

**EFFECT OF PORTFOLIO DIVERSIFICATION ON FINANCIAL PERFORMANCE
OF INVESTMENT FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE,
KENYA**

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DECLARATION

This research project is my original work and has not been submitted to any college, institution or university for any academic award other than the University of Nairobi.

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DEDICATION

I dedicate this project to my beloved parents Mr. and Mrs. Awiti Osewe, my siblings Ken, Austin and Angela as well as my friends for their encouragement and support in ensuring successful completion of this research.

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I give thanks to the Almighty God for enabling me complete this project. And I wish to express my sincere gratitude and heartfelt appreciation for my supervisor Dr. Winnie Nyamute for her guidance, patience and counsel during my master's journey. Thank You!

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ABBREVIATIONS AND ACRONYMS

ANOVA	: Analysis of Variances
APT	: Arbitrage Pricing Theory
CAPM	: Capital Asset Pricing Model
CBK	: Central Bank of Kenya
CIS	: collective investment schemes
CMA	: Capital market Authority
HHI	: Herfindhal-Hirschman index
MPT	: Markowitz's Modern Portfolio Theory (MPT)
NIM	: Net Interest Margin
NPAT	: Net Profit After Tax
NSE	: Nairobi Securities Exchange
OLS	: Ordinary Least Squares
PLC	: Public Limited Company
ROA	: Return on Assets
ROE	: Return on Equity
SACCOs	: Savings and Credit Cooperative Organization
VIF	: Variance Inflation Factor

ABSTRACT

Globally, investors are risk averse hence; they implement strategies aimed at minimizing risk at a given level of returns. Logically, investors would prefer lower risk investments projects given the level of returns. The study sought to examine the effect of portfolio diversification on financial performance of investment firms listed at the NSE, Kenya. The study adopted descriptive research design. The target population included all 5 listed investment firms as at 31st December 2019. The study was therefore a census survey of all listed investment firms that have been in operation during the study period from 2010 to 2019. The study extracted annual secondary data from audited financial statements and other published data of the concerned listed investment firms. The data was collected for ten years beginning 2010 to 2019. The extracted data was recorded on data collection sheets. Diagnostic tests namely test for normality, autocorrelation and multicollinearity, serial correlation and heteroscedasticity were conducted. The purpose of the tests was to ensure that the regression model adopted is robust. The data was checked for completeness and then keyed into excel 2016. The variables were then generated using different functions in excel. The organized data from excel were exported to STATA version 14 for descriptive and inferential analysis. Descriptive statistics involved frequencies, percentages, mean and standard deviation while inferential statistics comprised of pairwise correlation and multiple regression analysis. Regression analysis aid in establishing the effect of portfolio diversification on financial performance of listed investment firms. The study utilized OLS regression models as shown in equation (1) and (2). The significance of the effect of explanatory variables were conducted at 95% confidence level. The Pearson correlation analysis revealed that the correlation between investment portfolio diversification, firm size, liquidity and financial performance was positive. Analysis of variances showed that investment portfolio diversification, firm size and liquidity had a significant effect on financial performance of financial performance among investment firms listed at the NSE Kenya. Additionally, the regression coefficient revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya. Firm size had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya. Additionally, liquidity had a positive but statistically insignificant effect on financial performance of investment firms listed at the NSE Kenya. Based on study findings regarding the effect of investment portfolio diversification, the study concludes that the positive effect of investment portfolio diversification on financial performance in model equations (1) & (2) implies that improvement in portfolio diversification leads to improving financial performance of the listed investment firms. Regarding the effect of firm size on financial performance, the study concludes that the positive effect of firm size on financial performance implies that increasing firm size in terms of total assets, leads to improvement of financial performance of listed investment firms. Finally, regarding the effect liquidity on financial performance of listed investment firms in Kenya, the study concludes that the positive effect of liquidity on financial performance can be explained by the fact that firms that have adequate liquidity are able to settle maturing obligation without fail hence. The study makes recommendations. Regarding investment portfolio diversification, the study recommends to management of listed investment firms to diversify their investment portfolio. The firms should broaden their portfolio by addition more assets classes to their portfolios. The study also recommends to capital market authority to regulate and encourage investment of listed investment firms to diversify their investment portfolios. The study recommends to management of listed investment firms to improve their assets through additional investment. The listed investment firms should offer more common stock to the current and prospective shareholders to boost their capital.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Globally, investors are risk averse hence; they implement strategies aimed at minimizing risk at a given level of returns. Logically, investors would prefer lower risk investments projects given the level of returns. Among strategies of reducing risk is portfolio diversification where unsystematic risk are spread over a number of assets including treasury bonds and bills, shares, real estate, mutual funds among other assets. The association between investment diversification and financial performance of firms has gained interest among scholars, practitioners and investors. Odhiambo (2013) revealed that the association between financial performance and portfolio diversification was direct among Deposit taking Sacco's. Mulwa and Kosgei (2016) noted that the link between financial performance, assets and income diversification was negative among commercial banks. Kimeu, Anyango and Rotich (2016) established a significant link between portfolio diversification and financial performance. Rubinstein (2002) revealed that portfolio diversification helps in diversifying unsystematic risk such that if one or more asset are affected by firm's specific risk, other assets in the portfolio not affected by the specific firm risk compensate the bad performance.

The study was underpinned by three theories including modern portfolio theory (MPT), capital asset pricing model (CAPM) and arbitrage pricing theory (APT). Modern Portfolio Theory proposed by Markowitz (1952) explains that a portfolio is as a set of securities. The theory further explains that risk can be categorized in diversifiable and non-diversifiable risks. Arbitrage Pricing Theory proposed by Ross (1976) is a multifaceted model used to depict the association between returns and risk in an asset or group of assets. The theory examines factors affecting return on

individual assets or portfolio including market factors and macro-economic factors. Finally, the study will be based on CAPM proposed Sharpe (1964) and Lintner (1965). The CAPM model identifies two classes of risk that is diversifiable and non-diversifiable risk affecting asset or portfolio returns.

Portfolio diversification as strategy to reduce unsystematic risk and enhance financial performance of firms has become popular across the globe in the last two decades. Portfolio diversification was highly adopted across Europe and the United states in the 1960s and 1980s with firms adopting a number of assets classes to lower their unsystematic risks. The period was characterized by firms diversifying geographically, product wise and firm level with most corporations embracing mergers and acquisitions. In Vietnam, Luu, Nguyen and Vu (2019) revealed that most banks have reduced the share traditional operational activities like lending and embraced new nontraditional revenue earners like investment in treasury securities (Williams, 2016) with incomes being generated from non-interest income sources (Eukeria & Favourate, 2014). The performance of listed firms globally has been varied. In Europe and America, the financial performance of investment firms have been on a steady rise in last decade after recovery from global economic crisis of 2009 that emerged from the US and spread to Europe and African countries.

1.1.1 Portfolio Diversification

Lyandres, Marchica, Michaely and Mura (2018) noted that portfolio diversification is a corporate strategy that involves firms investing in different assets classes that do not have linear positive relationship amongst them such that poor performance in one class of assets is compensated by returns in the other classes of assets not affected by the assets specific risk. Purkayastha, Manolova, and Edelman (2012) defined diversification as an exercise of entering new products market by a firm. Diversification is a process where the wealth of an organization is distributed over different assets classes such that the returns are optimal (Chkir & Cosset, 2001). Firms that are diversified

have the advantage of compensating lower returns in a given industry with higher returns in other industry that are not affected by industry specific risks (Ibrahim & Kaka, 2007).

Diversification by products or markets is aimed at making a firm enjoy economies of scale and improved efficiency that leads to improved financial performance (Lin & Nienhaus, 2015). The aim of portfolio diversification to allocate resources to different assets classes, markets and products to spread the diversifiable risks. The diversification strategy gives the firm an opportunity to hold optimal portfolios that ensures that poorly performing assets are compensated by better performing assets given the economic situation being experienced (Aw, Jiang, Sivin and Soe, 2018). Portfolio diversification thus aims at according a firm a variety of income sources such that an economic event affecting an industry does not have to affect all industries at the same time in the same manner (Ibrahim and Kaka, 2007).

