CMA Listed Unit Trusts in Kenya

The study sought to summarize results of market risk among CMA listed Unit Trusts in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.7.1 Market Risk for Money Market Fund

Descriptive Statistics for Market Risk for Money Market Fund

The study sought to summarize results of market risk for money market fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.20.

Table 4.20: Market Risk for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Market risk	2.25	2.19	0.44	0.409	2.98	1.57	3.19
Unit Trust Price Volatility	13.73	12.54	3.77	0.95	2.98	9.33	20.96

The descriptive statistics presented in Table 4.20 above indicated a mean of 2.25 and a median of 2.19. Similarly, the standard deviation was 0.44. The maximum value recorded was 3.19 in 2009 and a minimum of 1.57 in 2014.

Market Risk Panel Plot and Trend for Money Market Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.13.

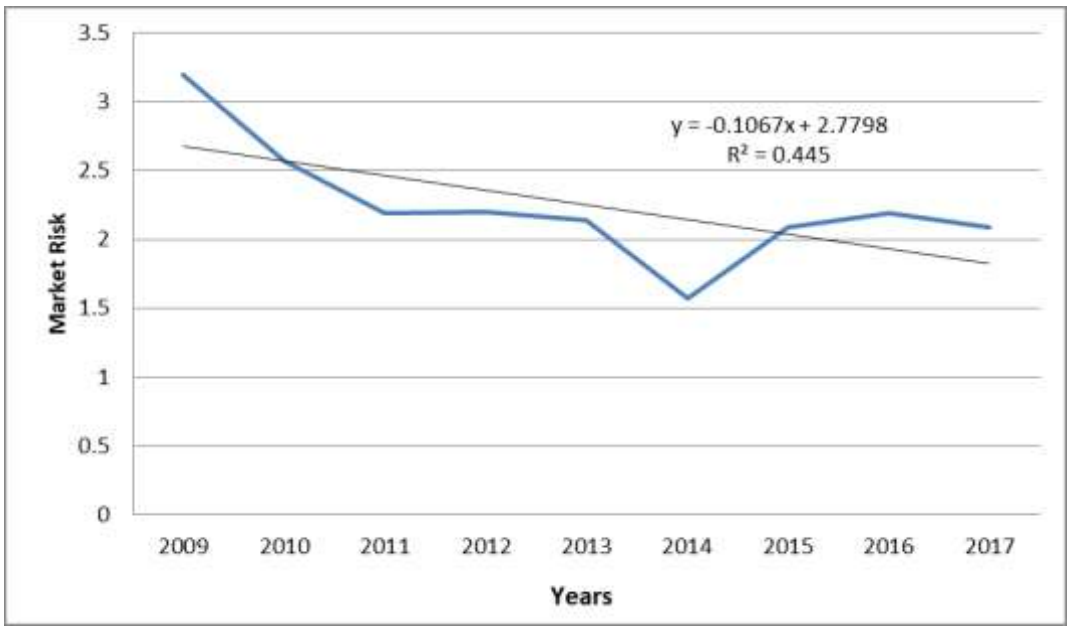

Figure 4.13: The Market Risk Panel Plot and Trend for Money Market Fund

The study established a panel plot and trend for the market risk for the nine- year period as indicated in Figure 4.13 above. The curve has the peak at the year 2009 and

the lowest point at the year 2014. According to trend line that was plotted, there is a steep slope in the market risk with change in time. This is shown by the negative gradient of -0.1067 with a y-axis intercept of 2.7798. Adrian and Cardine (2012) in the study on financial markets trends in business models of banks reported a negative gradient whose results concurred with the above report. According to the resultant R^2 = 0.4450 of the trend line, time as the independent variable explains a proportion of 44.50% of the change observed in the market risk with a 55.50% explained by the error term.

Regression Analysis of Effect of Market Risk on Unit Trust Price Volatility for Money Market Fund

The study sought to establish the effect of market risk on unit trust price volatility for the money market fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.21.

Table 4.21: Regression Coefficients on effect of market risk on Unit Trust Price Volatility for Money Market Fund

	B	Standard Error	Beta	t	p-value
(Constant)	0.265	0.056		4.758	0.002
Market Risk	-0.110	0.047	-0.162	-2.335	0.048

The effect of market risk on unit trust price volatility for the money market fund yielded a coefficient of regression β=-0.110 p-value=0.048<0.05 and a constant term 0.265, p-value = 0.002 < 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 0.265 - 0.110X_4$, where Y = Unit trust price volatility and X_4 = market risk for money market fund. The implication is that a change in one unit of market risk decreases unit trust price volatility by 0.110 units. This implies that market risk for the money market fund have a negative effect on unit trust Price Volatility that is statistically significant at 5% levels of significance. Market risk is determined by the overall economic factors which are beyond the control of any firm (Aruwa & Musa, 2012). The degree of financial leverage ratio

determines the level of market risk. The study emphasized on foreign exchange and interest rate risks as the major market risk indicators.

4.7.2 Market Risk for Equity Fund

Descriptive Statistics for Market Risk for Equity Fund

The study sought to summarize results of market risk for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.22.

Table 4.22: Market Risk for Equity Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Market risk	**1.91**	**2.00**	**0.44**	**-0.614**	**2.98**	**1.20**	**2.57**
Unit Trust Price Volatility	**8.92**	**8.86**	**1.21**	**0.15**	**3.03**	**6.25**	**10.23**

The results revealed that the highest market risk was 0.57, and was recorded in the year 2010. However, a minimum of 1.20 was observed in the year 2009. For the study period (2009 – 2017), the mean market risk was found to be 1.91 with a median of 2.00. As indicated by the standard deviation of 0.44, the market risk is relatively stable.

Market Risk Panel Plot and Trend for Equity Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.14.

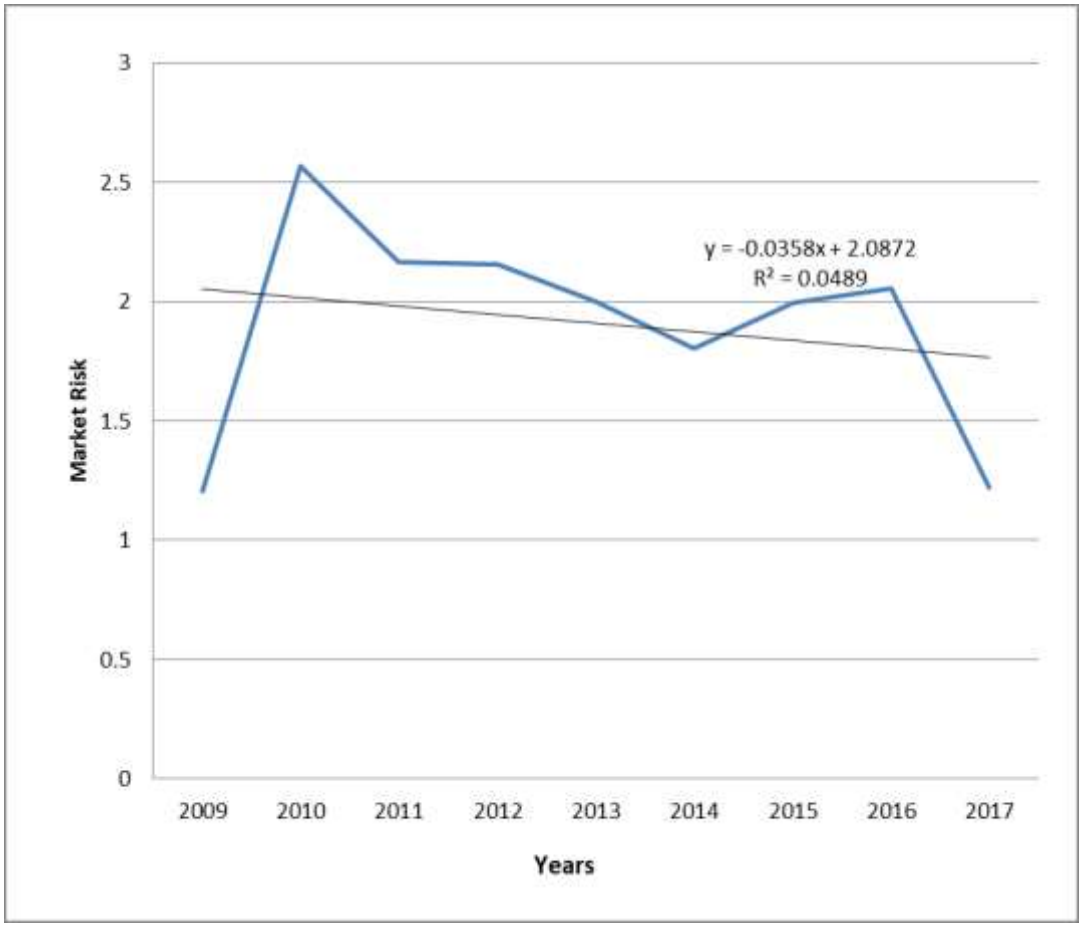

Figure 4.14: The Market Risk Panel Plot and Trend for Equity Fund

A panel plot and trend were plotted as indicated in Figure 4.14 above. The curve has a visible peak in the year 2010 and the lowest point in 2009. The resultant equation shows a negative gradient of -0.0358 and a y-intercept of 2.0872 implying that there is a steep slope in the market risk with change in time (years). Adrian and Cardine (2012) in the study on financial markets trends in business models of banks reported a negative gradient whose results concurred with the above report. According to the resultant R^2=0.0489, time as the independent variable explains only a little proportion of 4.89% of the change observed by the market risk with the error term explaining 95.11%.

The study sought to establish the effect of market risk on unit trust price volatility for the equity fund by conducting regression analysis at 5% level of significance. The results are as presented in Table 4.23.

Table 4.23: Regression Analysis of Effect of Market Risk on Unit Trust Price Volatility for Equity Fund

	B	Standard Error	Beta	t	p-value
(Constant)	2.086	0.881		2.368	0.047
Market Risk	-0.148	0.047	0.354	3.149	0.021

The effect of market risk and unit trust price volatility for the equity fund yielded a coefficient of regression $\boldsymbol{\beta}$= -0.148 p-value=0.021< 0.05and a constant term 2.086, p-value = 0.047 < 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 2.086 - 0.148X_4$, where Y = Unit trust price volatility and X_4 = market risk for equity fund. The implication is that a change in one unit of market risk decreases unit trust price volatility by 0.148 units. This implies that market risk for the equity fund have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. Market risk is determined by the overall economic factors which are beyond the control of any firm (Aruwa & Musa, 2012). The degree of financial leverage ratio determines the level of market risk. The study emphasized on foreign exchange and interest rate risks as the major market risk indicators.

4.7.3 Market Risk for Combined Model

Descriptive Statistics for Market Risk for Combined Model

The study sought to summarize results of market risk among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.24.

Table 4.24: Market Risk for Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Market risk	2.08	2.12	0.28	-0.429	2.98	1.66	2.57
Unit Trust Price Volatility	4.53	4.49	0.62	0.19	3.00	3.17	5.22

The results in Table 4.24 indicated that the mean market risk recorded was 2.08 with the median of 2.12 and a standard deviation of 0.28. It was also established that the minimum market risk of 1.66 was recorded in the year 2017 while the maximum of 2.57 was experienced in the year 2010.

Market Risk Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.15.

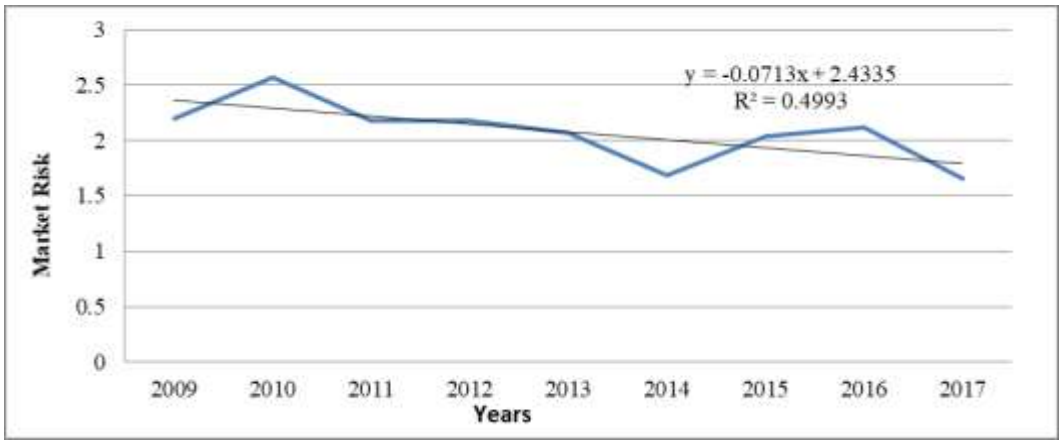

Figure 4.15: Market Risk Panel Plot and Trend for Combined Model

The study established a panel plot and trend for the nine-year period as shown in Figure 4.15 above. The curve has a peak in the year 2010 and a depression in the year 2017. According to the resultant trend line, there is a steep slope in the market risk with change in time as proven by a negative gradient of -0.0713 and a y-axis intercept of 2.4335. Adrian and Cardine (2012) in the study on financial markets

trends in business models of banks reported a negative gradient whose results concurred with the above report. In relation to the resultant $R^2 = 0.4993$, time as the independent variable explains 49.93% of the change observed in the market risk with the error term explaining a proportion of 50.07%.

Regression Analysis of Effect of Market Risk on Unit Trust Price Volatility for Combined Model

The study sought to establish the effect of market risk on unit trust price volatility for the combined model by conducting regression analysis at 5% level of significance. The results are presented in Table 4.25.

Table 4.25: Regression Coefficient of Market Risk on Unit Trust Price Volatility for Combined Model

	B	Standard Error	Beta	t	p-value
(Constant)	2.596	0.588		4.415	0.002
Market Risk	-0.995	0.259	-0.244	-3.842	0.003

The effect of market risk on unit trust price volatility for the combined model yielded a coefficient of regression β=-0.995 p-value = 0.003 < 0.05 and a constant term 2.596, p-value = 0.002< 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 2.596 - 0.995X_4$, where Y = Unit trust price volatility and X_4 = market risk for combined model. The implication is that a change in one unit of market risk decreases unit trust price volatility by 0.995 units. This implies that market risk for the combined model have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance.

Market risk is determined by the overall economic factors, which are beyond the control of any firm (Aruwa & Musa, 2012). The degree of financial leverage ratio determines the level of market risk. The study emphasized on foreign exchange and interest rate risks as the major market risk indicators.

4.8 Investment Risk among CMA Listed Unit Trusts in Kenya

The study sought to summarize results of investment risk among CMA listed unit trusts in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.8.1 Investment Risk for Money Market Fund

Descriptive Statistics for Investment Risk for Money Market Fund

The study sought to summarize results of investment risk for money market fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as shown in Table 4.26.

Table 4.26: Investment Risk for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Investment risk	8.83	4.50	8.55	1.520	3.04	2.07	24.69
Unit Trust Price Volatility	13.73	12.54	3.77	0.95	2.98	9.33	20.96

The mean investment risk was realized to be 8.83 according to the results presented in Table 4.30 above. In addition, the minimum value of investment risk was found to be 2.07 in 2013 and a maximum of 24.69 in 2009. The descriptive statistics also presented a median of 4.50 and a standard deviation of 8.55. This high variation concludes that the investment risk is not stable.

Investment Risk Panel Plot and Trend for Money Market Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable.The results are presented in Figure 4.16.