Theoretically, portfolio diversification is determined by the allocation of the diversifiable risks across assets classes such that the systematic risk is zero or negligible. A portfolio is said to be optimally diversified when the existing risk facing the entire portfolio is just the systematic risk (Bergin & Pyun, 2016). Empirical studies have tended to adopt different measures of portfolio diversification. Kamwaro (2013) and Kimeu (2015) measured portfolio diversification using amount of investment in bonds, equity, real estate and mutual funds. Mulwa and Kosgei (2016) and Luu, Nguyen and Vu (2019) adopted Herfindhal-Hirschman index (HHI) to measure income and geographical diversification among firms. The study adopted the measure used by Mulwa and Kosgei (2016) and Luu, Nguyen and Vu (2019) where portfolio diversification is measured by Herfindhal-Hirschman index (HHI).

1.1.2 Financial Performance

Financial performance is the outcomes of the efforts of the employees of the firm presented in monetary terms (Kimeu, Anyango and Rotich (2016). Financial performance is measure of the overall financial health and stability of the firm. According to Njeru (2016), financial performance is the monetary outcome of business strategies implemented within a given period. The financial performance of a firm has often been described using terms such as profitability, sales growth, turnover, earning per share, dividend growth among other terms (Muriithi & Waweru, 2017). However, the measurement of financial performance has never been free from debates with different authors and firms preferring certain measures over other measures of financial performance (Kajola et al., 2019).

Investment firms just like other business firms have the same common ultimate goal of achieving improved financial performance over a given period. As Ongore and Kusa (2013) noted, investment firm aims to achieve superior financial performance with the implementation of various strategies including portfolio diversification strategy. In addition to financial performance, investment firms also have other objectives that may be social, economic, national or global that sometimes conflict with financial performance hence leading to firms settling for sub optimal financial performance level. Improved financial performance leads to increased earnings per share and dividend per share hence enhanced motivation among shares holders who in turn bring more resources on board to improve future fortunes of the firms concerned. Financial performance is an indicator of the efforts put into the management in implementing various strategies of improving the competitiveness of the firms in the wider industry (Kimeu (2014).

Various measures have been adopted to measure financial performance including Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM). According to Ojiambo (2014), ROA is the ratio of net profit after tax to total assets of the firm. The ratio measure how efficiently

a firm is utilizing its resources to achieve profitability. ROE explains the amount of profit earned by an organization in relation to the firm's value of equity. Khrawish, (2011) on the other hand adopted return on equity to measure financials performance. ROE is the ratio of Net profit after tax to total equity of the firm. Net Interest Margin has also been adopted by other researchers examining the effect of portfolio diversification to measure financial performance (Rop, kibet & Bokongo, 2016). Net Interest margin is derived as a ratio of net profits after tax to net sales of the concerned firm. The study adopted return on assets (ROA) in measuring financial performance of listed investment firms in Kenya.

1.1.3 Portfolio Diversification and Financial Performance

Theoretical and empirical literature have examined the link between portfolio diversification and firm financial performance. Rop, kibet and Bokongo (2016) revealed that diversification of bank portfolios affected performance significantly and positively. However, the study was based on commercial banks that have different operating environment from that of investment firms. Ngware, Olweny and Muturi (2020) showed direct causal effect relationship between portfolio diversification and firm performance. Sindhu, Ul-Haq and Ali (2014) noted that diversified firms had more risks than undiversified firms given that diversified firm had higher debt equity ratio compared to undiversified firm. The undiversified firms enjoyed higher financial performance due lower liquidation risk.

Chepkorir (2018) established that real estate finance, banc assurance and mobile banking had a positive correlation with financial performance. Makhoha, Namusonge and Sakwa (2016) revealed that the causal effect link between financial performance and portfolio diversification was direct and major. Kamwaro (2013) noted that bonds and real states investment was directly linked to financial performance. Mulwa and kosgei (2016) showed that geographic diversification had a direct effect on financial performance. However, asset and income diversification had inverse

relationship with financial performance. Eukeria and Favourate (2014) established that diversification significantly affected performance of the listed firms. The study expected a positive relationship between portfolio diversification and financial performance such that enhanced diversification leads to improved financial performance of the listed investment firms in Kenya.

1.1.4 Listed Investment firms in Kenya

In Kenya, the Capital Markets Authority (CMA) does the regulation and licensing of investment firms. These organizations are enlisted as collective investment schemes (CIS) each ordered to work within the permit granted. The investment can be listed or non-listed. There are about 46 investment firms licensed by CMA of which 5 are listed and have their shares traded at the NSE. Listed investment firms are exposed to more regulation and control by the Nairobi securities exchange. The investment firm that are listed at NSE are Centum Investment Co Plc, Home Afrika Ltd, Kurwitu Ventures Ltd, Olympia Capital Holdings ltd and Trans-Century Plc (CMA, 2019).

The investment companies invest in a diversified portfolio of assets to earn money to their shareholders and investors. The companies hold a broad range of assets that include shares, bonds, bills, mutual funds and real estate properties. In the financial year ending 31st December 2019, Olympia capital holdings had investment in real estate worth Ksh. 43.7 million, investment in financial assets comprising bonds and shares worth Ksh. 49.7 million and ROA was 0.3%. Centum had ROA of 4.04%, investment in government bonds and bills were worth Ksh. 3.4 billion, the investment in shares were worth Ksh. 5.6 billion and investment in real estate were worth 40 billion. Kurwitu Limited had investment in real estate worth Real estate ksh.105 million and investment in financial assets including shares and bonds were worth ksh. 2 million. The return on assets was ksh.5.3 million. Trans-Century had return on assets of – 21%, the investment in Real estate was worth Ksh. 400. 24 million, investment in shares was worth Ksh.313 million. Finally, Home Afrika had ROA of -7.6%. The investment in shares was Ksh. 2,000 (CMA, 2019).

1.2 Research Problem

The study envisaged a positive association between portfolio diversification and financial performance. Portfolio diversification signifies an increase in the number of investments instruments of a firm such that the returns of the individual assets are not positively correlated. An increase in diversification should lead to reduced diversification risk associated with individual assets. The reduced diversification risk should lead to improved financial performance of the firms (Odhiambo, 2013; Anyango & Rotich (2016). However, debates are still live in the academic circles on the value of portfolio diversification with empirical literature showing mixed findings on the association between portfolio diversification and financial performance (Eukeria & Favourate, 2014). The association between portfolio diversification and financial performance remains unsettled given mixed findings.

The listed investment firms in Kenya have had mixed performance in the recent years. In the financial year ending 31st December 2019, some listed investment firms reported positive ROA while others reported negative ROA. Those that reported positive ROA assets included Olympia capital holdings, Centum PLC and Kurwitu PLC. Olympia Capital Holdings that had investment in real estate worth Ksh. 43.7 million, investment in financial assets worth Ksh. 49.7 million reported ROA of 0.3%. Centum reported ROA of 4.04% with investment in government bonds and bills being Ksh. 3.4 billion , investment in shares were Ksh. 5.6 billion and investment in real estate were worth 40 billion. Kurwitu Limited that had investment in real estate worth ksh.105 million and investment in financial assets worth ksh. 2 million reported ROA of ksh.5.3 million. However, Trans-Century and Home Afrika reported negative ROA. Trans-Century had reported ROA of – 21%, the investment in real estate was Ksh. 400.24 million and investment in shares was Ksh.313 million. Finally, Home Afrika had ROA of -7.6% with investment in shares being Ksh. 2,000 and investment in real estate being ksh. 624.5 million (CMA, 2019).