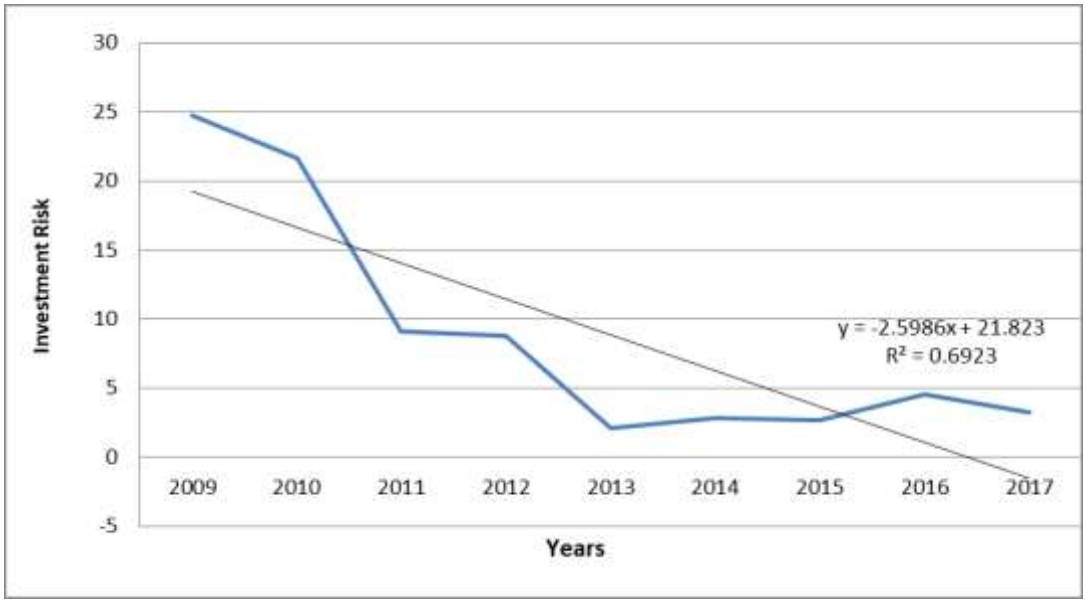

Figure 4.16: The Investment Risk Panel Plot and Trend for Money Market Fund

A panel plot and trend were plotted as indicated in Figure 4.16 above. The curve has a visible peak in the year 2009 and the lowest point in 2013. The resultant equation shows a negative gradient of -2.5986 and a y-intercept of 21.823, meaning there is a steep slope in the investment risk with change in time (years). Andrew, Sam and Frank (2016) also reported a negative gradient in the study of current and future trends in investment management and investment performance. According to the resultant R^2=0.6923, time as the independent variable explains 69.23% of the change observed by the investment risk with the error term explaining only 30.77%.

Regression Analysis of Effect of Investment Risk on Unit Trust Price Volatility for Money Market Fund

The study sought to establish the effect of investment risk on unit trust price volatility for the money market fund by conducting regression analysis at 5% level of significance. The results are presented in Table 4.27.

Table 4.27: Regression Coefficient for Investment Risk on Unit Trust Price Volatility for Money Market Fund

	B	Standard Error	Beta	t	p-value
(Constant)	0.169	0.026		6.500	0.000
Investment Risk	-0.102	0.041	-0.591	-2.488	0.047

The study investment risk and unit trust price volatility for the money market fund yielded a coefficient of regression β=-0.102 p-value = 0.047 < 0.05 and a constant term 0.169, p-value = 0.000 < 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 0.169 - 0.102X_5$, where Y = Unit trust price volatility and X_5 = investment risk for money market fund. The implication is that a change in one unit of investment risk decreases unit trust price volatility by 0.102 units. This implies that investment risk for the money market fund have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance.

4.8.2 Investment Risk for Equity Fund

Descriptive Statistics for Investment Risk for Equity Fund

The study sought to summarize results of investment risk for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.28.

Table 4.28: Investment Risk for Equity Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Investment risk	5.98	6.25	3.98	-0.204	3.01	0.81	11.74
Unit Trust Price Volatility	8.92	8.86	1.21	0.15	3.03	6.25	10.23

The findings indicate that the mean of the investment risk is 5.98 with the median of 6.25and a standard deviation of 3.98. It was also established that the minimum investment risk of 0.81 was recorded in the year 2017 while the maximum of 11.74 was experienced in the year 2010.

Investment Risk Panel Plot and Trend for Equity Fund

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are as presented in Figure 4.17.

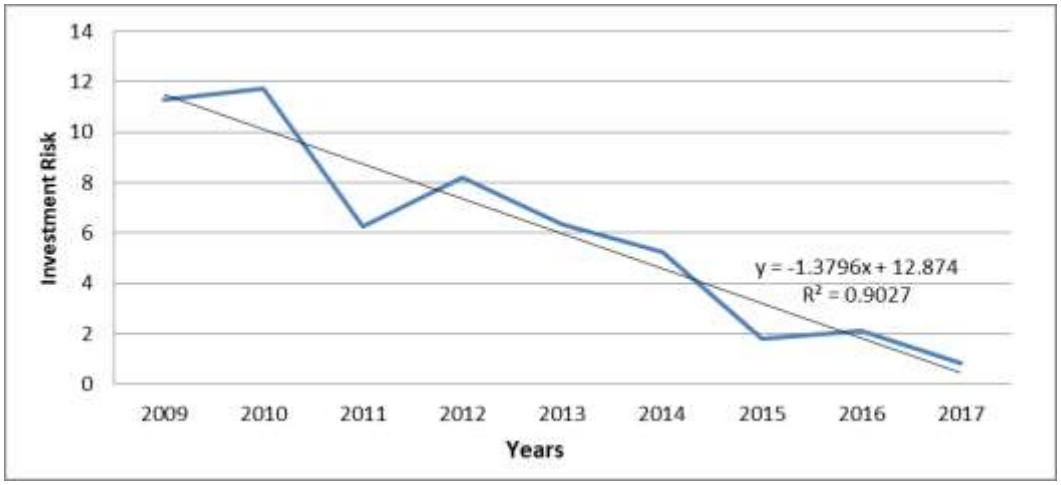

Figure 4.17: The Investment Risk Trend for Equity Fund

The study fixed a panel plot and trend for the investment risk for 2009 – 2017 period. The curve shows the peak at the year 2010 and the lowest point at the year 2017. According to trend line that was fitted to the curve, there is a steep slope in the investment risk with change in time. This is shown by the negative gradient of -1.3796 with a y-axis intercept of 12.874. Andrew, Sam and Frank (2016) also reported a negative gradient in the study of current and future trends in investment management and investment performance. According to the resultant R^2=0.9027 of the trend line, time as the independent variable explains a very large proportion of 90.27% of the change observed in the investment risk with a very little proportion explained 9.73% by the error term.

Regression Analysis of Effect of Investment Risk on Unit Trust Price Volatility for Equity Fund

The study sought to establish the effect of investment risk on price volatility for the equity fund by conducting regression analysis at 5% level of significance. The results are presented in Table4.29.

Table 4.29: Regression of Investment Risk on Unit Trust Price Volatility for Equity Fund

	B	**Standard Error**	**Beta**	**t**	**p-value**
(Constant)	2.384	0.834		2.859	0.010
Investment Risk	-0.362	0.143	-0.472	-2.531	0.021

The effect of investment risk and unit trust price volatility for the equity fund yielded a coefficient of regression β=-0.362 p-value=0.021<0.05 and a constant term 2,384, p-value = 0.021< 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 2.384 - 0.362X_5$, where Y = Unit trust price volatility and X_5 = investment risk for equity fund. The implication is that a change in one unit of investment risk decreases unit trust price volatility by 0.362 units. This implies that investment risk for the equity fund have a negative effect on unit trust price volatility that is statistically significant at 5% level of significance.

4.8.3 Investment Risk for Combined Model

Descriptive Statistics of Investment Risk for Combined Model

The study sought to summarize results of investment risk among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are as presented in Table 4.30.

Table 4.30: Investment Risk for Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
Investment risk	7.40	4.21	6.06	1.58	3.02	2.03	18.00
Unit Trust Price Volatility	4.53	4.49	0.62	0.19	3.00	3.17	5.22

The mean investment risk was realized to be 7.40 according to the results presented in Table 4.30 above. In addition, the minimum value of investment risk was found to be 2.03 in 2017 and a maximum of 18.00 in 2009. The descriptive statistics also presented a median of 4.21and a standard deviation of 6.06. This high variation concludes that the investment risk is not stable.

Investment Risk Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trend for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.18.

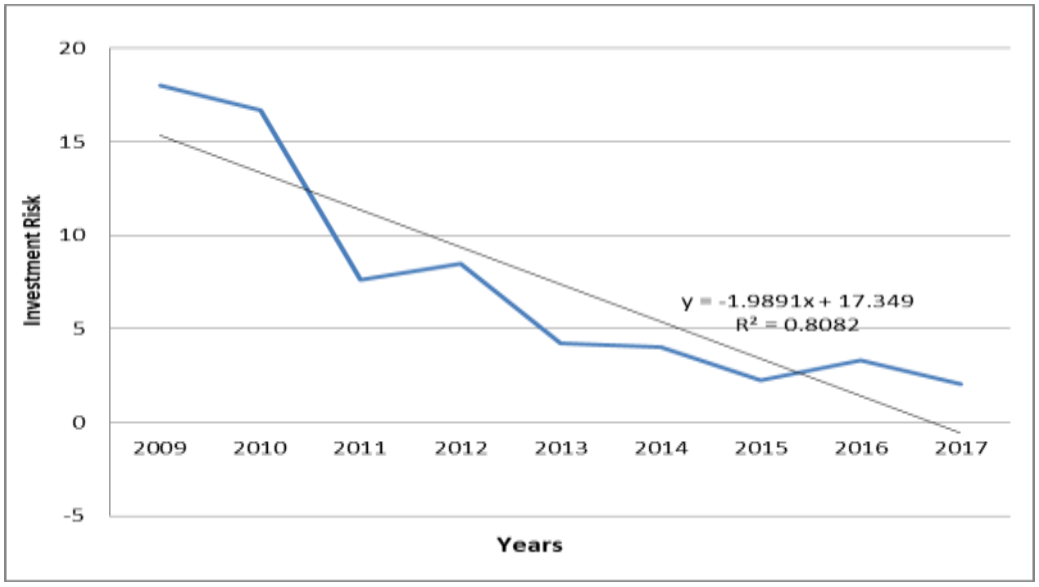

Figure 4.18: Investment Risk Panel Plot and Trend for Combined Model

The study fitted a panel plot and trend line for the nine-year period. The curve has the peak at the year 2009 and the lowest point at the year 2015. According to trend line that was plotted, there is a steep slope in the investment risk with change in time. This is shown by the negative gradient of -1.9891 with a y-axis intercept of 17.349. Andrew, Sam and Frank (2016) also reported a negative gradient in the study of current and future trends in investment management and investment performance. According to the resultant R^2=0.8082 of the trend line, time as the independent variable explains a large proportion of 80.82% of the change observed in the investment risk with 17.98% being explained by the error term.

Regression Analysis of Effect of Investment Risk on Unit Trust Price Volatility for Combined model

The study sought to establish the effect of investment risk on unit trust price volatility for the combined model by conducting regression analysis at 5% level of significance. The results are presented in Table 4.31.

Table 4.31: Regression Coefficient of Investment Risk on Unit Trust Price Volatility for Combined model

	B	Standard Error	Beta	t	p-value
(Constant)	2.168	0.194		11.175	0.000
Investment Risk	-0.086	0.021	-0.844	-4.158	0.004

The effect of investment risk and unit trust price volatility for the combined model yielded a coefficient of regression β=-0.086 p-value = 0.004 < 0.05 and a constant term 2.168, p-value = 0.000 < 0.05. The constant term and beta value contribute significantly to the model though beta value contributes negatively. The regression model can be represented as $Y = 2.168 - 0.086X_5$, where Y = Unit trust price volatility and X_5 = investment risk for combined model. The implication is that a change in one unit of investment risk increases unit trust price volatility by 0.086 units. This implies that Investment Risk for the combined model have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance.

4.9 Unit Trust Price Volatility in Kenya

The study sought to summarize results of unit trust price volatility in Kenya for model 1 (Money Market Fund), model 2 (Equity Fund) and model 3 (combined) respectively.

4.9.1 Net Asset Value (NAV)

The net asset value reflects that actual unit trust price which is derived from total value of the fund less total liabilities divided by the number of outstanding units.

Net Asset Value (NAV) for Money Market Fund

The study sought to summarize results of NAV for money market fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median, and standard deviation. The results are presented in Table 4.32.

Table 4.32: NAV for Money Market Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
NAV	8.40	8.27	0.76	0.513	2.96	7.51	9.71

The mean NAV was realized to be 8.40 according to the results presented in Table 4.37. In addition, the minimum value of NAV was found to be 7.51 in 2016 and a maximum of 9.71 in 2010. The descriptive statistics also presented a median of 8.27and a standard deviation of 0.76.

NAV Panel Plot and Trend for Money Market Fund

The study further sought to establish the trend of NAV for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.19.

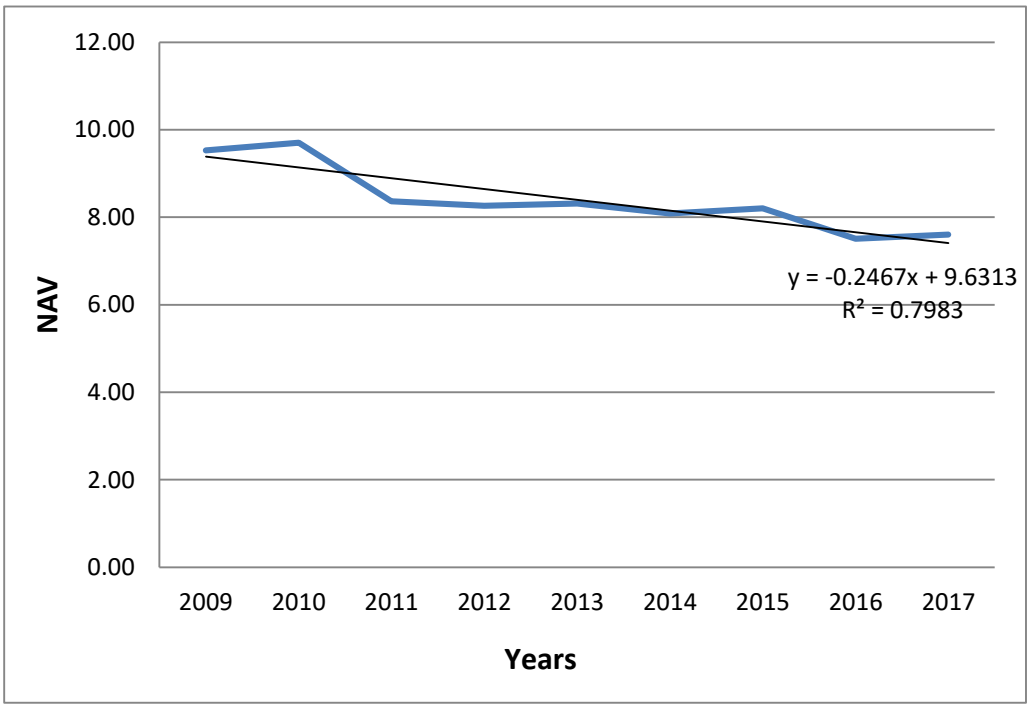

Figure 4.19: NAV Panel Plot and Trend for Money Market Fund

The study fitted a panel plot and trend line for the nine-year period. The curve has the peak at the year 2010 and the lowest point at the year 2016. According to trend line that was plotted, there is a negative gradient of -0.2467 with a y-axis intercept of 9.6313. this results contradicts Kennedy (2015) who reported a positive gradient in the time series model predicting the NAV of asset allocation in mutual funds. According to the resultant R^2=0.7983 of the trend line, time as the independent variable explains a large proportion of 79.83% of the change observed in the NAV with 20.17% being explained by the error term.