Global studies have examined the relationship portfolio diversification and financial performance. Jabbarzadeh, Motavassel and Mamsalehi (2014) carried out a comparative study evaluating the effect of investment portfolio on performance of manufacturing and investment firms that had floated shares in Tehran Stock Exchange. The findings showed that the investment and manufacturing firms outperformed the overall stock exchange returns and that investment firms performed better than manufacturing firm. Sindhu, Ul-Haq and Ali (2014) evaluated the association obtaining between performance and diversification firm in Pakistan. The study showed that diversified firms had more risks than undiversified firms given that diversified firm had higher debt equity ratio compared to undiversified firm. The undiversified firms enjoyed higher financial performance due lower liquidation risk. Eukeria and Favourate (2014) evaluated the causal effect link between financial performance and diversification strategy of firms that have floated shares in Zimbabwe Stock Exchange. The study established that diversification significantly affected performance of the listed firms. Kim, Batten and Ryu (2020) evaluated the effect of bank diversification on financial stability of commercial banks operating in Europe and US. The study further revealed that moderate bank diversification enhances bank stability however; extreme diversification was counter productive about returns.

Local studies, have also investigated the link between portfolio diversification and financial performance. Ngware, Olweny and Muturi (2020) evaluated the moderating effect of bank size on the association Relationship between financial performance and Banks' Portfolio Diversification among commercial banks licensed by CBK. The findings showed direct causal effect relationship between portfolio diversification and firm performance. Kiiro and Ambrose (2017) examined the causal effect link between performances and risk hedging by firms that have floated common stock at the NSE. The findings revealed a direct link between financial performance and risk hedging strategies adopted by the firms under study. Kimeu, Anyango and Rotich (2016) evaluated the

relationship obtaining between financial performance and portfolio composition of investment firms that had floated common stock at the NSE. Findings showed a major link between financial performance and portfolio diversification. Rop, kibet and Bokongo (2016) evaluated relationship obtaining between financial performance and portfolio diversification among commercial banks licensed by CBK. The research revealed that diversification of bank portfolios affected performance significantly and positively. The impact of portfolio diversification on firm performance among investment firms has not received adequate research attention in Kenya with majority of existing similar studies being older than six year. The study therefore sought the answer to the question: what is the effect of portfolio diversification on performance of investment firm listed at the NSE, Kenya?

1.3 Objective of the Study

The general objective of the study was to examine the effect of portfolio diversification on financial performance of investment firms listed at the NSE, Kenya.

1.4 Value of the Study

The study generates information useful for the purpose of theory, policy and practice. The study is beneficial for theory purposes. Academician and researchers on portfolio diversification and financial performance will find this study useful as a literature review source for their studies. The study will also present fresh look in to the effect of portfolio diversification on financial performance of investment firms using most recent data. The areas of further studies to be suggested in the study will provide an insight to future researchers when developing their topics.

Concerning practice, shareholders and investors will find out more on how investment portfolios affect the performance of investment firms. Using this information, they may use the findings of this study to make decisions about further investments. The findings of the study will highlight

gaps and challenges investment firms face in getting the most out of their investment portfolios. The study will avail to managers of investment firms with valuable insight on the causal effect link between portfolio diversification and financial performance. The investors should be in a position to identify optimal portfolio size and diversification that ensures that financial performance is maximized.

The study will also be useful for policy purposes. Regulatory bodies such CMA and NSE may use the findings to assess the Kenyan financial markets and therefore come up with strategies to support investment firms going public. Specifically, the CMA may find this study beneficial in establishing how diversification impacts on financial performance of investment firms hence come up with policies aimed ensuring optimal portfolio diversification by investment firms. This would improve the stability of investment firms listed at the NSE and encourage growth of the segment.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter examines the theoretical and empirical literature regarding the effect of portfolio diversification on financial performance. The chapter examines the literature with the aim of identifying knowledge gaps and conceptualization of the study.

2.2 Theoretical Foundations

The research was anchored in the modern portfolio theory, capital asset pricing model and arbitrage pricing theory.

2.2.1 Markowitz's Modern Portfolio Theory (MPT)

The major outstanding proponent of Modern Portfolio theory is Markowitz (1952) that presents the expected returns and risk of portfolio of assets. The theory explains that portfolio risk can be measured by calculating the variance of returns of the portfolio. The theory postulates that the total risk of a portfolio of assets can be reduced through diversification such that the portfolio has a mix of financial assets with varying income and risk characteristics. The theory explains that expected returns of a portfolio is the sum of product of returns of individual assets and the weight of the asset in the portfolio (Markowitz (1952). The risk facing the portfolio is a function of risk of specific assets under the portfolio as well as the covariance in returns between all possible pairs of assets that can be formed under the portfolio (Hughes, 2002)

The Modern Portfolio Theory (MPT) demonstrates a portfolio of financial assets can be constructed such the expected risk of the portfolio is at it minimum and the expected returns is at maximum. The construction of portfolio is a continuous process where some assets are offloaded while other are purchased until the firm can achieve optimal portfolio (Rubinstein, 2002). The process of investment portfolio construction goes through major steps from portfolio objectives, selection of financial assets, valuation of financial assets, allocation of assets, evaluation of performance of portfolio and portfolio change. The goal of portfolio theory is to construct a portfolio that has a portfolio risk that is lower that any individual security (Markowitz, 1952).

The theory proposed has been criticized by various scholars especially on the assumption of investor rationality. Research especially in behavioral finance has shown that investors are always not rational hence, decisions regarding purchase or sale of financial assets has a component that is not based on rational analysis of risk and returns (Lubatkin & Chatterjee, 1994). In addition, theory has also been challenged for assuming that investors have same idea about returns as investors behaviour is also affected irrational thoughts commonly referred to as biases. The theory is however useful for as it aided the researcher in conceptualizing how portfolio diversification affects financial performance of listed investment firms in Kenya.

2.2.2 Arbitrage Pricing Theory (APT)

Ross (1976) postulated arbitrage Pricing Theory (APT) to determine the returns of financial asset. The theory holds that returns from an asset or portfolio is a linear function of macro-economic variables. The beta coefficient of each variable represents the elasticity of the assets returns to a unitary change in any of the macroeconomic factors affecting the assets returns. Chen, Roll and Ross (1986) showed that returns of financial assets are affected by other variables other than market returns and that returns responds to changes in the macroeconomic aggregates such as

interest rate, bill rate, foreign exchange, inflation among others. The beta of the individual macroeconomic factors measures how return from financial assets responds to unitary changes in the macroeconomic aggregates besides the market beta.

Jorion (1991) noted that APT theorizes that long-term assets returns are affected by finite macroeconomic factors. The theory shows that not all macro-economic factors have a significant effect on the long-term price movement of financial assets. APT is based on fundamental analysis of the price movement based on macrocosmic aggregates. The theory holds that technical analysis based on analysis price movement itself is not important in determining the price of securities. The theory tends to adopt three factor or four-factor model have macro-economic factors as the explanatory variables capturing systematic factors determining the returns of securities.

The arbitrage pricing theory is relevant for the study on the causal link existing between portfolio diversification and financial performance of investment firms. The arbitrage pricing theory segregates variables affecting performance of financial assets including stocks and bonds into a number of variables. The theory conceptualizes the factors affecting returns from stocks, bonds and real estate that in turn affects the financial performance of investment firms that have invested in such assets. The movement in the underlying macroeconomic factors affects the financial performance of the investment firms through their impacts on the returns of the assets classes that the investment firms have invested their resources.

2.2.3 Capital Asset Pricing Model

Sharpe 1964 originated CAPM that postulates the relationship between risk and returns of assets or portfolio of assets. The theory categories the risk facing an individual asset or portfolio in two major risk classes that is systematic and unsystematic risks. Systematic risk results from changes

in the market factors that affects all financial assets in the market while unsystematic risk are risk associated with specific financial asset. The unsystematic risk has no correlation with general market conditions (Lintner, 1965). Unsystematic risk usually results from factors that are specific to the firm that issue the financial assets for instance in the case of shares, unsystematic risk may result from change in senior management or market offering of the firm that issued the share.

The unsystematic risk can be reduced through portfolio diversification. The fund manager can construct a portfolio of assets such that the unsystematic risk associated with individual assets are diversified across a collection of assets. Unfavorable condition in the firm that issues a financial asset like shares may change leading to risk in the asset. Such a risk may be offset by another condition in a different firm that issue different financial asset (Markowitz, 1952). In the CAPM, a financial asset faces two classes of risks that is diversifiable and non-diversifiable. The diversifiable risk is handled through diversifying of the portfolio of assets while non-diversifiable risk is handled with other methods such as derivatives and hedging (Sharpe, 1964).