Net Asset Value (NAV) for Equity Fund

The net asset value reflects that actual unit trust price which is derived from total value of the fund less total liabilities divided by the number of outstanding units.

Descriptive Statistics for NAV for Equity Fund

The study sought to summarize results of NAV for equity fund among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median and standard deviation. Results are presented in Table 4.33.

Table 4.33: NAV for Equity Fund

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
NAV	9,41	9.43	1.67	-0.04	3.01	6.33	12.25

The mean NAV was 9.41 according to the results presented in Table 4.38. The minimum value of investment risk was found to be 6.33 in 2009 and a maximum of 12.25 in 2016. The descriptive statistics also presented a median of 9.43and a standard deviation of 1.67.

NAV Panel Plot and Trend for Equity Fund

The study further sought to establish the panel plot and trend of NAV for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.20.

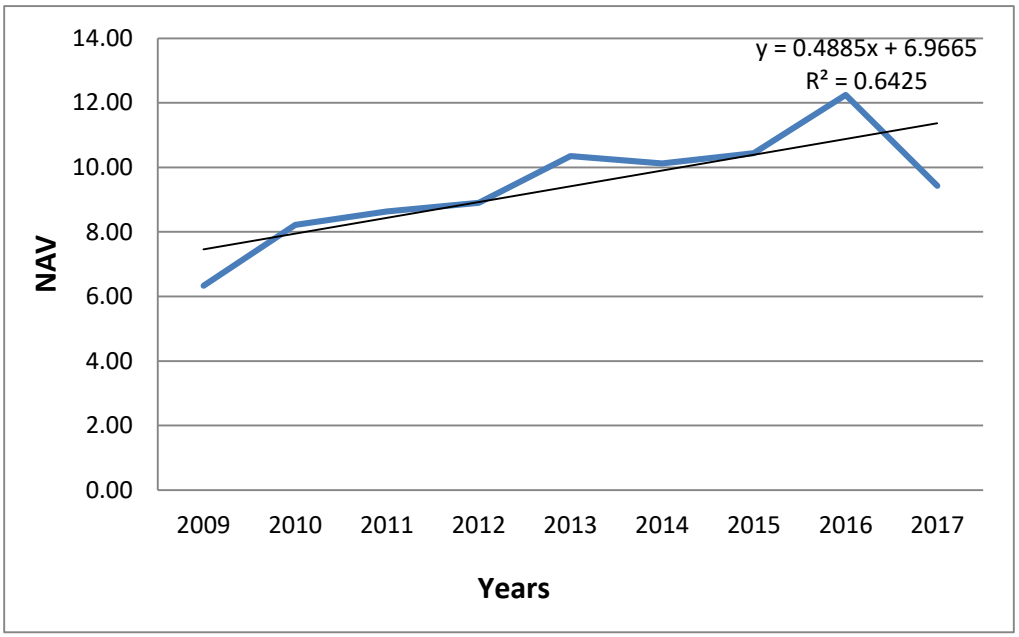

Figure 4.20: NAV Panel Plot and Trend for Equity Fund

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2016 and the lowest point at the year 2009. According to trend line that was plotted, there is a positive gradient of 0.4885 with a y-axis intercept of 6.9665. Kennedy (2015) also reported a positive gradient in the time series model predicting the NAV of asset allocation in mutual funds. According to the resultant $R^2 = 0.6425$ of the trend line, time as the independent variable explains a large proportion of 64.25% of the change observed in the investment risk with 35.75% being explained by the error term.

Net Asset Value (NAV) for Combined Model

The net asset value reflects that actual unit trust price which is derived from total value of the fund less total liabilities divided by the number of outstanding units.

Descriptive Statistics for NAV for Combined Model

The study sought to summarize results of NAV for combined model among CMA listed unit trusts in Kenya using the descriptive statistics namely mean, median and standard deviation. The results are as presented in Table 4.34.

Table 4.34: NAV for Combined Model

Parameters	Mean	Median	Standard deviation	Skewness	Kurtosis	min	maximum
NAV	8.90	8.96	0.58	-0.31	2.98	7.93	9.88

The mean NAV was 8.90% according to the results presented in Table 4.39. The minimum value of NAV was found to be 7.93 in 2009 and a maximum of 9.88 in 2016. The descriptive statistics also presented a median of 8.96 and a standard deviation of 0.58. This high variation concludes that the NAV is not stable.

NAV Panel Plot and Trend for Combined Model

The study further sought to establish the panel plot and trend of NAV for a period of nine years ranging from 2009 to 2017. The panel plot and trend signifies the linearity of the variables for possibility of prediction and the effect of time on the changes in the variable. The results are presented in Figure 4.21.

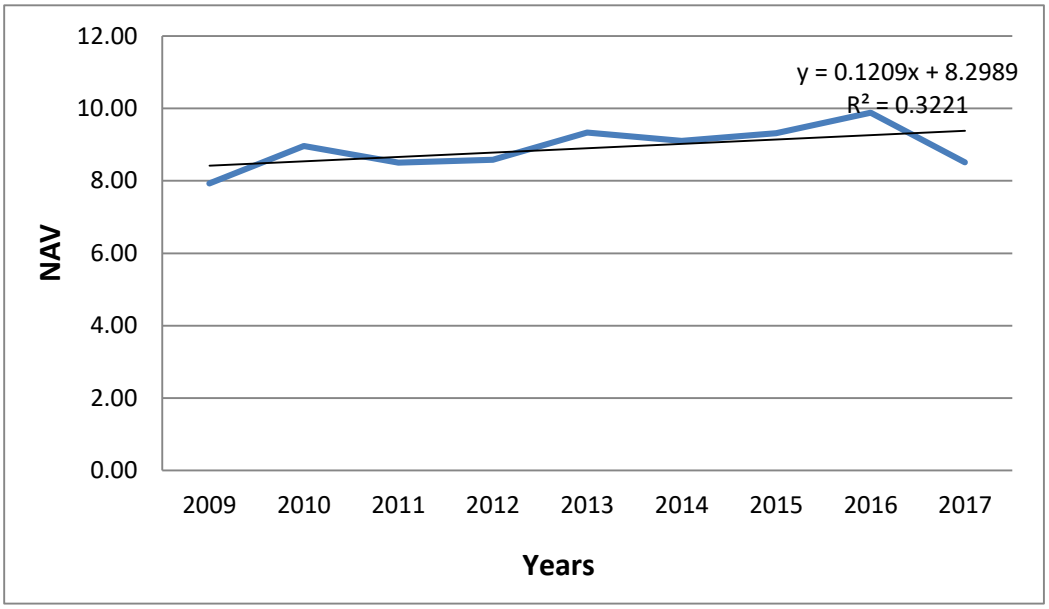

Figure 4.21: NAV Panel Plot and Trend for Combined Model

The study established a panel plot and trend line for the nine-year period. The curve has the peak at the year 2016 and the lowest point at the year 2009. According to trend line that was plotted, there is a positive gradient of 0.1209 with a y-axis

intercept of 8.2989. Kennedy (2015) also reported a positive gradient in the time series model predicting the NAV of asset allocation in mutual funds. According to the resultant R^2=0.3221 of the trend line, time as the independent variable explains a proportion of 32.21% of the change observed in the investment risk with 67.79% being explained by the error term.

4.10 Effect of Financial Risk on Unit Trust Price Volatility in Kenya

The study sought to establish the effect of financial risks on Unit trust price volatility among CMA listed unit trusts in Kenya. The main test was a multiple regression analysis and Karl Pearson Correlation as the confirmatory test at 5% levels of significance. The tests facilitated in testing of research hypotheses;

4.10.1 Effect of Financial Risk on Unit Trust Price Volatility in Kenya for Money Market Fund

The independent variable financial risk consists of liquidity risk, default risk, operational risk, market risk and investment risk and dependent variable is the unit trust price volatility.

Table 4.35: Descriptive Statistics (Money Market Fund Model)

Parameters	L R	DR	OR	MR	IR	PV
Mean	2.90	0.97	0.15	2.25	8.83	13.73
Median	2.83	0.90	0.40	2.19	4.50	12.54
Std. Deviation	0.77	0.82	0.66	0.44	8.55	3.77
Skewness	0.27	0.26	-1.14	0.41	1.52	0.95
Kurtosis	2.88	3.01	2.75	2.98	3.04	2.98
Minimum	1.84	0.02	-1.53	1.57	2.07	9.33
Maximum	4.05	3.01	0.56	3.19	24.69	20.96

According to Table 4.38 above Liquidity Risk recorded a mean of 2.90 with a median of 2.83 and a standard deviation of 0.77. The minimum Liquidity Risk recorded was 1.84 and a maximum value of 4.05. The mean Default Risk was 0.97 while the median was 0.90. The standard deviation was 0.82 while the minimum value was 0.20 while the maximum was 3.01. The results revealed that the highest

Operational Risk recorded was 0.56 and the lowest was -1.53. However, for the study period (2009 – 2017), the mean Operational Risk was found to be 0.15 with a median of 0.40 and a standard deviation of 0.66 was realized. The descriptive statistics for market risk indicated a mean of 2.25 and a median of 2.19. Similarly, the standard deviation was 0.44. The maximum value recorded was 3.19 and a minimum of 1.57. The mean investment risk was realized to be 8.83 according to the results presented in Table 4.43 above. In addition, the minimum value of investment risk was found to be 2.07 and a maximum of 24.69. The descriptive statistics also presented a median of 4.50 and a standard deviation of 8.55. This high variation concludes that the investment risk is not stable. The findings revealed the mean unit trust price volatility to be 13,73 with a median of 12.54 and a standard deviation of 3.77. The findings further revealed a minimum of 9.33 and a maximum of 20.96. The high variation concludes that the price volatility is not stable.

4.11 Diagnostic Tests

The parameters were diagnostically tested for multicollinearity, autocorrelation, normality, serial correlation, stationarity, Asymptotic and heterosckedasticity.

4.11.1 Multicollinearity Test

Multicollinearity inflates the standard errors and gives spurious results therefore; it is important to test the presence of multicollinearity before running Ordinary Least Square (OLS) tests or panel regression for instance the multiple regression. The results are as displayed in Table 4.39.

Table 4.36: Variance Inflation Factor Test of Multicollinearity

Model 1 Variable	**I/VIF**	**VIF**
Liquidity Risk	0.768	1.302
Default Risk	0.842	1.187
Operation Risk	0.210	4.761
Market Risk	0.158	6.342
Investment Risk	0.237	4.218
Price Volatility	0.307	3.260
Model 2 Variable	**I/VIF**	**VIF**
Liquidity Risk	0.793	1.261
Default Risk	0.872	1.147
Operation Risk	0.231	4.330
Market Risk	0.165	6.061
Investment Risk	0.272	3.676
Price Volatility	0.346	2.890
Model 3 Variable	**I/VIF**	**VIF**
Liquidity Risk	0.781	1.281
Default Risk	0.857	1.167
Operation Risk	0.221	4.535
Market Risk	0.162	6.231
Investment Risk	0.255	3.929
Price Volatility	0.327	3.063

Since the resultant VIF values were found to be less than 10, and tolerance levels (1/VIF) values found to be greater than 0.1 then the use of OLS or panel regression to estimate the effect of financial risk on unit trust price volatility is applicable for the three models.

If VIF exceeds 4, it warrants further investigation and if VIF exceeds 10, there are signs of serious multicollinearity requiring correction (Gujarati, 2004). Gujarati (2004) indicates that the signs of multicollinearity as estimation of coefficient differ from model to model. If the t- statistics for specific gradient are not significant at $p>0.05$ but F- test for all the gradients simultaneously zero significant at $p< 0.05$ then there is a large correlation among parts of predator variables.

4.11.2 Autocorrelation Test

The research investigated on the presence of autocorrelation using Durbin- Watson statistics. The statistic should be between 1.5 – 2.5 (Cameron, 2005; Garson, 2012).

The hypothesis to test was whether there was evidence of lack of autocorrelation as stated at $\alpha = 0.05$, the rule of thumb was to reject Ho, if p- value was less than α else fail to reject Ho (Garson, 2012) where:

H_0: There was no evidence of autocorrelation

H_1: There was evidence of autocorrelation

The error term in multiple regression models is one of the assumptions of classical linear regression model. The researcher therefore sought to apply the Durbin-Watson test to establish the presence of autocorrelation. The results are as displayed in Table 4.40.

Table 4.37: Durbin-Watson Test of Autocorrelation

Model	Test	Statistic	p-value
1	Durbin-Watson	1.867	0.0021
2	Durbin-Watson	1.926	0.0019
3	Durbin-Watson	1.897	0.0020

Since the resultant Durbin-Watson statistic was 1.867<2, p- value =0.0021<0.05,1.926 < 2, p- value = 0.0019 < 0.05 and 1.897 < 2, p- value = 0.0020 < 0.05. The researcher fails to reject Ho for the three models and conclude that there is no problem of autocorrelation in the three models. This justified the use of multiple regression model. The Durbin – Watson statistics is supposed to be between 1.5 and 2.5 (Cameron, 2005; Garson, 2012).

4.11.3 Normality Test

To check whether the data provided was normally distributed or not and for the purpose of subsequent analysis, the variables were subjected to normality test. If the variables are not normally distributed, then there would be an issue in subsequent statistical analysis until the variable assumes normality (Park, 2008). Inferential statistical methods were used to infer about the underlying relationship within respective variables. The researcher used the Shapiro-Wilk test to test the normality of the study variables. The results are as displayed in Table 4.41.

Table 4.38: Shapiro-Wilk Test for Study Variables

Model 1 Variables	**Statistic**	***p*-Value**
Liquidity Risk	0.794	0.371
Default Risk	0.858	0.692
Operation Risk	0.936	0.869
Market Risk	0.867	0.856
Investment Risk	0.795	0.671
Price Volatility	0.849	0.694
Model 2 Variables	**Statistic**	***p*-Value**
Liquidity Risk	0.763	0.352
Default Risk	0.784	0.583
Operation Risk	0.873	0.726
Market Risk	0.796	0.825
Investment Risk	0.826	0.728
Price Volatility	0.837	0.674
Model 3 Variables	**Statistic**	***p*-Value**
Liquidity Risk	0.779	0.362
Default Risk	0.821	0.638
Operation Risk	0.905	0.798
Market Risk	0.832	0.841
Investment Risk	0.812	0.700
Price Volatility	0.843	0.684

To test the normality of the dependent and independent variables, Shapiro – Wilk test was used. The test hypothesis formulated to test if the data was normally distributed was given by Ho and H_1, set $\alpha = 0.05$. The rule of thumb is to reject Ho, if p- value is less than α (Park, 2008; Garson, 2012).

Ho: Data is normally distributed at 5% level of significance

H_1: Data not normally distributed at 5% level of significance

If p- value $\geq \alpha$, accept Ho that the data is normally distributed and hence the data is suitable for further analysis. Since all the p-values >0.05 for all the variables, the data for the variables came from a normally distributed population. This implies that the data as presented is suitable for further analysis.

4.11.4 Hausman Test (Hausman Specification Test)

The parameter estimators are compared for consistency and stationarity structure of the data under both the null and alternative hypothesis and the one that is consistent under the null hypothesis only. Fixed effects estimator allows for differing intercepts by cross-sectional unit. The Residual variance: 0.0167474/ (83 - 19) = 0.000261678. Joint significance of differing group means for model 1 (Money market fund): F (13, 66) = 6.21941 with p-value $2.30516e^{-007}$. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.

Using Breusch-Pagan test statistic: LM = 29.4078 with p-value = prob (chi-square (1) > 29.4078) = $5.86417e^{-008}$. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative. The Variance estimators: between = 0.000504231, within = 0.000261678 and therefore Panel is unbalanced: theta varies across units.

The Random effects estimator allows for a unit-specific component to the error term Using Hausman test statistic: H = 2.4653 with p-value = prob (chi-square (5) > 2.4653) = 0.781712. A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model. Therefore, model 1 is a random effect model.

Fixed effects estimator allows for differing intercepts by cross-sectional unit. The Residual variance: 0. 141778/ (84 - 19) = 0.0021812. Joint significance of differing group means for model 2 (Equity fund): F (13, 65) = 7.51377 with p-value $1.36442\ e^{-008}$. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative. Using Breusch-Pagan test statistic: LM = 25.02061 with p-value = prob (chi-square (1) > 25.02061) = $3.12375\ e^{-009}$. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative. The Variance estimators: between = 0.00851387, within = 0.0021812 and therefore Panel is unbalanced: theta varies across units.

The Random effects estimator allows for a unit-specific component to the error term Using Hausman test statistic: H = 8.26279 with p-value = prob (chi-square (5) > 8.26279) = 0.142335. A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model. Therefore, model 2 is a random effect model

Fixed effects estimator allows for differing intercepts by cross-sectional unit. The Residual variance: 0.546386/ (85 - 19) = 0.00827858. Joint significance of differing group means for model 3 (Average of MMF & EF fund): F (13, 66) = 7.42055 with p-value 7.15664^{-008}. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the fixed effects alternative.

Using Breusch-Pagan test statistic: LM = 15. 64683 with p-value = prob (chi-square (1) > 15. 64683) = 4.5238 e^{-008}. A low p-value counts against the null hypothesis that the pooled OLS model is adequate, in favor of the random effects alternative. The Variance estimators: between = 0.000139571, within = 0.000827858 and therefore Panel is unbalanced: theta varies across units.

The Random effects estimator allows for a unit-specific component to the error term Using Hausman test statistic: H = 4.6983 with p-value = prob (chi-square (5) > 4.6983) = 0.453798. A low p-value counts against the null hypothesis that the random effects model is consistent, in favor of the fixed effects model. Therefore, model 3 is a random effect model.

4.11.5 Serial Correlation Test

The researcher used the Wooldridge Drukker test to test for presence of serial correlation. The results are as indicated in Table 4.42.

Table 4.39: Results for Serial Correlation Tests

Model	Independent Variable	F-value	P-value
1	Financial Risk	3.126	0.043
2	Financial Risk	3.825	0.031
3	Financial Risk	3.476	0.037

Source: own data 2017

According to results in Table 4.42, the F-value = 3.126, the p-value= 0.043<0.05, the F-value = 3.825, the p-value = 0.031 < 0.05 and the F-value = 3.476, the p-value = 0.037 < 0.05 indicating that there is no serial correlation in the three models respectively. This shows that for the linear panel-data models, there are no biases of the standard errors which could have caused the results to be less efficient.

4.11.6 Heteroskedasticity Test

Homoscedasticity reveals that the dependent variable has an equal level of variability for each of the values of the independent variables (Garson, 2012). The presence of Heteroskedasticity is reflected when p- value greater than chi- square greater than α. Lack of equal level of variability for each value of the independent variables is Heteroskedasticity. There is an assumption that residuals have a constant variance or are homoskedastic across time and individuals. The Null hypothesis states that the variance of the unit-specific error = 0 or constant variance. The presence of Heteroskedasticity leads to the biasness of the standard errors and test statistics. The results are as indicated in Table 4.43.

Table 4.40: The Result for Heteroskedasticity (Breusch-Pagan test)

		Test for Heteroskedasticity.	
Model	**Dependent Variable**	**Chi-Square**	**P-value**
1	Financial Risk	0.0252	0.063
2	Financial Risk	0.0221	0.054
3	Financial Risk	0.0237	0.059

Source: own data 2017

The results in Table 4.3 reveal that the p-value = 0.063 > 0.05 >Chi-Square = 0.0252, p-value = 0.054 > 0.05> Chi-Square =0.0221, and p-value = 0.059 > 0.05 >Chi-Square =0.0237, showing that there is no existence of heterosckedasticity in the three models. Therefore, there is no biasness of the standard errors of the estimates.

4.12 Correlation Analysis of Financial Risk on Unit Trust Price Volatility for Money Market Fund

The study conducted Karl Pearson correlation analysis to test the relationship between Financial Risks (Liquidity Risk, Default Risk, Operational Risk, Market Risk and Investment Risk) and unit trust price volatility among CMA listed unit trusts in Kenya. The results are presented in correlation matrix in Table 4.44 and comprises of the correlation coefficients (r) and p-values. Decision was based on 5% levels of significance.

Table 4.41: Correlation Matrix. (Money Market Fund)

		Price Volatility	Liquidity Risk	Default Risk	Operational Risk	Market Risk	Investment Risk
Karl Pearson Correlation (r)	Price Volatility	1	0.685**	0.426**	-0.526**	-0.662**	-0.791**
	Liquidity Risk	0.685**	1	0.52	-0.417	-0.319	-0.132
	Default Risk	0.426**	0.52*	1	-0.057	-0.242	-0.373
	Operational Risk	-0.526**	-0.417	-0.057***	1	0.019	0.168
	Market Risk	-0.662**	-0.319	-0.242	0.019	1	0.069
	Investment Risk	-0.791**	-0.132*	-0.073	0.168	0.069	1

Correlation coefficients, using the observations 1:1 - 14:9 (missing values were skipped) for n = 85, α=0.05

On testing the relationship between Liquidity Risk and unit trust price volatility yielded correlation coefficient r = 0.685, p-value =0.029 < 0.05. This implies that there is a strong positive relationship between Liquidity Risk and unit trust price volatility that is statistically significant at 5% levels of significance. The study tested the relationship between Default Risk and unit trust price volatility yielded correlation coefficient r = 0.426, p-value = 0.025 < 0.05. This implies that there is a weak positive relationship between Default Risk and unit trust price volatility that is statistically significant at 5% levels of significant. The study tested the relationship between operational risk and unit trust price volatility yielded correlation coefficient r = - 0.526, p-value = 0.030 < 0.05. This implies that there is a moderate negative relationship between operational risk and unit trust price volatility that is statistically significant at 5% levels of significance.

The study tested the relationship between market risk and unit trust price volatility yielded correlation coefficient r = -0.662, p-value = 0.016 <0.05. This implies that, there is a strong negative relationship between market risk and unit trust price volatility that is statistically significant at 5% levels of significant. The test on the relationship between Investment Risk and unit trust price volatility yielded correlation coefficient r = -0.791, p-value = 0.027< 0.05. This implies that, there is a strong negative relationship between Investment Risk and unit trust price volatility that is statistically significant at 5% levels of significant.

4.12.1. Regression Analysis of Financial Risk on Unit Trust Price Volatility in Kenya. (Money Market Fund)

The study performed regression analysis to establish the effects of financial risks; liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility for money market fund among CMA listed unit trusts in Kenya. First the suitability of regression as a type of analysis for the study was tested and results indicated by regression Analysis of Variance (ANOVA) presented in Table 4.45. The combined effect of liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility was presented in the regression model summary presented in Table 4.46. The individual effect of each financial risk was presented in the table of coefficients, which is Table 4.47. Finally, the regression model was fixed as shown in model 1

Table 4.42: Regression ANOVA for Money Market Fund

	Sum of Squares	df	Mean Square	F	p-value
Regression	8.208	5	1.6416	18.3624	0.000
Residual	7.064	79	0.0894		
Total	15.272	84			

a Dependent Variable: UTPV
b Predictors: (Constant), liquidity risk, Default risk, Operational Risk, Market Risk, Investment Risk.

The p-value=0.000<0.05 as displayed in the Regression ANOVA, implies that regression analysis at 5% levels of significance is applicable for the study. This confirmed that the model fits well and researcher could proceed conducting the multiple regression analysis to test the effects of Financial Risk on unit trust price volatility among CMA listed firms in Kenya for Money Market Fund. Also, the study established the fitness of the model by comparing the F- calculated 18.3624, the study concluded that the model fits well.

Table 4.43: Regression Model Summary for Money Market Fund

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.7331a	0.5375	0.5082	0.2917

a. Dependent Variable: UTPV
b. Predictors: (Constant), Market Risk, Liquidity Risk, Default risk, Operational Risk, Investment Risk

The correlation coefficient (R) value of 0.7331 revealed a strong positive relationship between financial risk and unit trust price volatility. The standard error of the estimate was 0.2917, which is quite low and represents a well-organized data result. According to R-Square value = 0.5375 as presented in table 4.46, the combined effect of the financial risks; liquidity risk, default risk, operational risk, market risk and investment risk contributed to an extent of 53.75% of the unit trust price volatility for money market fund with the rest proportion (46.25%) being explained by extraneous variables as well as the error term. Hair, Anderson, Tatham and Black (2013) suggested in a scholarly research that focuses on marketing issues, R^2 value of 0.50 for endogenous latent variables can as a rough rule of thumb be described as moderate. According to Moore, Notz & Flinger (2013), a model with $F_{(8,565)} = 2.03$, $p = 0.041$, $R^2 = 0.03$ is a weak predictor of association of variables. Bchini (2013) researched on the effect of financial risk on securities return among 13 countries for the period 2007 – 2012 and revealed that financial risk factors negatively and significantly affected securities returns. In a research on the effect of financial risk premiums on security price volatility in Hong Kong security market, Bekaert and Harvey (2005) found a positive correlation between the variables in the period 1997

– 2003. Bouchet, Clark and Kassimatis (2004) examined financial risk premiums in six Latin American countries and revealed that financial risk premium in five countries was significantly affecting security markets performance but a decrease in financial risk premiums had a positive effect on the security prices.

Table 4.44: Regression Coefficients for Money Market Fund

	B	**Standard Error**	**Beta**	**t**	**p-value**
(Constant)	0.483	0.228		2.118	0.048
Liquidity risk	0.203	0.082	0.609	2.476	0.035
Default risk	0.311	0.094	0.230	3.309	0.002
Operational Risk	0.302	0.089	0.357	3.393	0.002
Market Risk	-0.274	0.062	-0.855	-4.419	0.001
Investment Risk	0.202	0.092	0.502	2.196	0.047

Dependent Variable: Unit Trust Price Volatility

The regression coefficients as presented in Table 4.47 above were used to construct the regression model below. From the model, the constant value was found to be $\boldsymbol{\beta}_0$ = 0.483.

Unit Trust Price Volatility = 0.483 + 0.203 LR + 0.311 DR + 0.302 OR – 0.274 MR + 0.202 IR - Model (1)

As for the effect of liquidity risk on unit trust price volatility, the study yielded a coefficient of regression $\boldsymbol{\beta}_1$ = 0. 203, p-value = 0.035 < 0.05. This implies liquidity risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance for money market fund. The unit trust price volatility increased by 0.203 units as a result of an increase in one unit of liquidity risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.035 < 0.05, and the acceptance of the alternative hypothesis that liquidity risk has statistical significant effect on unit trust price volatility upheld.

This confirms the findings of Ferreira (2012) who studied the determinants of unit trust performance in 27 countries over 1997–2007 periods. The study revealed that countries with liquid security markets and strong legal institutions recorded better

performance of mutual funds. The results concur with those of Foran and O'Sullivan (2014) who in an analysis of Liquidity risk and the Performance of UK Mutual Funds found out that liquidity level and systematic liquidity risk have a strong effect on the fund performance. Chang (2013) examined the effect of liquidity on returns of securities and found that liquidity significantly affected returns on securities. Bekaert (2007) found that liquidity measures could significantly predict future returns. The effect of growth and three financial risks (that is liquidity, credit, and solvency risks) on this relationship was assessed and it was found that growth and solvency risk had negative effect on the security returns, but liquidity and credit risks had no significant effect on security return. The creation of liquidity assists firms remain liquid when other sources of finances are limited (Purnamasari, Herdjiono & Setiawan, 2012). The firm must continue serving its obligation through liquidity risk management.

The test on the effect of default risk on unit trust price volatility, the data yielded a coefficient of regression $\boldsymbol{\beta}_2 = 0.311$, p-value = 0.002 < 0.05. This implies default risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance for money market fund. The unit trust price volatility increased by 0.311units as a result of an increase in one unit of default risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.002 < 0.05, and the acceptance of the alternative hypothesis that default risk has statistical significant effect on unit trust price volatility upheld.

This confirms with previous research, which had similar findings on price volatility. Allen and Rachim (1996), Hussainey (2010) and Hamada (2012) found that increased debt significantly affects the stock price volatility by making the stock price more prone to large variation from time to time. Nethra and Kushalappa (2015) argued that the financial position of a firm determines its performance on the security market implying that firms with stable financial position performs better than unstable financial position firms in their assessment on effect of financial risk on liquidity risk and returns.

Steiger (2010) found that the effect of default risk and implied volatility was statistically significant on stock returns at 5% level of significance in the research effect of default risk and implied volatility on stock returns. Also, Aruwa and Musa (2012) in the study relationship of risk components and financial performance of banks found that credit risk and other risk components had a significant effect on the financial performance of banks at 5% level of significance.

The test on the effect of operational risk on unit trust price volatility, the study yielded a coefficient of regression $\boldsymbol{\beta}_3 = 0.302$, p-value = $0.002 < 0.05$. This implies operational risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance for money market fund. An increase in one unit of operational risk leads to 0.302 units increase in UTPV. The null hypothesis was rejected on the bases of p-value = $0.002 < 0.05$, and the alternative hypothesis that operational risk has statistical significant effect on unit trust price volatility was accepted. As a result of operational risk, most financial institutions fail in their operation (Jorion, 2007) and Hull (2012) argued that financial institution should be able to control internal operations but macroeconomics variable to influence external variables. The results concur with Fatade (2004) in a study effect of operational risk on financial performance of commercial banks in Nigeria who reviewed that operational efficiency measures adopted in banking sector have directly and indirectly influenced bank performance in various ways including profitability, deposit or savings, loan & advances extra. He also averse that effective operational risk management has a statistically significant effect on bank performance in Nigeria at 5% level of significance but depends on the instruments used in macroeconomics variable and prevailing economic conditions.

Kamau (2010) argued that operational risk was crucial in bank operation and found out that it consist of 44% of other risk that occurred in commercial banks as a result of high increase in use of automated technology, employment of unqualified staff and inadequate management support in commercial banks, and also internal and external frauds. This was in his study on adoption of risk management by commercial banks in Kenya.

The test on the effect of market risk on unit trust price volatility, yielded a coefficient of regression $\boldsymbol{\beta}_4$ = -0.274, p-value = 0.001< 0.05. This implies market risk have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility decreased by 0.274 units as a result of an increase in one unit of market risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.001 < 0.05, and the alternative hypothesis that market risk has statistical significant effect on unit trust price volatility was accepted. Guo and Whitelaw, (2006) reported a positive relationship between market risk and return when volatility feedback is incorporated in the research of uncovering the risk- return relation in the stock market. Kim, Morley and Nelson, (2004) reported a significant positive relationship between market risk and stock market volatility in the study "is there a positive relationship between stock market volatility and equity".

The effect of Investment risk on unit trust price volatility recorded a coefficient of regression $\boldsymbol{\beta}_5$ = 0.202 p-value = 0.047 < 0.05. This implies that Investment risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility increased by 0.202 units as a result of an increase in one unit of investment risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.047 < 0.05, and the alternative hypothesis that investment risk has statistical significant effect on unit trust price volatility was accepted. Return = Risk – free rate + β (Risk premium) is the association between risk and returns which are direct proportional. This proves Pandey (2008) argument on risk and returns that the higher the risk, the higher the returns in the long run but proper balance should be maintained to maximize the value of firm's shares. Hsu and Chow 2013) in the study the effect on investment risk taking on house money reported that investment risk has a negative significant effect on house money implying a concurrence in the research findings.