The CAPM theory has also faced a number of criticisms especially concerning the assumptions under which it operates. First, the theory assumes that performance of financial assets depends on asset level factors captured by unsystematic risk and market factors captured by systematic risk. This assumption may be miss leading if relied on without caution in that there are other wide economic factors that also influence returns of financial assets (Elton & Gruber, 1997). Secondly, the theory assumes investors can offload or purchase new stock since there are no transactions costs involved. The reality is that stock investors face stiff transactions cost that might influence their purchase or sale behaviour (Roll, 1977). The CAPM theory is relevant in conceptualizing the relationship between portfolio diversification and financial performance of investment firms. The theory explains that returns from assets or portfolio will further affect the financial performance

of the investment firm that has invested in the financial assets. The theory further explains that returns on individual assets or portfolio is dependent on capital market factors that in turn affects the financial performance of the investment firms holding the financial assets.

2.3 Determinates of Financial Performance of Investment firms

There are a number of factors affecting financial performance of investment firms. However, the study focused on returns from government securities, real estate returns, stock returns and liquidity as discussed in succeeding sub sections.

2.3.1 Returns from Government Securities

Bonds and bills are issued by state and companies to raise revenues for restructuring and investment projects (Baele et al., 2006). Investment firms may put resources into treasury securities as their portfolio utilizing their abundance liquidity. The risks related with treasury bills and bonds is attached to their settled premium nature, implying that once a firm has put resources into them it can exchange for profit at the stock exchange market (Amediku, 2012). Treasury Bonds and Treasury Bills are purchased through the Central Bank that is the issuing authority on behalf of the government. An investment firm can purchase bonds and bills from the treasury hence the securities becomes part of its investment portfolio. Rop, kibet and Bokongo (2016) established that investment in bonds and bills as a portfolio diversification strategy had significant influence on financial performance. Mulwa and kosgei (2016) indicated government securities as diversification strategy had an inverse relationship with financial performance of commercial banks.

2.3.2 Stocks Returns

Investment in common stock are an alternative instance of firms putting resources into stock. Investment firm pool savings from public and utilize funds it to purchase stocks of different firms listed at the stock exchange (Kondrat, Yaroshevych & Svatiuk, 2019). Valdez and Molyneux (2015) shows that regarding the raising of fund through new issue of stock, the underwriter is engaged with evaluating the securities, pitching them to investors and guaranteeing the firm going public that all the shares offered will be purchased. According to Kimani and Mutuku (2013), share returns have a positive influence on financial performance measured by return on assets. The study further noted that firms holding diversified stock were performing better compared to those that were holding skewed stock that does not mimic the overall stock market.

2.3.3 Returns from Real Estate

Real estate investment is normally considered as a diversification avenue especially for investment banks. The real estate financing has proved to be of lower risk compared to other lending avenues for investment banking given that investors are required to meet a percentage of the cost of the investment. The reduction in the risk of default leads to improved financial performance for the investment banking firms (Lipunga, 2014). Banks offering mortgage loans tends to have diversified loan book where the risk of default among individual loan types are spread over diversified loan book portfolio (Kimeu, 2008). Odhiambo (2013) noted that diversification through investment in real estate influences the performance of SACCOS positively.

2.3.4 Liquidity

Given that investment firm pool savings from individuals with short-term investment objectives and investing funds in long-term projects, there is risk of mismatch between demands of returns by investors and receipt of returns from long terms investment (Hakeem & Bambale, 2016). Liquidity is considered to have an influence on the financial performance. Nguyen, Duong and Singh (2016) noted that holding insufficient liquidity impairs the ability of commercial banks to meet their obligations as they fall due. Additionally, the commercial banks need to hold optimal liquidity for their day-to-day operations like lending, withdrawals by clients and payment of other maturing debt obligations. Abubakar, Sulaiman and Haruna (2018) noted direct causal effect link between financial performance and liquidity level.

2.4 Empirical Review

Empirical literature on link between portfolio diversification and financial performance of firms exist globally, regionally and locally in Kenya. Odhiambo (2013) examined the causal effect link between financial performances and portfolio diversification DT-Sacco's in Kenya. The study adopted panel data regression model to examine the causal effect relationship. The study concluded that portfolio diversification influences the performance of SACCOS positively. The study was based on portfolio diversification in banking institution hence a gap exist in the investment firms.

Jabbarzadeh, Motavassel and Mamsalehi (2014) carried out a comparative study evaluating the effect of investment portfolio on performance of manufacturing and investment firms that had floated shares in Tehran Stock Exchange. The study collected secondary data from fourteen investment companies and fourteen manufacturing companies. The annual data was collected between 2005 to 2009. The findings showed that the investment and manufacturing firms

outperformed the overall stock exchange returns and that investment firms performed better than manufacturing firm.

Ngware, Olweny and Muturi (2020) evaluated the moderating effect of bank size on the association Relationship between financial performance and Banks' Portfolio Diversification among commercial banks licensed by CBK. The study was based on causal research design where data was collected from forty-three commercial banks. The study used unbalanced panel data model to analyze data from 2003 to 2017. The findings showed direct causal effect relationship between portfolio diversification and firm performance. Further, the study revealed bank size moderated the relationship between portfolio diversification and financial performance.

Sindhu, Ul-Haq and Ali (2014) evaluated the association obtaining between performance and diversification firms in Pakistan. The study adopted data from sixteen firms that had floated common stock in Pakistan with data covering the period 2004 to 2009. The study used panel data analysis model where results showed that diversified firms had more risks than undiversified firms given that diversified firm had higher debt equity ratio compared to undiversified firm. The undiversified firms enjoyed higher financial performance due lower liquidation risk.

Kisaka and Kitur (2015) sought to establish the association between portfolio size and risk facing the portfolio at the NSE. The study collected monthly secondary data from 43 firms over the 5-year period running from 2009 to 2013. Pooled OLS regression was adopted with study establishing that the unsystematic risk in the portfolio was reduced with expansion of the size of the portfolio. However, beyond the optimal portfolio size, the unsystematic risk began rising. The study was limited to determination of optimal portfolio and association between portfolio size and

risk. A gap exist in literature that takes the discussion further in the influence of portfolio diversification on financial performance.

Kiio and Ambrose (2017) examined the causal effect link between performances and risk hedging by firms that have floated common stock at the NSE. The study used panel data for five years from 2011 to 2016 across the listed firms. The study adopted multiple regression to determine the effect of use of derivatives for hedging various market risks. The findings revealed a direct link between financial performance and risk hedging strategies adopted by the firms under study. The study was based on association between risk hedging and financial performance of firms in NSE that come from different segments of the NSE. Knowledge gap exist among the investment firms since investment firms are unique firms that invest in stocks of other listed firms.

Kim, Batten and Ryu (2020) evaluated the effect of bank diversification on financial stability of commercial banks operating in Europe and US. The study established major relationship that was not linear. The study further revealed that moderate bank diversification enhances bank stability however; extreme diversification was counterproductive about returns. The study further showed that bank diversification enhanced stability before economic meltdown however, during the financial crisis, diversification made things worse regarding banks stability. The study recommends that during financial crisis affecting all banks, banks should limit nontraditional activities.

Mulwa and kosgei (2016) evaluated the effect of solvency, diversification and credit risk on financial performance of commercial banks in Kenya. The study adopted expose facto research design to collect and analyses data from the forty-three licensed commercial banks. Panel data was collected between the periods 2011 to 2015. The study adopted fixed effect panel data model where

the results showed that geographic diversification had a direct effect on financial performance. However, asset and income diversification had inverse relationship with financial performance. The study having been based on commercial banking institution, a gap exist in literature on impact of diversification on financial performance of investment firms.

Eukeria and Favourate (2014) evaluated the causal effect link between financial performance and diversification strategy of firms that have floated shares in Zimbabwe Stock Exchange. The study adopted pooled OLS regression and granger causality to establish the direction of causation. The study established that diversification significantly affected performance of the listed firms. However, the study was based on Food and Beverages Sector that has different operations from that of investment firms hence a gap exist for determination of effect of diversification on performance of investment firms.

Kimeu, Anyango and Rotich (2016) evaluated the relationship obtaining between financial performance and portfolio composition of investment firms that had floated common stock at the NSE. The study adopted quantitative research design that aided in the collection and analysis of secondary data from 2012 to 2014. The study adopted OLS regression just like kamwaro (2008) to evaluate the causal effect link between study variables. Findings showed a major link between financial performance and portfolio diversification. The study was carried with data between 2012 and 2014. Since then, investments firms have been revising their portfolios and another study is necessary with most recent data scope.

Karimi (2011) evaluated the causal effect association between profitability and portfolio diversification among and profitability investments firms that had offered their common stock as the NSE. The research was a census of all the investment firms that had gone public and floated

their common stock. The study adopted primary data where managers of various firms were selected based on stratified sampling. The study OLS regression model that showed that the association between profitability and diversification was major and direct. The study was based on primary data that may not adequately examine the time series nature of finance data hence a gap exist for a study based on secondary data to capture the time series nature of data on portion diversification.

Rop, kibet and Bokongo (2016) evaluated relationship obtaining between financial performance and portfolio diversification among commercial banks licensed by CBK. The study adopted causation study design where secondary annual data was collected from forty-three banks. The study used random effect panel data model for hypotheses testing. The research revealed that diversification of bank portfolios affected performance significantly and positively. However, the study was based on commercial banks that have different operating environment from that of investment firms.

Chepkorir (2018) studied the contribution of portfolio diversification on performance of firms in the banking sector that had floated their common stock at the NSE. Secondary panel data was collected from eleven firms based on descriptive research design. The study used fixed effect panel data model to examine the causal effect relationship among study variables. Findings showed that real estate finance, banc assurance and mobile banking had a positive correlation with financial performance. However, the study was on diversification in commercial banks that have different operating environment from that of investment firms.

Makhoha, Namusonge and Sakwa (2016) evaluated the causal effect link obtaining between financial performance and portfolio diversification in commercial banks licensed by CBK. The

study adopted mixed methodology comprising qualitative and quantitative techniques of data collection and analysis. The data was collected using questionnaires and data collections sheets where OLS model was adopted to test the study hypotheses. The study revealed that the causal effect link between financial performance and portfolio diversification was direct and major.

Kamwaro (2013) studied the association between financial performance and choice of portfolio among investment companies that had floated common stock at the NSE. The research adopted causal research design to collect and analyze secondary data from 2007 to 2011 among 5 investment firms. The study used panel data models to test the hypotheses of the study with the findings showing that bonds and real states investment was directly linked to financial performance. The study was carried with data between 2007 to year 2011. Since then, listed investment have been revising their portfolios and therefore another study needs to be done with most recent data.

Makau and Ambrose (2018) evaluated the causal effect link between financial performances and portfolio diversification among investment companies that had floated common stock at the NSE. The study revealed mixed findings regarding the relationship between portfolio diversification and financial performance. Findings showed that diversification improves financial performance over time. The study was a critical review of literature hence a gap exist in empirical study collecting and evaluating data on diversification and financial performance in investment firms at the NSE.

2.5 Summary of the Literature

Odhiambo (2013) concluded that portfolio diversification influences the performance of SACCOS positively. The study was based on portfolio diversification in banking institution hence a gap exist in the investment firms. Jabbarzadeh, Motavassel and Mamsalehi (2014) showed that the investment and manufacturing firms outperformed the overall stock exchange returns and that

investment firms performed better than manufacturing firm. Ngware, Olweny and Muturi (2020) showed direct causal effect relationship between portfolio diversification and firm performance. Sindhu, Ul-Haq and Ali (2014) showed that diversified firms had more risks than undiversified firms given that diversified firm had higher debt equity ratio compared to undiversified firm. Kisaka and Kitur (2015) established that the unsystematic risk in the portfolio was reduced with expansion of the size of the portfolio. However, beyond the optimal portfolio size, the unsystematic risk begun rising. Kiio and Ambrose (2017) revealed a direct link between financial performance and risk hedging strategies adopted by the firms under study. Kim, Batten and Ryu (2020) revealed that moderate bank diversification enhances bank stability however; extreme diversification was counterproductive about returns. Mulwa and kosgei (2016) showed that geographic diversification had a direct effect on financial performance. However, asset and income diversification had inverse relationship with financial performance. Eukeria and Favourate (2014) established that diversification significantly affected performance of the listed firms. However, the study was based on Food and Beverages Sector that has different operations from that of investment firms hence a gap exist for determination of effect of diversification on performance of investment firms.

2.6 Conceptual Framework

The conceptual model shows the relationship between study variable. The independent variable is portfolio diversification and dependent variable is financial performance.

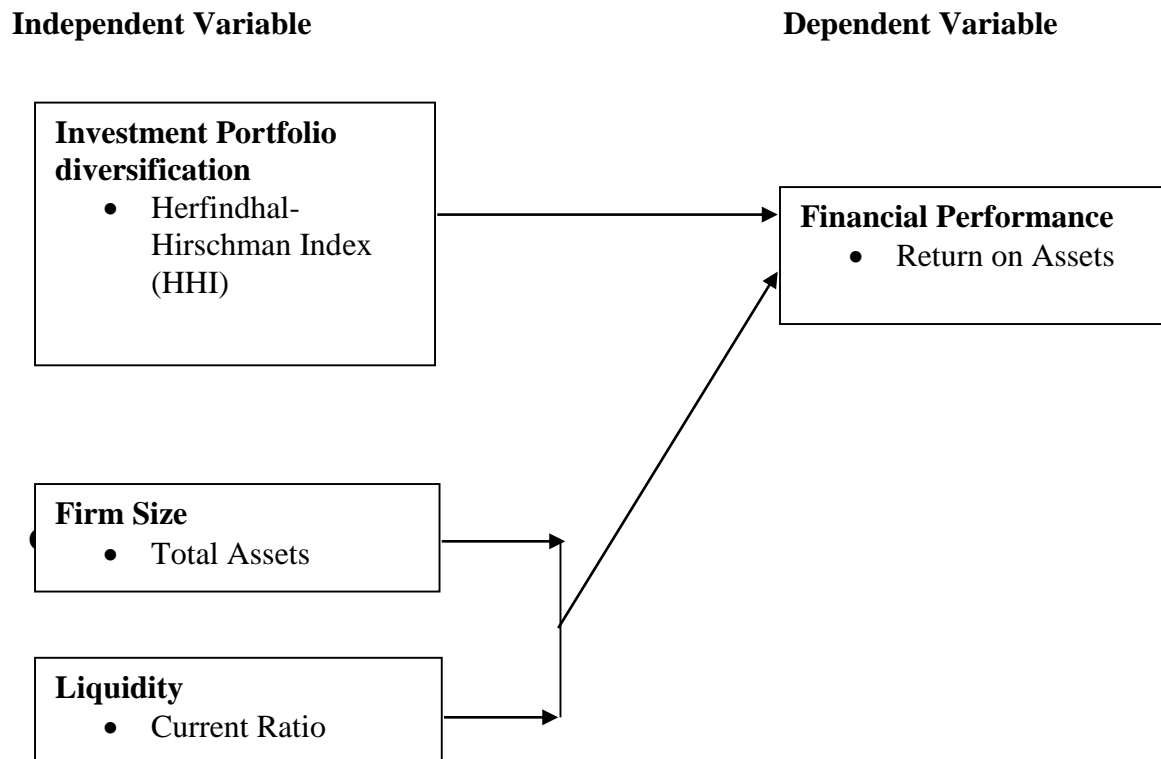


Figure 2. 1: Conceptual Model

Figure 2.1 presents the conceptualization of the study on the effect of portfolio diversification on financial performance of investment firm listed at the NSE Kenya. The main independent variable is portfolio diversification and the dependent variable is financial performance. The independent variable portfolio diversification was captured by Herfindhal-Hirschman index (HHI). Liquidity and firm size are the control variable. The study expected a positive association between portfolio diversification and financial performance of listed investment firms in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter examines the methods that were adopted in data collection and analysis. The chapter covers the data collection procedure and analysis techniques.