4.12.2 Effect of Financial Risk on Unit Trust Price Volatility in Kenya. (Equity Fund)

The independent variable financial risk consists of liquidity risk, default risk, operational risk, market risk and investment risk and dependent variable is the unit trust price volatility.

Table 4.45. Descriptive statistics

Parameters	L R	DR	OR	MR	IR	PV
Mean	3.42	0.18	0.29	1.91	5.98	8.92
Median	3.27	0.22	0.37	2.00	6.25	8.86
Std. Deviation	0.79	0.12	0.37	0.44	3.98	1.21
Skewness	0.57	-1.00	-0.65	-0.62	-0.20	0.15
Kurtosis	2,98	2.94	2.92	2.98	3.01	3.03
Minimum	2.12	0.02	-0.65	1.20	0.81	6.25
Maximum	4.64	0.37	0.69	2.57	11.74	10.23

The findings shown in Table 4.48 revealed that liquidity risk recorded a mean of 3.42 while the median was 3.27. The descriptive statistics further yielded a standard deviation of 0.786. In addition, the highest value realized was 4.64 while the least was 2.12. The results for default risk yielded a mean of 0.18 and a median of 0.22. The results further yielded a standard deviation of 0.12. The highest value recorded was 0.37 and the lowest was -0.02. The findings revealed the mean operational risk to be 0.29 with a median of 0.37 and a standard deviation of 0.37. The findings further revealed a minimum of -0.65 and a maximum of 0.69. The results revealed that the highest market risk was 2.57 and a minimum of 1.20. However, the mean market risk was found to be 1.91 with a median of 2.00. As indicated by the standard deviation of 0.44, the market risk is relatively stable. The findings indicate that the mean of the investment risk is 5.98 with the median of 6.25 and a standard deviation of 3.98. It was also established that the minimum investment risk of 0.81 was recorded while the maximum of 11.74. The price volatility established a mean of 8,92, median of 8.86, maximum of 10.23 and minimum of 6.25. As indicated by the standard deviation of 1.21, the price volatility is relatively stable.

Correlation Analysis of Financial Risk on Unit Trust Price Volatility for Equity Fund

The study conducted Karl Pearson correlation analysis to test the relationship between financial risks (liquidity risk, default risk, operational risk, market risk and investment risk) and unit trust price volatility among CMA listed unit trusts in Kenya. The results are presented in correlation matrix in Table 4.49 and comprises of the correlation coefficients (r) and p-values for the nine- years period. The decision was based on 5% levels of significance.

Table 4.46: Correlation Matrix

		Price Volatility	Liquidity Risk	Default Risk	Operational Risk	Market Risk	Investment Risk
Karl Pearson Correlation (r)	Price Volatility	1	0.569***	0.772***	0.534**	-0.743**	-0.544***
	Liquidity Risk	0.569***	1	0.188	-0.292	0.073	-0.228
	Default Risk	0.772***	0.188	1	-0.577	-0.077	-0.458
	Operational Risk	0.534**	-0.292	-0.577*	1	0.299	0.339
	Market Risk	-0.743**	0.073	-0.077	0.299	1	0.716
	Investment Risk	-0.544***	-0.228	-0.458	0.339	0.716**	1

Correlation coefficients, using the observations 1:1 - 14:9
(missing values were skipped) for n = 85, α=0.05

On testing the relationship between liquidity risk and unit trust price volatility yielded correlation coefficient r = 0.569, p-value =0.004 < 0.05. This implies that, there is a moderate positive relationship between liquidity risk and unit trust price volatility that is statistically significant at 5% levels of significant. The study tested the relationship between default risk and unit trust price volatility yielded correlation coefficient r =0.772, p-value=0.006<0.05. This implies that, there is a strong positive relationship between default risk and unit trust price volatility that is statistically significant at 5% levels of significance. The study tested the relationship between operational risk and unit trust price volatility yielded correlation coefficient r =0.534, p-value = 0.016 < 0.05. This implies that there is a moderate positive relationship

between operational risk and unit trust price volatility that is statistically significant at 5% levels of significant.

Similarly, the study tested the relationship between market risk and unit trust price volatility yielded correlation coefficient r = -0.743, p-value = 0.011< 0.05. This implies that there is a strong negative relationship between market risk and unit trust price volatility that is statistically significant at 5% levels of significant. The test on the relationship between investment risk and unit trust price volatility yielded correlation coefficient r = - 0.544, p-value = 0.002 < 0.05. This implies that there is a moderate negative relationship between investment risk and unit trust price volatility that is statistically significant at 5% levels of significant.

Regression Analysis on the Effect of Financial Risk on Unit Trust Price Volatility in Kenya.

The researcher performed regression analysis to establish the effect of financial risks; liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility for equity fund among CMA listed unit trusts in Kenya. First the suitability of regression as a type of analysis for the study was tested and results indicated by regression Analysis of Variance (ANOVA) presented in Table 4.50. The combined effect of liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility was presented in the regression model summary presented in Table 4.51. The individual effect of each financial risk was presented in the table of coefficients, which is Table 4.52. Finally, the regression model was fixed.

Table 4.47: Regression ANOVA

	Sum of Squares	df	Mean Square	F	p-value
Regression	8.861	5	1.77224	19.4423	0.0000
Residual	7.201	79	0.091162		
Total	16.062	84			

a Dependent Variable: PR

b Predictors: (Constant), liquidity risk, Default risk, Operational Risk, Market Risk, Investment Risk.

The p-value=0.000<0.05 as displayed in the Regression ANOVA implies that regression analysis at 5% levels of significance is applicable for the study. This confirmed that the model fits well and the study could proceed conducting the regression analysis to test the effects of financial risk on unit trust price volatility.

Also, the study established the fitness of the model by comparing the F- calculated 19.4422 with F- critical $F_{(0.05,5,79)} = 2.33$. Since F – calculated was greater than F-critical, the study concluded that the model fits well.

Table 4.48: Regression Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.7427a	0.5517	0.5233	0.2945

a. Dependent Variable: UTPV

b. Predictors: (Constant), Liquidity Risk, Default risk, Operational Risk, Market Risk, Investment Risk

The correlation coefficient (R) value of 0.7427 revealed a strong positive relationship between financial risk and unit trust price volatility. According to R-Square value(R^2) = 0.5517 as presented in table 4.51, the combined effect of the financial risks; liquidity risk, default risk, operational risk, market risk and investment risk contributed an extent of 55.17% of the dependent variable that is on unit trust price volatility for equity fund that is satisfactory since p- value was less than 0.05 while 44.83% is attributed by other variables. The standard error of the estimate was 0.2945 which is quite low and represents a well-organized data result. Hair, Anderson, Tatham and Black (2013) suggested in a scholarly research that focuses

on marketing issues, R^2 value of 0.50 for endogenous latent variables can as a rough rule of thumb be described as moderate. According to Moore, Notz & Flinger (2013), a model with $F_{(0.05,5.79)} = 2.03$, p- value = 0.041, $R^2 = 0.03$ is a weak predictor of association of variables. Bchini (2013) researched on the effect of financial risk on securities return among 13 countries for the period 2007 – 2012 and revealed that financial risk factors negatively and significantly affected securities returns.

In Hong Kong security market, a research on the effect of financial risk premiums on security price volatility by Bekaert and Harvey (2005) found a positive correlation between the variables in the period 1997 – 2003. Bouchet, Clark and Kassimatis (2004) examined financial risk premiums in six Latin American countries and revealed that financial risk premium in five countries was significantly affecting security markets performance but a decrease in financial risk premiums had a positive effect on the security prices.

Table 4.49: Regression Coefficients for Equity Fund

	B	**Standard Error**	**Beta**	**t**	**p-value**
(Constant)	3.076	1.119		2.750	0.010
Liquidity risk	0.544	0.232	0.288	2.345	0.042
Default risk	0.340	0.131	0.241	2.595	0.017
Operational Risk	0.797	0.310	0.546	2.576	0.018
Market Risk	0.206	0.078	0.003	2.641	0.007
Investment Risk	-0.287	0.130	-0.855	-2.208	0.046

Dependent Variable: Unit Trust Price Volatility

The regression coefficients as presented in Table 4.52 above were used to construct the regression model below. From the equity fund model, the constant value was found to be

$\boldsymbol{\beta}_0 = 3.076$ which indicate that unit trust price volatility is 3.076 if the independent variables states at zero level.

UTPV= 3.076 + 0.544 LR + 0.340 DR + 0.797 OR + 0.106 MR – 0.287 IR

Model 2

As for the relationship between Liquidity Risk and unit trust price volatility, the study yielded a coefficient of regression $\boldsymbol{\beta}_1$ = 0. 544, p-value =0.042< 0.05. This implies liquidity risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance for equity fund. The unit trust price volatility increased by 0.544 units as a result of an increase in one unit of liquidity risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.042 < 0.05, and the alternative hypothesis that liquidity risk has statistical significant effect on unit trust price volatility was accepted

This confirms the findings of Ferreira (2012) who studied the determinants of unit trust performance in 27 countries over 1997–2007 periods. The study revealed that countries with liquid security markets and strong legal institutions recorded better performance of mutual funds. The results concur with those of Foran and O'Sullivan (2014) who in an analysis of Liquidity risk and the Performance of UK Mutual Funds found out that liquidity level and systematic liquidity risk have a strong effect on the fund performance. Chang (2013) examined the effect of liquidity on returns of securities and found that liquidity significantly affected returns on securities. Bekaert (2007) found that liquidity measures could significantly predict future returns. The effect of growth and three financial risks (that is liquidity, credit, and solvency risks) on this relationship was assessed and it was found that growth and solvency risk had negative effect on the security returns, but liquidity and credit risks had no significant effect on security return.

The test on the effect of Default Risk on unit trust Price Volatility yielded a coefficient of regression $\boldsymbol{\beta}_2$ = 0.340, p-value = 0.017 < 0.05. This implies Default Risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance for equity fund. The unit trust price volatility increased by 0.34 units as a result of an increase in one unit of default risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.002 < 0.05, and the alternative hypothesis that default risk has statistical significant effect on unit

trust price volatility was accepted. Steiger (2010) found that the effect of default risk and implied volatility was statistically significant on stock returns at 5% level of significance in the research effect of default risk and implied volatility on stock returns. Also, Aruwa and Musa (2012) in the study relationship of risk components and financial performance of banks found that credit risk and other risk components had a significant effect on the financial performance of banks at 5% level of significance.

This confirms with previous research, which had similar findings on price volatility. Allen and Rachim (1996), Hussainey (2010) and Hamada (2012) found that increased debt significantly affects the stock price volatility by making the stock price more prone to large variation from time to time. Nethra and Kushalappa (2015) argued that the financial position of a firm determines its performance on the security market implying that firms with stable financial position performs better than unstable financial position firms in their assessment on effect of financial risk on liquidity risk and returns.

The test on the effect of Operational risk on unit trust price volatility yielded a coefficient of regression $\boldsymbol{\beta}_3 = 0.797$, p-value = 0.018< 0.05. This implies Operational Risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility increased by 0.797 units because of an increase in one unit of operational risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.018 < 0.05, and the alternative hypothesis that operational risk has statistical significant effect on unit trust price volatility was accepted. Kamau (2010) argued that operational risk was crucial in bank operation and found out that it consist of 44% of other risk that occurred in commercial banks as a result of high increase in use of automated technology, employment of unqualified staff and inadequate management support in commercial banks, and also internal and external frauds. This was in his study on adoption of risk management by commercial banks in Kenya.

The results concur with Fatade (2004) in a study effect of operational risk on financial performance of commercial banks in Nigeria who reviewed that operational

efficiency measures adopted in banking sector have directly and indirectly influenced bank performance in various ways including profitability, deposit or savings, loan & advances extra. He also averse that effective operational risk management has a statistically significant effect on bank performance in Nigeria at 5% level of significance but depends on the instruments used in macroeconomics variable and prevailing economic conditions. As a result of operational risk, most financial institutions fail in their operation (Jorion, 2007) and Cheng, (2013) argued that financial institution should be able to control internal operations but macroeconomics variable to influence external variables.

The test on the effect of Market Risk on unit trust price volatility yielded a coefficient of regression $\boldsymbol{\beta}_4 = 0.106$, p-value = $0.007 < 0.05$. This implies Market Risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility increased by 0.106 units because of an increase in one unit of market risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = $0.007 < 0.05$, and the alternative hypothesis that market risk has statistical significant effect on unit trust price volatility was accepted. Guo and Whitelaw, (2006) reported a positive relationship between market risk and return when volatility feedback is incorporated in the research of uncovering the risk- return relation in the stock market. Kim, Morley and Nelson, (2004) reported a significant positive relationship between market risk and stock market volatility in the study "is there a positive relationship between stock market volatility and equity".

The effect of Investment Risk on unit trust price volatility recorded a coefficient of regression $\boldsymbol{\beta}_5 = -0.287$ p-value = $0.046 < 0.05$. This implies that Investment Risk have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility decreased by 0.287 units as a result of an increase in one unit of investment risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = $0.046 < 0.05$, and the alternative hypothesis that investment risk has statistical significant effect on unit trust price volatility was accepted. Return = Risk free rate + β (Risk premium) is the association between risk and returns which are direct proportional. This proves

Pandey (2008) argument on risk and returns that the higher the risk, the higher the returns in the long run but proper balance should be maintained to maximize the value of firm's shares. Hsu and Chow 2013) in the study the effect on investment risk taking on house money reported that investment risk has a negative significant effect on house money implying a concurrence in the research findings.

4.12.3 Effect of Financial Risk on Unit Trust Price in Kenya for Combined Model

The independent variable financial risk consists of liquidity risk, default risk, operational risk, market risk and investment risk and dependent variable is the unit trust price volatility.

Table 4.50: Descriptive statistics (average of MMF & EF model)

Parameters	L R	DR	OR	MR	IR	PV
Mean	3.16	0.57	0.15	2.08	7.40	4,53
Median	3.21	0.58	0.40	2.12	4.21	4.49
Std. Deviation	0.33	0.44	0.66	0.28	6.06	0.62
Skewness	-0.46	-0.07	-1.07	-0.43	1.58	0.19
Kurtosis	2.95	2.98	2.90	2.98	3.02	3.00
Minimum	2.55	0.09	-1.53	1.66	2.03	3.17
Maximum	3.59	1.61	0.56	2.57	18.00	5.22

According to the descriptive statistics in Table 4.53 above, the liquidity risk yielded a mean of 3.16 and a median of 3.21. The table further presented a standard deviation of 0.328. A minimum of 2.55 was recorded and a maximum of 3.59 recorded. The researcher found out that the default risk recorded the highest value of 1.61 and the lowest value of 0.09. The mean default risk for the duration was found to be 0.57 with a median of 0.58 and a standard deviation of 0.44. The results revealed that the highest Operational Risk recorded was 0.57 in the year 2012 and the lowest was -0.62. However, for the study period (2009 – 2017), the mean Operational Risk was found to be 0.22 with a median of 0.37 and a standard deviation of 0.42 was realized. The results also indicated that the mean market risk recorded was 2.08 with the median of 2.12 and a standard deviation of 0.28. It was also established that the minimum market risk of 1.66 was recorded while a maximum of 2.57 was

experienced. The mean investment risk was realized to be 7.40 according to the results presented in Table 4.53 above. In addition, the minimum value of investment risk was found to be 2.03 and a maximum of 18.00. The descriptive statistics also presented a median of 4.21 and a standard deviation of 6.06. This high variation concludes that the investment risk is not stable. The mean price volatility was realized to be 4.53 according to the results presented in Table 4.53 above. In addition, the minimum value of price volatility was found to be 3.17 and a maximum of 5.22. The descriptive statistics also presented a median of 4.49 and a standard deviation of 0.62. This low variation concludes that the price volatility is stable.