3.2 Research design

The research used descriptive research design. Descriptive design is normally used where the researcher is interested in establishing the relationship between variables without having control over the environment in which the variables interact (Walliman, 2017). The design enabled the researcher to evaluate the causal effect link between financial performance and portfolio diversification among investment firms that have floated their shares at the NSE.

3.3 Population

The target population included all 5 listed investment firms as at 31st December 2019. The study was a census of all listed investment firms that have been in operation during the study period from 2010 to 2019. The targeted firms is shown in appendix II. The study collected annual secondary data.

3.4 Data Collection

The study extracted annual secondary data from audited financial statements and other published data of the concerned listed investment firms. The data was collected for ten years beginning 2010 to 2019. Data on book value of stocks, government securities and real estate were extracted from

the balance sheets of the investment firms to capture portfolio diversification. Data on liquidity included current assets and current liabilities extracted from the balance sheet of the respective listed investment firms. Data on financial performance measured by ROA involved the NPAT and total assets. The NPAT was extracted from the income statement while total assets was extracted from the balance sheet. NPAT as percentage ratio of total assets generates the ROA. The extracted data was recorded on data collection sheets shown in appendix I.

3.5 Diagnostic Tests

Diagnostic tests namely test for normality, autocorrelation and multicollinearity, serial correlation and heteroscedasticity were conducted. The purpose of the tests was to ensure that the regression model adopted is robust (Cohen et al., 2003).

3.5.1 Normality Test

The data is said to be normal when the mean and median are the same that the data plotted on normal curve displays bell shape (Hand, 1996). Normality as used in regression shows that the error terms are normally distributed with most values in the random variable being distributed closure to the mean with only a few value spread away from the mean. In this study, Schapiro wilk test was used to test for normality. Probability values greater than 0.05 signify normality.

3.5.2 Autocorrelation Test

Autocorrelation is the quality of time series data such that the error terms and the observed variables at the current time are highly correlated with their lagged values (Hoekstar et al., 2012). Ordinary least squares (OLS) regression model requires that there is practically no autocorrelation in the data. Wooldridge tests was used to test for autocorrelation. A p-value greater than 0.05 signifies absence of autocorrelation (Osborne & Waters, 2002).

3.5.3 Multicollinearity Test

Multicollinearity is said to exist in a regression model when the explanatory variables are highly correlated such that one explanatory variable can be predicted linearly from the other explanatory variable (Montgomery et al., 2001). In this study, multicollinearity was assessed using Variance inflation factor (VIF) test. VIF greater than 1 is an indication that multicollinearity may be present.

3.5.4 Heteroscedasticity Test

Homoscedasticity assumption of OLS regression states that the data about variables should have constant variance and that variance of individual observations in the sample should not vary significantly from that of the true population (McCulloch, 1985). Observations depicting infinite variances are said to be heteroscedastic leading to spurious regression. The study employed Breusch-pagan / cook-Weisberg test to for existence of heteroscedasticity where p-values less than 0.05 shows that heteroscedasticity is present in the data.

3.6 Data Analysis

The data was checked for completeness and then keyed into excel 2016. The variables were then generated using different functions in excel. The organized data from excel were exported to STATA version 14 for descriptive and inferential analysis. Descriptive statistics involved frequencies, percentages, mean and standard deviation while inferential statistics comprised of pairwise correlation and multiple regression analysis. Regression analysis aid in establishing the effect of portfolio diversification on financial performance of listed investment firms. The study utilized OLS regression models as shown in equation (1) and (2).

3.6.1 Econometrics Model

$$Y_{it} = \alpha_0 + \alpha_1 X_{1it} + \varepsilon_{it} \dots \dots \dots (1)$$

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_{it} \dots \dots \dots (2)$$

Y = financial performance measured by Return on assets

X_1 = Portfolio diversification measured by Herfindhal-Hirschman index (HHI) computed as the sum squared shares of the individual investment components to total assets subtracted from unity to get a value that increases with the degree of diversification.

$$HHI = (1 - \frac{Asset\ 1}{Total\ assets})^2 + (\frac{Asset\ 2}{Total\ Assets})^2 + (\frac{Asset\ 3}{Total\ Assets})^2$$

X_2 and X_3 = control variables

X_2 = Firm size measured by natural logarithm of total assets of each firm.

X_3 = Liquidity of the firm measured by current ratio.

α_i and β_i = are coefficients of explanatory variables.

α_0 and β_0 = are intercept terms

ε = Error term capturing unobserved explanatory variables

t = time period from 2010 to 2019

i = 1,2,3,4 and 5

3.6.2 Test of Significance

The significance of the effect of explanatory variables were conducted at 95% confidence level. The overall significance of the effect of portfolio diversification on financial performance was determined by F test where F-calculated greater than F-critical meant that portfolio diversification has significant effect on financial performance of listed investment firms. The significance of the effect of individual explanatory variables on financial performance was determined by student t test where t-calculated greater than t-table meant the individual explanatory variable has a significant effect on financial performance of listed investment firms in Kenya.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

The chapter presents the results and discussion. The results are based on descriptive, diagnostic and inferential analysis. The descriptive analysis involved descriptive statistics including mean, standard deviation, Kurtosis, skewness, minimum and maximum. The diagnostic tests included normality test, multicollinearity test, heteroscedasticity test, serial correlation and hausman test. The inferential analysis included the correlation and panel data regression analysis.

4.2 Descriptive Analysis

The objective of the descriptive analysis was to describe the properties of the data and to identify any unusual observations that may cause problems during inferential analysis. Thus, initial exploration of the data using simple descriptive tools was provided to describe and summarize the data generated for the study. The descriptive statistics of interest included mean, standard deviation, minimum and maximum as presented in table 4.1.

Table 4. 1: Summary of Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
X1	50	2.178867	.4162739	1.362895	2.915307
X2	50	14.90319	2.267957	8.258816	18.43816
X3	50	1.241539	.7141294	.2163437	3.537416
Y	50	.0032173	.0863448	-.2311131	.1921814

X1= Investment Portfolio diversification, X2= Firm size, X3= Liquidity and Y= Financial performance.

Investment portfolio diversification was the independent variable measured using by Herfindahl–Hirschman Index (HHI). The lowest value of HHI can assume is zero (0) implying no

diversification in a firm. The rising HHI index implies a rising diversification by a firm. The mean diversification was 2.1788 implying there was high investment portfolio diversification among listed investment firms in Kenya. The standard deviation for investment portfolio diversification was .4162 implying the individual observations were spread from the mean by about .41 units. The minimum portfolio diversification was 1.3628 and the maximum investment portfolio diversification was 2.9153.

Firm size was measured by the natural logarithm of total assets. The mean firm size was 14.9031. The standard deviation was 2.267 showing that firm size was spread around the mean with 2.267 natural logarithm units. The minimum firm size was 8.25 and the maximum was 18.43. Liquidity was measured using current ratio generated as the ratio of current assets to current liabilities. A value above one implies that current assets are more than current liabilities hence the firm is liquid and is able to settle its short-term debts. A value less than one implies the firm cannot adequately settle its short-term debts given that short-term debts outweigh short-term assets. The mean current ratio was 1.2415 implying that generally the listed investment firms were liquid enough. The standard deviation was .7141 showing that the individual observations were spread around the mean by about .714 units. The minimum liquidity was .2163 implying the firm's short-term debts outweigh the short-term assets hence the firm is having liquidity problems. The maximum liquidity was 3.53 meaning the short-term assets were triple the short-term debts hence the firm is in a strong liquid position.

Financial performance was measured using return on assets (ROA) which is after-tax profit to total assets ratio. The mean performance was .0032 implying the return on assets on all listed investment firms in the ten years was about 0.32%. The mean ROA was low given that most of the firms were in negative profits (losses). The standard deviation was .08634 implying the individual observations were spread around the mean with 8.634%. The firm with minimum financial

performance had a ROA of -.2311 and the firm with maximum financial performance had a ROA of .1921 which is about 19.2%.