Correlation Analysis of Financial Risk on Unit Trust Price Volatility for Combined Model

The study conducted Karl Pearson correlation analysis to test the relationship between Financial Risks (Liquidity Risk, Default Risk, Operational Risk, Market Risk and Investment Risk) and unit trust price volatility among CMA listed unit trusts in Kenya. The results are presented in correlation matrix in Table 4.54 and comprises of the correlation coefficients (r) and p-values for the nine – years period. The decision was based on 5% levels of significance.

Table 4.51: Correlation Matrix for Combined Model

		Price Volatility	**Liquidity Risk**	**Default Risk**	**Operational Risk**	**Market Risk**	**Investment Risk**
Karl Pearson Correlation (r)	Price Volatility	1	0.462***	0.689**	0.572**	0.734**	-0.828***
	Liquidity Risk	0.462***	1	-0.228	-0.458	0.339	0.216
	Default Risk	0.689**	-0.228	1	0.188	-0.292	0.073
	Operational Risk	0.572**	-0.458	0.188	1	-0.577	-0.077
	Market Risk	0.734**	0.339	-0.292	-0.577*	1	0.299
	Investment Risk	-0.828***	0.216**	0.073	-0.077	0.299	1

Correlation coefficients, using the observations 1:1 - 14:9
(missing values were skipped) for n = 85, α=0.05

The study tested the relationship between liquidity risk and unit trust price volatility yielded correlation coefficient r =0.462, p-value =0.006 < 0.05. This implies that there is a weak positive relationship between liquidity risk and unit trust price volatility that is statistically significant at 5% levels of significant. On testing the relationship between default risk and unit trust price volatility yielded correlation coefficient r = 0.689, p-value = 0.014< 0.05. This implies that there is a moderate positive relationship between default risk and price volatility that is statistically significant at 5% levels of significant. The researcher tested the relationship between operational risk and unit trust price volatility yielded correlation coefficient r =0.572, p-value=0.012<0.05. This implies that there is a moderate positive relationship between operational risk and unit trust price volatility that is significant at 5% levels of significance.

Finally, the researcher tested the relationship between market risk and unit trust price volatility yielded correlation coefficient r = 0.734, p-value = 0.026 < 0.05. This implies that, there is a strong positive relationship between market risk and unit trust price volatility that is statistically significant at 5% levels of significant. The test on the relationship between Investment Risk and unit trust price volatility yielded correlation coefficient r = -0.828, p-value = 0.002 < 0.05. This implies that, there is a strong negative relationship between Investment Risk and unit trust price volatility that is statistically significant at 5% levels of significant.

Regression Analysis for the Effect of Financial Risk on Unit Trust Price Volatility for Combined Model

The study performed regression analysis to establish the effect of financial risks; liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility among CMA listed unit trusts in Kenya. First the suitability of regression as a type of analysis for the study was tested and results indicated by regression Analysis of Variance (ANOVA) presented in Table 4.55. The combined effect of liquidity risk, default risk, operational risk, market risk and investment risk on unit trust price volatility was presented in the regression model summary presented in Table 4.55. The individual effect of each financial risk was presented in

the table of coefficients, which is Table 4.55. Finally, the regression model was fixed.

Table 4.52: Regression ANOVA for Combined Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.084	5	1.4168	21.473	0.000
Residual	5.213	79	0.06598		
Total	**12.297**	**84**			

a. Dependent Variable: Unit Trust Price Volatility
b. Predictors: (Constant), Liquidity Risk, Default Risk, Operational Risk, Market Risk, Investment Risk

The p-value = 0.000 < 0.05 as displayed in table 4.55for the regression ANOVA for the combined model, implies that regression analysis at 5% levels of significance is applicable for the study. This confirmed that the model fits well and the study could proceed conducting the regression analysis to test the effect of financial risk on unit trust price volatility among CMA listed firms in Kenya for the combined model. Also the study established the fitness of the model by comparing the F- calculated 21.473 with F- critical $F_{(0.05,5,79)}$ = 2.33. Since F – calculated was greater than F-critical, the study concluded that the model fits well.

Table4.53: Regression Model Summary for Combined Model

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.7590a	0.5761	0.5482	0.2506

a. Dependent Variable: Unit Trust Price Volatility
b. Predictors: (Constant), Liquidity risk, Default risk, Operational Risk, Market Risk, Investment Risk

The correlation coefficient (R) value of 0.7590 revealed a strong positive relationship between financial risk and unit trust price volatility. The standard error of the estimate was 0.2506, which is quite low and represents a well-organized data result. According to R-Square value = 0.5761 as presented table 4.56, the combined effect of the Financial Risks; Liquidity Risk, Default Risk, Operational Risk, Market Risk and Investment Risk contributed a high extent of 57.61% of the dependent variable

that is on unit trust price volatility for the combined model with the rest proportion (42.49%) being explained by extraneous variables as well as the error term. Hair, Anderson, Tatham and Black (2013) suggested in a scholarly research that focuses on marketing issues, R^2 value of 0.50 for endogenous latent variables can as a rough rule of thumb be described as moderate. According to Moore, Notz & Flinger (2013), a model with F (5,79) = 2.03, p = 0.041, R^2 = 0.03 is a weak predictor of association of variables. Bchini (2013) researched on the effect of financial risk on securities return among 13 countries for the period 2007 – 2012 and revealed that financial risk factors negatively and significantly affected securities returns. In a research on the effect of financial risk premiums on security price volatility in Hong Kong security market, Bekaert and Harvey (2005) found a positive correlation between the variables in the period 1997 – 2003. Bouchet, Clark and Kassimatis (2004) examined financial risk premiums in six Latin American countries and revealed that financial risk premium in five countries was significantly affecting security markets performance but a decrease in financial risk premiums had a positive effect on the security prices.

Table 4.54: Regression Coefficients for Combined Model

	B	**Standard Error**	**Beta**	**t**	**p-value**
(Constant)	0.283	0.128		2.211	0.042
Liquidity risk	0.130	0.022	0.609	5.909	0.000
Default risk	0.211	0.034	0.230	6.206	0.000
Operational Risk	0.320	0.139	0.357	2.302	0.041
Market Risk	-0.274	0.062	-0.855	-4.419	0.001
Investment Risk	0.102	0.044	0.502	2.318	0.040

Dependent Variable: Price Volatility

The regression coefficients as presented in Table 4.57 above were used to construct the regression model below. From the model, the constant value was found to be β_0 = 0.283. Which indicate that unit trust price volatility is 0.183 % if the independent variables states at zero level.

Unit Trust Price Volatility = 0.283 + 0.130 LR + 0.211 DR + 0.320 OR– 0.274 MR+ 0.102 IR Model 3

As for the relationship between liquidity risk and unit trust price volatility, the study yielded a coefficient of regression $\boldsymbol{\beta}_1 = 0.130$, p-value = 0.000 < 0.05. This implies liquidity risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility increased by 0.13 units because of an increase in one unit of liquidity risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.000 < 0.05, and the alternative hypothesis that liquidity risk has statistical significant effect on unit trust price volatility was accepted. This confirms the findings of Ferreira (2012) who studied the determinants of unit trust performance in 27 countries over 1997–2007 periods. The study revealed that countries with liquid security markets and strong legal institutions recorded better performance of mutual funds. The results concur with those of Foran and O'Sullivan (2014) who in an analysis of Liquidity risk and the Performance of UK Mutual Funds found out that liquidity level and systematic liquidity risk have a strong effect on the fund performance. Chang (2013) examined the effect of liquidity on returns of securities and found that liquidity significantly affected returns on securities. Bekaert (2007) found that liquidity measures could significantly predict future returns. Contrary, the effect of growth and three financial risks (i.e., liquidity, credit, and solvency risks) on this relationship was assessed and it was found that growth and solvency risk had negative effect on the security returns, but liquidity and credit risks had no significant effect on security return.

The test on the relationship between default risk and unit trust price volatility, yielded a coefficient of regression $\boldsymbol{\beta}_2 = 0.211$, p-value = 0.000 <0.05. This implies Default Risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. The unit trust price volatility increased by 0.211 units as a result of an increase in one unit of default risk holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.000 < 0.05, and the alternative hypothesis that default risk has statistical significant effect on unit trust price volatility was accepted. This confirms with previous research, which had similar findings on price volatility. Allen and Rachim (1996), Hussainey (2010) and Hamada (2012) found that increased debt significantly affects the stock price volatility by making the stock price more prone to large variation from time to time.

Nethra and Kushalappa (2015) argued that the financial position of a firm determines its performance on the security market implying that firms with stable financial position performs better than unstable financial position firms in their assessment on effect of financial risk on liquidity risk and returns

Steiger (2010) found that the effect of default risk and implied volatility was statistically significant on stock returns at 5% level of significance in the research effect of default risk and implied volatility on stock returns. In addition, Aruwa and Musa (2012) in the study relationship of risk components and financial performance of banks found that credit risk and other risk components had a significant effect on the financial performance of banks at 5% level of significance.

The test on the relationship between operational risk and unit trust price volatility, yielded a coefficient of regression $\boldsymbol{\beta}_3 = 0.320$, p-value = 0.041< 0.05. This implies operational risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. An increase in one unit of operational risk leads to 0.32 increase unit trust price volatility holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.041 < 0.05, and the alternative hypothesis that operational risk has statistical significant effect on unit trust price volatility was accepted. As a result of operational risk, most financial institutions fail in their operation (Jorion, 2007) and Hull (2012) argued that financial institution should be able to control internal operations but macroeconomics variable to influence external variables.

Kamau (2010) argued that operational risk was crucial in bank operation and found out that it consist of 44% of other risk that occurred in commercial banks as a result of high increase in use of automated technology, employment of unqualified staff and inadequate management support in commercial banks, and also internal and external frauds. This was in his study on adoption of risk management by commercial banks in Kenya. The results concur with Fatade (2004) in a study effect of operational risk on financial performance of commercial banks in Nigeria who reviewed that operational efficiency measures adopted in banking sector have directly and indirectly influenced bank performance in various ways including

profitability, deposit or savings, loan & advances extra. He also averse that effective operational risk management has a statistically significant effect on bank performance in Nigeria at 5% level of significance but depends on the instruments used in macroeconomics variable and prevailing economic conditions.

The test on the relationship between market risk and unit trust price volatility, yielded a coefficient of regression $\boldsymbol{\beta}_4$ = -0.274, p-value = 0.001<0.05. This implies market risk have a negative effect on unit trust price volatility that is statistically significant at 5% levels of significance. An increase in one unit of market risk leads to 0.274 decrease in unit trust price volatility holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.001 < 0.05, and the alternative hypothesis that operational risk has statistical significant effect on unit trust price volatility was accepted

Guo and Whitelaw, (2006) reported a positive relationship between market risk and return when volatility feedback is incorporated in the research of uncovering the risk-return relation in the stock market. Kim, Morley and Nelson, (2004) reported a significant positive relationship between market risk and stock market volatility in the study "is there a positive relationship between stock market volatility and equity".

The effect of investment risk and unit trust price volatility recorded a coefficient of regression $\boldsymbol{\beta}_5$ = 0.102, p-value = 0.040 < 0.05. This implies that Investment Risk have a positive effect on unit trust price volatility that is statistically significant at 5% levels of significance. An increase in one unit of investment risk leads to 0.102 units increase unit trust price volatility holding other factors constant. The null hypothesis was rejected on the bases of p-value = 0.04 < 0.05, and the alternative hypothesis that investment risk has statistical significant effect on unit trust price volatility was accepted Return = Risk – free rate + β (Risk premium) is the association between risk and returns which are direct proportional. This proves Pandey (2008) argument on risk and returns that the higher the risk, the higher the returns in the long run but proper balance should be maintained to maximize the value of firm's shares. Hsu and Chow 2013) in the study the effect on investment risk taking on house money

reported that investment risk has a negative significant effect on house money implying a concurrence in the research findings.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter comprises of the summary of the study findings for all the study variables, conclusions drawn from the findings, the recommendations formulated as per the results as well as suggestion for further studies.

5.2 Summary of Findings

The study conducted, was based on the notion that financial risk does not have statistical significant effect on unit trust price volatility in Kenya. A record survey sheet was used to collect secondary data for both dependent and independent variables. Out of 19-unit trust firms, the data for 14-unit trust was available, representing 73.6%. The independent variables of the research were tested for Multicollinearity and independence using Variance inflation factor test. Normality test was carried using Shapiro-wilk test for all the variables, Durbin – Watson test was used to detect autocorrelation, Wooldridge Drukker test was used to test for the presence of serial correlation, Breusch- pagan test was used to test the presence of Heteroskedasticity. Time series trend lines were plotted for all variables against time to test for the effect on time on the independent and dependent variables. Panal regression analysis was used to test the combined effect of all the independent variables. The hypothesis formulated were tested empirically guided by the following specific objectives.

5.2.1 Effect of Liquidity Risk on Unit Trust Price Volatility in Kenya

The study revealed that the mean for liquidity risk for the CMA listed unit trust was 2.9, 3.4 and 3.2 for the money market fund, equity fund and the average of money market and equity fund model. The standard deviation was 0.77, 0.79 and 0.33 for the money market fund, equity fund and combined model. The maximum liquidity risk was 3.5 recorded in equity fund while the minimum was 1.8 recorded in the money market fund. The trend for liquidity risk had a positive gradient that was steep

for the money market fund and gradual for the combined model while the equity fund trend had a negative slope. The individual regression analysis for liquidity risk on unit trust price volatility indicated a positive effect for the money market fund and the combined model with the latter having a stronger effect. However, for the equity fund, the effect was a negative. For all the models, the effect of liquidity risk on unit trust price volatility was found to be statistically significant. This led to the rejection of the null hypothesis that Liquidity risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya hence acceptance of the alternative hypothesis that liquidity risk has a significance effect on unit trust price volatility in Kenya

5.2.2 Effect of Default Risk on Unit Trust Price Volatility in Kenya

The CMA listed unit trust recorded default risk with a mean of 0.97, 0.18 and 0.57 for the money market fund, equity fund and combined model. The standard deviation was 0.82, 0.12 and 0.44 for the money market fund, equity fund and combined model. The maximum default risk was 3.01 in the year 2016 for the money market fund while the minimum was -0.02 in the year 2011 for the equity fund. The trend for default risk had a positive gradient that was steep for the money market fund, equity fund and combined model. The individual regression analysis for default risk on unit trust price volatility indicated a positive effect for the money market fund, equity fund as well as combined model. The individual regression analysis for all the models was significant. This led to the rejection of the null hypothesis that default risk has no statistically significant effect on unit trust price volatility in Kenya hence acceptance of the alternative hypothesis that default risk has a significance effect on unit trust price volatility in Kenya

5.2.3 Effect of Operational Risk on Unit Trust Price Volatility in Kenya

The operational risk for CMA listed unit trust recorded a mean of 0.15, 0.29 and 0.22 for the money market fund, equity fund and combined model respectively. The standard deviation was 0.66, 0.37 and 0.42 for the money market fund, equity fund and combined model respectively. The maximum operational risk was 0.69 in the year 2012 for the equity fund while the minimum was -1.53 in the year 2011 for the

money market fund. The trend for operational risk had a negative gradient for the money market fund, equity fund and combined model. The individual regression analysis for operational risk on unit trust price volatility indicated a negative effect for the money market fund, equity fund as well as combined model. The individual regression analysis for all the models were significant. This led to the rejection of the null hypothesis that operational risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya hence acceptance of the alternative hypothesis that operational risk has a significance effect on unit trust price volatility in Kenya

5.2.4 Effect of Market Risk on Unit Trust Price Volatility in Kenya

The study revealed that CMA listed unit trusts recorded market risk with a mean of 2.25, 1.91 and 2.08 for the money market fund, equity fund and combined model. The standard deviation was 0.44, 0.44 and 0.28 for the money market fund, equity fund and combined model. The maximum market risk was 3.19 in the year 2009 for the money market fund while the minimum of 1.20 was observed in the year 2009 for the equity fund. The trend for market risk had a negative gradient for the money market fund, equity fund and combined model. The individual regression analysis for market risk on unit trust price volatility indicated a negative effect for the money market fund, equity fund as well as combined model. All the individual regression analysis models were significant. This led to the rejection of the null hypothesis that market risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya hence acceptance of the alternative hypothesis that market risk has a significance effect on unit trust price volatility in Kenya

5.2.5 Effect of Investment Risk on Unit Trust Price Volatility in Kenya

The study revealed that CMA listed unit trust recorded investment risk with a mean of 8.83, 5.98 and 7.4 for the money market fund, equity fund and combined model. The standard deviation was 8.55, 3.98 and 6.06 for the money market fund, equity fund and combined model. The maximum investment risk was 24.69 in 2009 for the money market fund while the minimum of 0.81 was recorded in the year 2017 for the equity fund. The trend for investment risk had a negative gradient for the money

market fund, equity fund and combined model. The individual regression analysis for investment risk on unit trust price volatility indicated a negative effect for the money market fund, equity fund as well as combined model. The individual regression analysis models were significant. This led to the rejection of the null hypothesis that investment risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya hence acceptance of the alternative hypothesis that investment risk has a significance effect on unit trust price volatility in Kenya

5.2.6 Unit Trust Price Volatility in Kenya

The study revealed that unit trust Price Volatility with a mean of 13.73, 8.92 and 4.53 for the money market fund, equity fund and combined model. The standard deviation was 3.77, 1.21 and 0.62 for the money market fund, equity fund and combined model. The maximum UTPV was 20.96 in 2015 for the money market fund while the minimum of 3.17 in 2009 for the combined model. The trend for UTPV had a positive gradient for the money market fund, equity fund and combined model.

5.3 Conclusion

The study conducted Panel regression tests for the panel data that comprised of money market fund, equity fund and combined model from 2009 to 2017. The conclusions were guided by the study set of hypotheses, null and alternative.

The study revealed that the indicators for financial risks namely; liquidity risk, default risk, operational risk, market risk and investment risks recorded a greater proportion of the unit trust price volatility changes for CMAs Listed Unit Trusts in Kenya. The study found a combined effect by the interest indicators of 53.75% of unit trust price volatility for money market fund with the rest proportion (46.25%) being explained by extraneous variables as well as the error term. For the equity fund model, the contribution was 55.17% with only 44.83% being explained by extraneous variables as well as the error term. Similarly, the average of money market and equity fund model recorded a contribution of 57.61% of the changes in unit trust price volatility was explained by liquidity risk, default risk, operational

risk, market risk and investment risks while only 42.39% was explained by extraneous variables as well as the error term

As a confirmatory test using Karl Pearson correlation analysis on the relationship between liquidity risk and unit trust price volatility, the money market fund yielded a strong positive relationship between liquidity risk and unit trust price volatility that is significant. The equity fund yielded a strong positive relationship between liquidity risk and unit trust price volatility that is significant. Similarly, the combined model yielded a week positive relationship between liquidity risk and unit trust price volatility that is statistically significant.

The regression analysis test on the effect of liquidity risk and unit trust price volatility, the study yielded a positive significant effect for money market fund. For the equity fund, the results indicated a positive significant effect. As for the combined model the study yielded a positive significant effect.

This facilitates the rejection of the null hypothesis, stating that liquidity risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. This informs the acceptance of the alternative hypothesis stating that liquidity risk has a statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. This enables the conclusion that liquidity risk has a significant effect on unit trust price volatility that is statistically significant.

From the Karl Pearson correlation analysis that was used as a confirmatory test on the relationship between Default Risk and unit trust price volatility yielded a strong positive significant relationship for money market fund.

As for the equity fund, the study yielded a strong positive relationship that is significant. Similarly, the combined model yielded a strong positive relationship between the two variables that is significant.

The Panel regression analysis yielded testing the effect of default risk on unit trust price volatility, yielded a significant positive effect on unit trust price volatility that is for money market fund. The regression for equity fund yielded a positive effect on

unit trust price volatility that is significant. Likewise, the study revealed that for the combined model, the default risk had a positive effect on unit trust price volatility that is significant.

This facilitates the rejection of the null hypothesis, stating that default risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. Therefore, the study failed to reject the alternative hypothesis that states that default risk has a statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. This enables the conclusion that default risk has a significant effect on unit trust price volatility that is significant at 5% levels of significance.

As confirmatory test for the relationship between operational risk and unit trust Price Volatility, the study yielded a strong negative relationship that is significant at 5% levels of significant. As for the equity fund, the study yielded a yielded a strong positive relationship, that is significant at 5% levels of significant. Similarly, the combined model yielded a strong positive relationship that is significant at 5% levels of significant.

After conducting the panel regression analysis to test the effect of operational risks on unit trust price volatility, the study yielded a positive effect that is significant at 5% levels of significance for money market fund. The equity fund results indicating a positive effect that is significant at 5% levels of significance. Likely, the combined model yielded a positive effect that is significant at 5% levels of significance.

From the findings of regression and correlation analysis, the author rejected the null hypothesis, stating that operational risk has no statistically significant effect on unit trust price volatility in Kenya. Hence failed to reject the alternative hypothesis that states that operational risk has a statistically significant effect on unit trust price volatility in Kenya. This enables the conclusion that operational risk has a significant effect on unit trust price volatility that is significant at 5% levels of significance.

After conducting the correlation analysis to test the relationship between market risk and unit trust price volatility yielded strong negative relationship that is significant at

5% levels of significant for the money market fund. Similarly, the equity funds a yielded a strong negative relationship that is significant at 5% levels of significant. Finally, the combined model yielded a strong positive relationship between Market Risk and unit trust Price Volatility that is significant at 5% levels of significant.

From the study findings on the regression analysis on the effects of market risk on unit trust price volatility yielded a negative effect that is significant at 5% levels of significance for the money market fund. As for the equity fund, the study yielded a positive effect that is significant at 5% levels of significance. The results for the combined model yielded a negative effect that is significant at 5% levels of significance.

From the findings, the study rejected the null hypothesis, stating that market risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. He accepted the alternative hypothesis that states that market risk has a statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. This informed the conclusion that market risk has a significant effect of unit trust price volatility that is significant at 5% levels of significance.

After performing the Karl Pearson correlation as a confirmatory test, the money market model yielded a strong negative relationship between investment risk and unit trust price volatility that is significant at 5% levels of significant. As for the equity fund, the study yielded a strong negative relationship that is significant at 5% levels of significant. Finally, the test on the relationship between Investment Risk and unit trust price volatility yielded a strong negative relationship between investment risk and unit trust price volatility that is statistically significant at 5% levels of significant.

The panel regression was used to test the effect of investment risk on unit trust price volatility. The money market fund recorded positive effect that is significant at 5% levels of significance. The equity fund yielded a negative effect that is significant at 5% levels of significance. Similarly, the combined model recorded a positive effect that is significant at 5% levels of significance.

The study findings justified the rejection of the null hypothesis, stating that investment risk has no statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya. Therefore, the alternative hypothesis that states that market risk has a statistically significant effect on unit trust price volatility among CMA listed unit trusts in Kenya was accepted. This informed the conclusion that investment risk has a statistically significant effect on unit trust price volatility that is significant at 5% levels of significance.

5.4 Recommendations of the Study

As a result of financial risk having statistically significant effect on unit trust price volatility, the study made the following recommendations; The Managers of collective investment scheme and capital market authority to increase awareness on existence of financial risk and its effect on Unit Trust Price Volatility. UT management to design internal risk policy as corrective measures to control information systems, reporting systems, internal management rules and internally acceptable procedures to govern operations.

UT Management to make viable investment decisions in minimizing occurrence of numerous great profiling of financial failures in the firms' economic development

CMA management should ensure that all listed companies have operational websites to make this information public. CMA to tighten surveillance on Unit trust investment decisions and where the fund is invested to minimize collusion to swindle clueless investors. Examples: Collapsed Nakumatt holdings chase bank, imperial bank and Athi River mining swallowed investors' cash.

The Board of Directors of the Unit trust firms should engage fund managers with sound financial knowledge or retain the fund managers on financial matters to ensure that they understand the macro and micro economic variables, which increase that market risk. This will automatically stabilize the unit trust prices. The unit trust firm's management should ensure that the financial position of the firm is stable by investing in assets whose returns are less risky. The investment with higher returns deters investors from joining other unit trust firms that are more lucrative.

5.4.1 Policy Implication

The Government of Kenya through the ministry of national treasury has created CMA to oversee the development and success of unit trust. The act should however be reviewed to give the authority the inspection mandate on the unit trust to make them efficient and conform to financial international standards to be in line with the economic pillar of vision 2030.The CMA should ensure that all listed companies have working websites to make this information publicly. The board of directors of unit trust firms should engage qualified and experienced fund managers and chief financial officer. There should be expertise in financial and investment matters as a control system mechanism to stabilize unit trust prices.

The study was limited to financial risk on unit trust price volatility and further research can be interesting on other economic factors, which affect the unit trust price volatility. The study was not able to exhaust all financial risk components that have effect on unit trust price volatility. Future research is required on the effect of other types of financial risk on unit trust price volatility and other extraneous factors. The study only dealt on firms holding both money market and equity fund, future research is of interest on other funds such as balance income and fixed fund. Further investigation is required on the relationship between investment risk and market risk as a result of the strong significant correlation. The study was limited to unit trust firms listed in Kenya, altering the geographical region can be a subject for further research.

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APENDICES

Appendix I: Introduction Letter

Joseph Kimani Mwangi

P. O. Box 583-20107; Tel: 0722-638719;

Email address: Jkimany13@gmail.com

Through the Fund manager

Dear Respondent,

I'm a student of Jomo Kenyatta University of Agriculture and Technology. I'm pursuing a doctor of philosophy degree in business administration, finance option. I'm researching on effect of financial risk on unit trust price volatility among CMA listed firms in Kenya. My target population is 19-unit trust firms registered, accepted by CMA and holding money market and equity fund. I will use record survey sheet to elicit information which will be useful in the above-mentioned research as part of doctor of philosophy degree in business administration. Your unit trust firm has been selected as one of the companies where the researcher will collect the data required for the study. You are requested to avail your time and financial statements for the period 2009 – 2017. The information supplied will be used strictly for academic purposes only and will be treated with utmost confidentiality.

Your co-operation will be highly appreciated.

Yours Faithfully,

Joseph Kimani Mwangi

Appendix II: Authorization letter from BPS

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. BOX 62000
NAIROBI – 00200
KENYA
Email: director@bps.jkuat.ac.ke

TEL: 254-067-52711/52181-4
FAX: 254-067-52164/52030

REF: BPS/ HD433-C007-2446/2014 12th FEBRUARY, 2018

The Secretariat
National Research Fund
P.O. Box 26036-00100
Nairobi

Dear Sir/Madam,

RE: JOSEPH KIMANI MWANGI - HD433-C007-2446/2014

This is to confirm that the above named person is a Bonafide student in this University undertaking the degree of **Doctor of Philosophy in Business Administration in the School of Business working** on a thesis titled ***"EFFECT OF FINANCIAL RISK ON UNIT TRUST PRICE VOLATILITY AMONG CAPITAL MARKET AUTHORITY LISTED FIRMS IN KENYA"***.

The student is applying for funds to carry out his research work. Any assistance accorded to him will be highly appreciated.

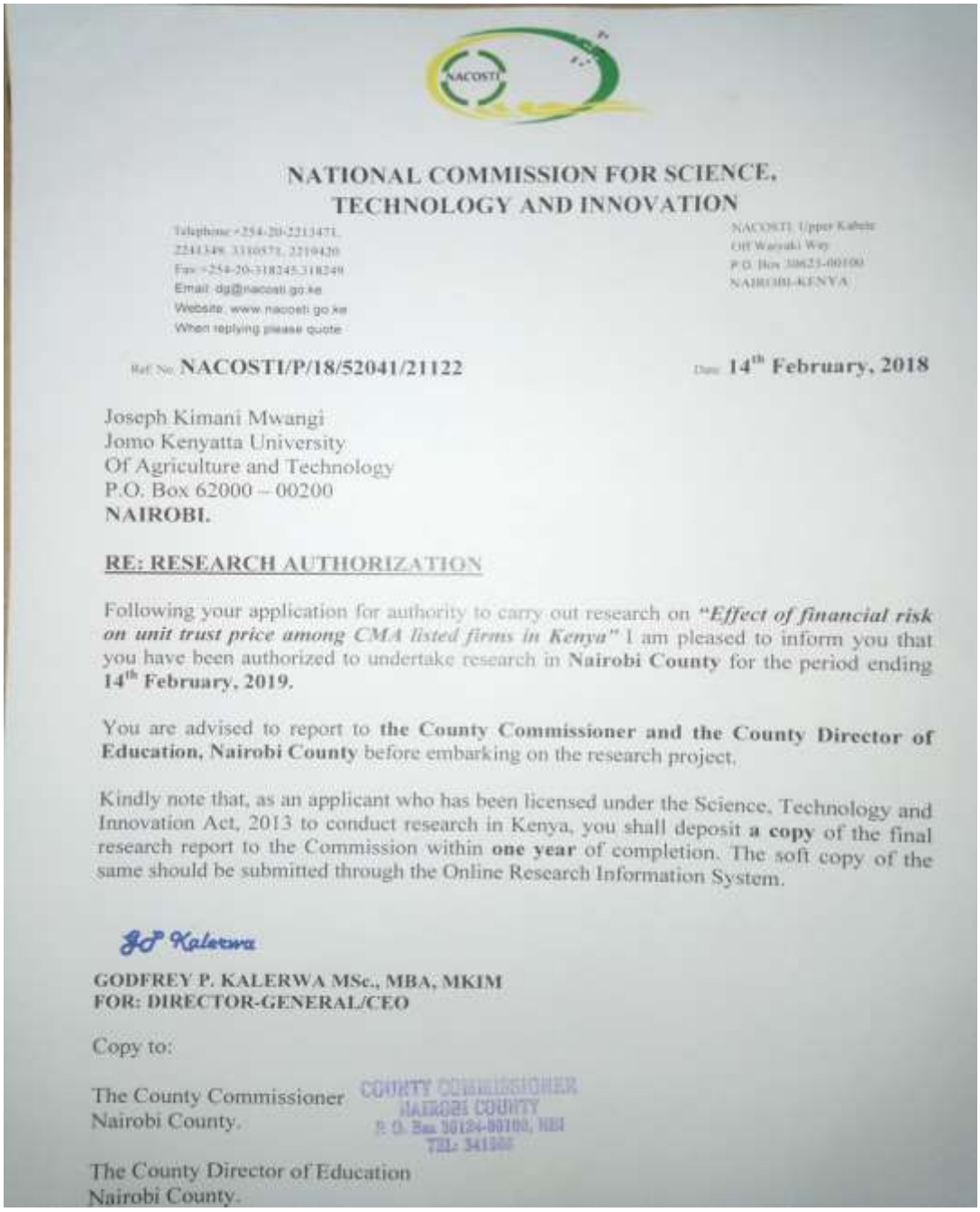
Yours sincerely,

12 FEB 2018

PROF. ENG. G.N. MANGURIU
Ag. DIRECTOR, BOARD OF POSTGRADUATE STUDIES

JKUAT is ISO 9001:2008 & 14001:2004 Certified

Appendix III: Authorization letter from NACOSTI



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone +254-20-2213471, 2241349, 3310571, 2219420
Fax +254-20-318245,318249
Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref No: **NACOSTI/P/18/52041/21122**

Date: **14th February, 2018**

Joseph Kimani Mwangi
Jomo Kenyatta University
Of Agriculture and Technology
P.O. Box 62000 – 00200
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Effect of financial risk on unit trust price among CMA listed firms in Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **14th February, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GP Kalerwa

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341555

The County Director of Education
Nairobi County.