4.3 Diagnostic Analysis

Diagnostic tests included test for normality, autocorrelation and multicollinearity, serial correlation and heteroscedasticity will be conducted. The purpose of the tests was be to ensure that the regression model adopted is robust (Cohen et al., 2003).

4.3.1 Normality Test

In this study, Shapiro wilk test was used to test for normality. Probability values greater than 0.05 would signify normality. The findings are presented in table 4.2

Table 4. 2: Shapiro wilk test for Normality

Variable	Obs	W	V	z	Prob>z
Y	50	0.96254	1.762	1.207	0.11363
X1	50	0.97165	1.333	0.614	0.26975
X2	50	0.96903	1.508	1.052	0.21834
X3	50	0.93804	2.325	2.123	0.05900

X1= Investment Portfolio diversification, X2= Firm size, X3= Liquidity and Y= Financial performance.

The study showed that all the variables had a p value greater than .05 implying they were normal (Y= .11363, X₁= .26975, X₂= .21834, X₃= .05900). The study therefore concluded that the variables data were normally distributed hence the residuals were also normally distributed. The OLS regression assumption of normality was thus not violated.

4.3.2 Autocorrelation Test

Wooldridge tests was used to test for autocorrelation. A p-value greater than 0.05 signifies absence of autocorrelation. The results of Wooldridge test is presented in table 4.3.

Table 4. 3: Wooldridge tests for Autocorrelation

```
Wooldridge test for autocorrelation in panel data
H0: no first order autocorrelation
      F( 1,      4) =      6.717
      Prob > F =      0.0606
```

The results show that the p-value was greater than .05 hence the study failed to reject null hypothesis that there was first order autocorrelation between the variable at the contemporaneous time and its lagged values. The OLS regression assumption of normality was therefore not violated.

4.3.3 Multicollinearity Test

In this study, multicollinearity was assessed using Variance inflation factor (VIF) test. VIF greater than 5 is an indication that multicollinearity may be present. The findings were presented in table 4.4.

Table 4. 4: Variance Inflation Factor (VIF) test For Multicollinearity

Variable	VIF	1/VIF
X1	1.25	0.797291
X3	1.24	0.808816
X2	1.15	0.871618
Mean VIF	1.21	

X1= Investment Portfolio diversification, X2= Firm size, X3= Liquidity and Y= Financial performance.

The VIF values for all the variables and the mean VIF were all less than 5 implying that multicollinearity was not a problem and thus multicollinearity assumption of OLS regression model was not violated.

4.3.4 Heteroscedasticity Test

Homoscedasticity assumption of OLS regression states that the data about variables should have constant variance and that variance of individual observations in the sample should not vary significantly from that of the true population (McCulloch, 1985). Observations depicting infinite variances are said to be heteroscedastic leading to spurious regression. The study will employ Breusch-pagan / cook-Weisberg test to for existence of heteroscedasticity where p-values less than 0.05 shows that heteroscedasticity is present in the data.

Table 4. 5: Breusch Pagan Test for Heteroscedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Y