Appendix IV: Authorization letter from State Department of Basic Education

Republic of Kenya
MINISTY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
rdenairobi@gmail.com

When replying please quote

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

Ref: RCE/NRB/GEN/1 VOL. I

DATE: 27th February, 2018

Joseph Kimani Mwangi
Jomo Kenyatta University of
Agriculture & Technology
P O Box 62000-00200
NAIROBI

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "**Effect of financial risk on unit trust price among CMA listed firms in Kenya**".

This office has no objection and authority is hereby granted for a period ending **14th February, 2019** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

NAIROBI
27 FEB 2018

MAINA NGURU
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

c.c
Director General/CEO
Nation Commission for Science, Technology and Innovation
NAIROBI

Appendix V: Authorization letter from Administrator Nakuru town Campus

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
P.O. Box 1063 - 20100 NAKURU, KENYA.
TEL: (051) 2216660 FAX: 2215664 CELL: 0714 716957
Email: nakuruchd@jkuat.ac.ke Website: www.jkuat.ac.ke

REF: HD433-C007-2446/2014 **DATE:** 19TH JANUARY, 2018

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: MWANGI JOSEPH KIMANI HD433-C007-2446/2014

This is to confirm that Mr. Joel is a bona fide student of this University undertaking a Doctorate of Philosophy in business administrator at the Nakuru CBD Campus. He has finished his course work and currently collecting data for his research Project on **FINANCIAL RISK AND UNIT TRUST PRICE.**

Any assistance accorded to him will be highly appreciated.

Yours Sincerely,

RUTH LIMARENG.
ADMINISTRATOR, NAKURU CBD CAMPUS.

JKUAT is ISO 9001:2008 CERTIFIED
Setting Trends in Higher Education, Research and Innovation

Appendix VI: Record Survey Sheet

Name of Unit Trust _____

The quantitative value of each variable from each Unit Trust financial statement and report is to be extracted and entered in the space provided.

	Year/ Variables	2007	2008	2009	2010	2011	2012	20
1	Total Equity							
2	Total Assets							
3	Current assets							
4	Total Return							
5	Equity fund amount							
6	Market fund amount							
7	Current debt							
8	Operating income							
9	Current market value							
10	Market return rate							
11	Annual risk free rate							
12	Annual income							
13	Income after tax							
14	Total expenses							
15	Exchange rate per $							
16	Closing Selling price							
17	Net asset value							
18	Total value of fund							
19	Outstanding number of shares							
20	Current liabilities							
21	Growth rate							
22	Return on Investment							

23	Account Receivables							
24	Inventories							
25	Cash Equivalents							
26	Marketable securities							

Appendix VII: Approved Unit Trusts by CMA

1. African Alliance Kenya Unit Trust Scheme, comprising:

i. African Alliance Kenya Shilling Fund.

ii. African Alliance Kenya Fixed Income Fund.

iii. African Alliance Kenya Managed Fund.

iv. African Alliance Kenya Equity Fund.

2. British-American Unit Trust Scheme, comprising:

i. British-American Money Market Fund.

ii. British- American Income Fund.

iii. British-American Balanced Fund.

iv. British- American Managed Retirement Fund.

v. British-American Equity Fund.

3. Stanbic Unit Trust Scheme, comprising:

i. Stanbic Money Market Fund.

ii. Stanbic Fixed Income Fund.

iii. Stanbic Managed Prudential Fund.

iv. Stanbic Equity Fund

v. Stanbic Balanced Fund

4. Commercial Bank of Africa Unit Trust Scheme, comprising:

i. Commercial Bank of Africa Money Market Fund.

ii. Commercial Bank of Africa Equity Fund.

5. Zimele Unit Trust Scheme, comprising:

i. ZimeleEquityFund

ii. Zimele Money Market Fund

6. ICEA Unit Trust Scheme, comprising:

i. ICEA Money Market Fund

ii. ICEA Equity Fund

iii. ICEA Growth Fund

iv. ICEA Bond Fund

7. Standard Investment Trust Funds, comprising:

i. Standard Investment Equity Growth Fund

ii. Standard Investment Fixed Income Fund

iii. Standard Investment Balanced Fund

8. CIC Unit Trust Scheme, comprising:

i. CIC Money Market Fund

ii. CIC Balanced Fund

iii. CIC Fixed Income Fund

iv. CIC Equity Fund

9. Madison Asset Unit Trust Funds, comprising:

i. Madison Asset Equity Fund

ii. Madison Asset Balanced Fund

iii. Madison Asset Money Market Fund

iv. Madison Asset Treasury Bill Fund

v. Madison Asset Bond Fund.

10. Dyer and Blair Unit Trust Scheme, comprising:

i. Dyer and Blair Diversified Fund

ii. Dyer and Blair Bond Fund

iii. Dyer and Blair Money Market Fund

iv. Dyer and Blair Equity Fund

11. Amana Unit Trust Funds Scheme, comprising:

i. Amana Money Market Fund

ii. Amana Balanced Fund

iii. Amana equity Fund

12. Diaspora Unit Trust Scheme, comprising:

i. Diaspora Money Market Fund

ii. Diaspora Bond Fund

iii. Diaspora Equity Fund

13. First Ethical Opportunities Fund

14. Genghis Unit Trust Funds, comprising:

i. GenCapHazina Fund

ii. GenCapEneza Fund

iii. GenCap Hela Fund

iv. GenCap Iman Fund

v. GencapHisa Fund

15. UAP Investments Collective Investment Schemes, comprising:

i. UAP Money Market Fund

ii. UAP High Yield Bond Fund

iii. UAP Enhanced Equity Fund

iv. UAP Dividend Maximizer Fund

16. Pan Africa Unit Trust Scheme, comprising:

i. Pan Africa Money Market Fund (Pan Africa Pesa Plus Fund)

ii. Pan Africa Dividend Plus Fund (Pan Africa Faida Plus Fund)

iii. Pan Africa Equity Fund (Pan Africa Chama Plus Fund)

17. Nabo Africa Funds, comprising;

i. Nabo Africa Money Market Fund

ii. Nabo Africa Balanced Fund

iii. Nabo Africa fixed income Fund

iv. Nabo Africa Equity fund

18. Old Mutual Unit Trust Scheme, comprising:

i. Old Mutual Equity Fund

ii. Old Mutual Money Market Fund

iii. Old Mutual Balanced Fund

iv. Old Mutual East Africa Fund

v. Old Mutual Bond Fund

19. Equity Investment Bank Collective Investment Scheme, comprising;

i. Equity Investment Bank Money Market Fund

ii. Equity Investment Bank Balanced Fund

20. Pan Africa Unit Trust Scheme, comprising;

i. Pan Africa Money Market Fund

ii. Pan Africa Divided Plus Fund

iii. Pan Africa Equity Fund

21. Dry Associates Unit Trust Scheme comprising;

i. Dry Associates Money Market Fund (Kenya Shillings)

ii. Dry Associates Money Market Fund (US Dollars)

iii. Dry Associates Balanced Fund (Kenya Shillings)

22. Co-op Trust Fund comprising;

i. Co-op Balanced Fund

ii. Co-op Equity Fund

iii. Co-op Bond Fund

iv. Co-op Money Market Fund

23. Apollo Unit Trust Scheme comprising;

i. Apollo Money Market Fund

ii. Apollo Balanced Fund

iii. Apollo Aggressive Growth Fund

iv. Apollo Equity Fund

v. Apollo East Africa Fund

vi. Apollo Bond Fund

Appendix VIII: Normality Test

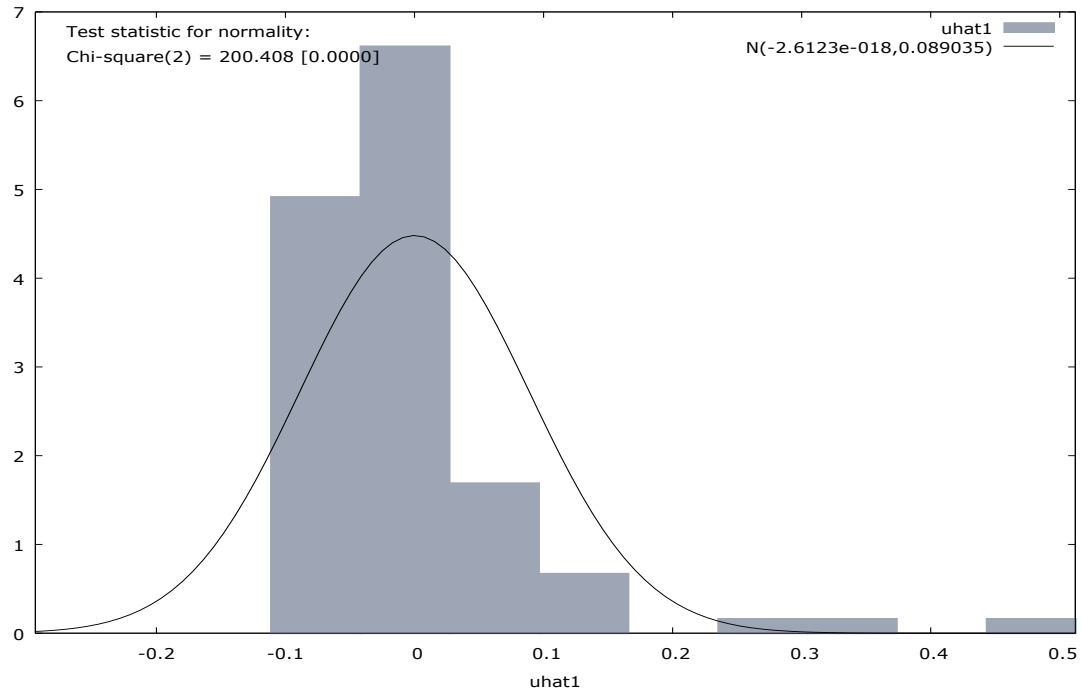


Figure 1: Normality Test on Combined model (Average of Money Market & Equity Fund)

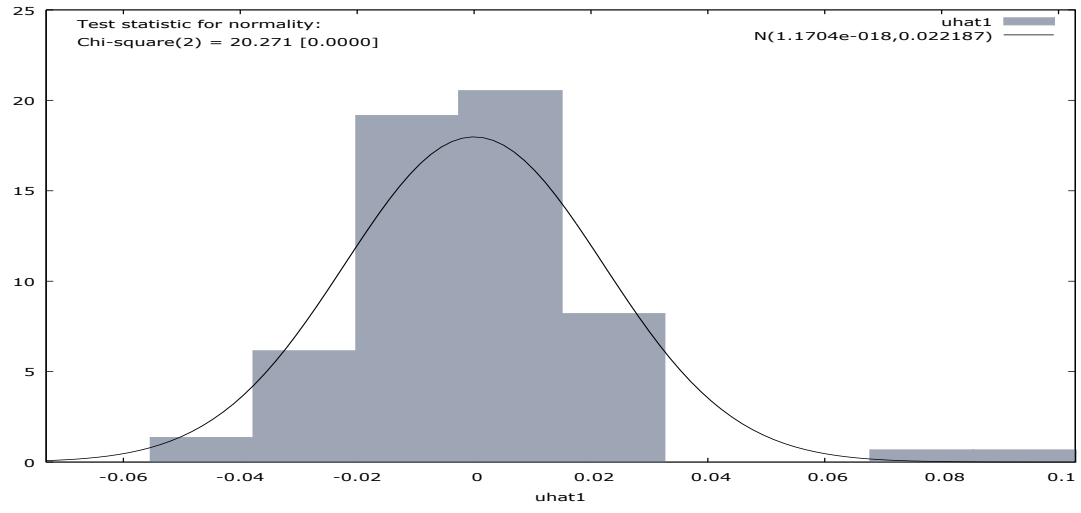


Figure 2: Normality Test on Money Market fund

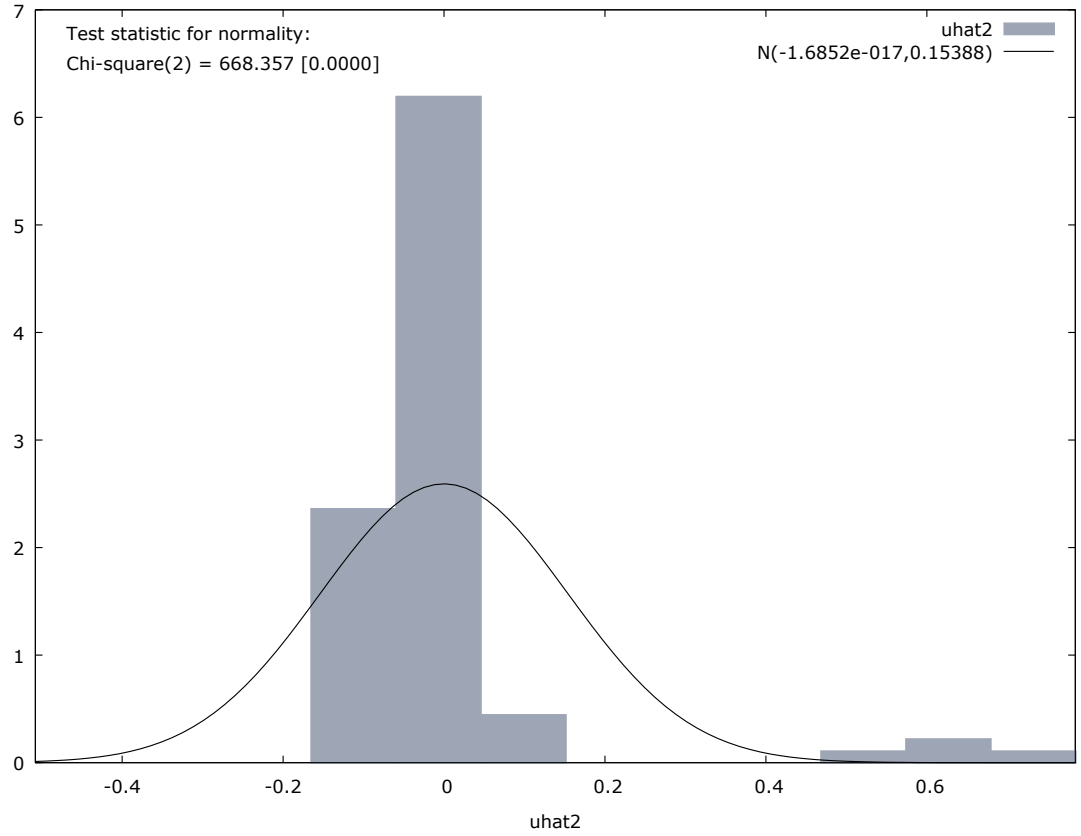


Figure 3: Normality Test on Equity Fund