chi2(1)      =      0.38
Prob > chi2  =      0.5393
```

4.3.5 Breusch and Pagan Lagrangian multiplier test

The study carried out Breusch and Pagan Lagrangian multiplier test to establish whether to adopt random effects model (REM) or Ordinary least squares (OLS) Model for estimation of parameters. The null hypothesis is that there is no significant differences across units. The finding is presented in table 4.6.

Table 4. 6: Breusch and Pagan Lagrangian multiplier test

Estimated results:

	Var	sd = sqrt(Var)
y	.0074554	.0863448
e	.0034372	.0586272
u	.0022886	.0478392

Test: $\text{Var}(u) = 0$

$\text{chibar2}(01) = 2.23$
 $\text{Prob} > \text{chibar2} = 0.0675$

Given that the value of P-Value ($p = 0.0675$) as shown in table 4.6 was greater than .05 level of significance, the study fails to reject null hypothesis. This means that the random effects model was not appropriate and simple OLS was adopted given that there was no panel effect.

4.4 Correlation Analysis

The study examined the association between study variables. The study adopted Pearson correlation coefficient to examine the correlation between investment portfolio diversification, firm size, leverage and financial performance. The research adopted bivariate correlation where each explanatory variable was correlated with dependent variable. The study findings are presented in table 4.7

Table 4. 7: Bivariate Pearson Correlation Coefficients

	X1	X2	X3	Y
X1	1.0000			
	50			
X2	0.3355*	1.0000		
	0.0172			
	50	50		
X3	-0.2503	-0.2886*	1.0000	
	0.0796	0.0421		
	50	50	50	
Y	0.5478*	0.2054	0.0835	1.0000
	0.0000	0.1524	0.5641	
	50	50	50	50

X1= Investment Portfolio diversification, X2= Firm size, X3= Liquidity and Y= Financial performance.

The study findings presented in table 4.7 revealed that the correlation between investment portfolio diversification and financial performance was positive implying that increasing portfolio diversification was accompanied by increasing financial performance ($r=.5478$, $p=.000<.05$). The correlation between Firm size and financial performance was also positive ($r=.2054$, $p=.1524>.05$) implying that increasing firm size was associated with increasing financial performance. Finally, liquidity and financial performance were positively correlated ($r=.0835$, $p>.5441$).

4.5 Regression Analysis

The study sought to establish the effect of investment portfolio diversification on financial performance of listed investment firms in Kenya. Ordinary least squares (OLS) regression model which was multiple in nature was adopted. The study adopted OLS regression model after the Breusch and Pagan Lagrangian multiplier test revealed that there was no statistical difference in the cross sectional units. The findings are presented in table 4.8 and 4.9.

Table 4. 8: Ordinary Least Squares Regression (Without Control variables)

Source	SS	df	MS	Number of obs	=	50
				F(1,48)	=	20.58
Model	.109642075	1	.109642075	Prob > F	=	0.0000
Residual	.255673825	48	.005326538	R-squared	=	0.3001
				Adj R-squared	=	0.2855
Total	.3653159	49	.007455427	Root MSE	=	.07298

Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
X1	.1136348	.0250464	4.54	0.000	.163994 .0632756
_cons	.2508124	.0555402	4.52	0.000	.1391413 .3624836

X1= Investment Portfolio diversification, Y= Financial performance.

The study examined the effect of investment portfolio diversification on financial performance in the absence of control variables (Firm size and liquidity). The model summary revealed that the coefficient of determination (R^2) was equal to .30001 implying that investment portfolio diversification in the absence of control variables explains about 30% of the variation in financial performance among investment firms listed at the NSE Kenya. The remaining 70% is explained by the control variables and unobserved variables that were not part of the study.

The Analysis of variances (ANOVA) shows that investment portfolio diversification has a significant effect on financial performance of financial performance among investment firms listed at the NSE Kenya ($F= 20.58$, $p=.000<.05$). Additionally, the regression coefficient revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\alpha_1= .1136$, $t= 4.54$, $p=.000<.05$). The intercept term

(α_0) shows that financial performance was .25081 when the investment portfolio diversification was held constant at zero (0). The fitted model equation (1) shows the parameter estimates when financial performance is regressed against investment portfolio diversification in the absence of control variables.

$$Y_{it} = .25081 + .1136 X_{1it} + \varepsilon_{it} \dots \dots \dots (1)$$

Table 4. 9: Ordinary Least Squares Regression (With Control Variables)

Source	SS	df	MS	Number of obs	=	50
				F(3, 46)	=	13.72
Model	.172546638	3	.057515546	Prob > F	=	0.0000
Residual	.192769261	46	.004190636	R-squared	=	0.4723
				Adj R-squared	=	0.4379
Total	.3653159	49	.007455427	Root MSE	=	.06474

Y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
X1	.1427026	.0239319	5.96	0.000	.1908751	.0945302
X2	.0170553	.0044418	3.84	0.000	.0081145	.0259961
X3	.0049119	.0137256	0.36	0.722	-.0227163	.0325401
_cons	.0538707	.0795176	0.68	0.502	-.1061898	.2139313

X1= Investment Portfolio diversification, X2= Firm size, X3= Liquidity and Y= Financial performance.

The study examined the effect of investment portfolio diversification, firm size and liquidity on financial performance. The model summary revealed that the coefficient of determination (R^2) was equal to .4723 implying that investment portfolio diversification, firm size and liquidity explains about 47.23 % of the variation in financial performance among investment firms listed at the NSE Kenya. The remaining 52.77% is explained by unobserved variables that were not part of the study.

The change in the coefficient of determination (ΔR^2) from 30% in the model without control variables to 47.23% in the model with control variables implies that adding the control variables (firm size and liquidity in model 2) improves the explanatory power of the model by 17.23%.

The Analysis of variances (ANOVA) showed that investment portfolio diversification, firm size and liquidity had a significant effect on financial performance of financial performance among investment firms listed at the NSE Kenya ($F= 13.72, p=.000<.05$). Additionally, the regression coefficients revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_1= .1427, t= 5.96, p=.000<.05$). The addition of control variables (Firm size and Liquidity) to the model in equation (2) has led to enhancement of the coefficient of investment portfolio diversification from .1136 to .1427 and increase in t statistic from 4.54 to 5.96 implying that the addition of the control variables have enhanced the effect of investment portfolio diversification on financial performance of the listed investment firms.

Firm size had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_2= .017, t= 3.84, p=.000<.05$). However, liquidity had a positive but statistically insignificant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_3= .0049, t= 0.36, p=.722>.05$). The intercept term (β_0) shows that financial performance was .0538 when the investment portfolio diversification, firm size and liquidity were held constant at zero (0). The fitted model equation (2) shows the parameter estimates when financial performance is regressed against independent variable (investment portfolio diversification) and Control variable (firm size and liquidity).

$$Y_{it} = .0538 + .1427X_{1it} + .017X_{2it} + .0049 X_{3it} + \dots \dots \dots (2)$$

4.6 Discussion of Findings

The examined the effect of investment portfolio diversification, firm size and liquidity on financial performance of listed investment firms in Kenya. The study adopted correlation and regression analysis to examine the effect of investment portfolio diversification, firm size and liquidity on financial performance.

4.6.1 Effect of Investment Portfolio Diversification on Financial Performance

The Pearson correlation analysis revealed that the correlation between investment portfolio diversification and financial performance was positive implying that increasing portfolio diversification was accompanied by increasing financial performance ($r=.5478$, $p=.000<.05$). In the absence of control variables (firm size and Liquidity) analysis of variances (ANOVA) showed that investment portfolio diversification had a significant effect on financial performance of financial performance among investment firms listed at the NSE Kenya ($F= 20.58$, $p=.000<.05$). Additionally, the regression coefficient revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\alpha_1= .1136$, $t= 4.54$, $p=.000<.05$).

In the presence of control variable, the regression coefficients revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_1= .1427$, $t= 5.96$, $p=.000<.05$). The addition of control variables (Firm size and Liquidity) to the model in equation (2) has led to enhancement of the coefficient of investment portfolio diversification from .1136 to .1427 and increase in t statistic from 4.54 to 5.96 implying that the addition of the control variables have enhanced the effect of investment portfolio diversification on financial performance of the listed investment firms.

The positive effect of investment portfolio diversification on financial performance in model equations (1) & (2) implies that improvement in portfolio diversification leads to improving financial performance of the listed investment firms. Improving investment portfolio diversification by one unit leads to improvement in financial performance by .1136 units in model equation (1) and .14.27 units in model equation (2). The addition of control variables (firm size and liquidity) to the estimation model improves the effect of investment portfolio diversification on financial performance by .0291 units. The positive effect can be explained by Markowitz's Modern Portfolio Theory (MPT) that holds that diversification leads to spreading of risk associated with a particular asset over the portfolio of assets such that the average risk of the portfolio lies below the total risk of specific assets. The falling of average risk of portfolio means that the portfolio becomes desirable as the risk falls and performance of the portfolio improves.

The study findings that investment portfolio diversification had a positive and significant effect on financial performance of listed investment firm in Kenya has a basis in empirical literature. The findings are in agreement with Odhiambo (2013) who concluded that portfolio diversification influences the performance of SACCOS positively. Additionally, the findings agrees with Ngware, Olweny and Muturi (2020) who showed direct causal effect relationship between portfolio diversification and firm performance. Kisaka and Kitur (2015) also showed that the unsystematic risk in the portfolio was reduced with expansion of the size of the portfolio. Kiio and Ambrose (2017) also revealed a direct link between financial performance and risk hedging strategies adopted by the firms under study. However, the findings were in contrast with Sindhu, Ul-Haq and Ali (2014) who showed that diversified firms had more risks than undiversified firms given that diversified firm had higher debt equity ratio compared to undiversified firm. Additionally, Kim, Batten and Ryu (2020) revealed that extreme diversification was counterproductive about returns.

Mulwa and Kosgei (2016) showed that asset and income diversification had an inverse relationship with financial performance.

4.6.2 Effect of Firm Size on Financial Performance

The study also examined the effect of firm size on financial performance of listed investment firms in Kenya. The correlation analysis revealed that the correlation between firm size and financial performance was positive ($r=.2054$, $p=.1524 > .05$) implying that increasing firm size was associated with increasing financial performance. Additionally, the regression analysis revealed that firm size had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_2 = .017$, $t = 3.84$, $p = .000 < .05$). The positive effect implies that increasing firm size in terms of total assets, leads to improvement of financial performance of listed investment firms. The study further reveals that improving firm size by one unit leads to improvement in financial performance by .017 units. The positive effect of firm size on financial performance can be explained by the law of increasing returns to scale that states that within a given range of output, increasing the inputs (i.e. assets) results to increasing marginal returns. The economies of scale brought by firm size leads to reduction in average cost of production that further leads to increasing profitability.

The finding that firm size had a positive and significant effect on financial performance has roots in empirical literature. Abebe and Abera (2019) revealed that firm size was a key determinant of financial performance. Adusei (2015) revealed that bank size positively influences bank stability and financial performance. Ikue-John and Nkoro (2019) revealed that return on asset and return on equity responded positively to asset size. Chabachib, Yudha and Udin (2020) showed that the firm size becomes a control variable and therefore the financial performance of listed banks. Increasing firm size therefore leads to improving financial performance as measured by return on assets.

4.6.3 Effect of Liquidity on Financial Performance

The research also examined the effect of liquidity on financial performance of listed investment firms in Kenya. The correlation analysis showed that liquidity and financial performance were positively correlated ($r = .0835$, $p > .5441$) implying that improving liquidity was associated with improving financial performance. Additionally, liquidity had a positive but statistically insignificant effect on financial performance of investment firms listed at the NSE Kenya ($\beta_3 = .0049$, $t = 0.36$, $p = .722 > .05$). The positive effect shows that improving liquidity by one unit leads to improving financial performance by .0049 units. The positive relationship can be explained by the fact that firms that have adequate liquidity are able to settle maturing obligation without fail hence; they enjoy good relationship with their suppliers, financiers and the regulator. The improved relationship can make it possible for such firms to enjoy discounts hence lowering their costs of operation and improving profitability. Additionally, the excess liquidity can be invested in short-term investment like treasury bills that earn interest to the firm hence improved financial performance.

The positive effect of liquidity on financial performance of listed investment firm in Kenya is in congruence with some empirical literature. Nguyen, Duong and Singh (2016) noted that holding insufficient liquidity impairs the ability of commercial banks to meet their obligations as they fall due. Additionally, the commercial banks need to hold optimal liquidity for their day-to-day operations like lending, withdrawals by clients and payment of other maturing debt obligations. Abubakar, Sulaiman and Haruna (2018) noted direct causal effect link between financial performance and liquidity level. Given that investment firm pool savings from individuals with short-term investment objectives and investing funds in long-term projects, there is risk of mismatch between demands of returns by investors and receipt of returns from long terms investment (Hakeem & Bambale, 2016).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The chapter presents the summary of findings, conclusions, recommendations; limitation of the study and areas for further studies.

5.2 Summary of Findings

The study examined the effect of investment portfolio diversification, firm size and liquidity on financial performance of listed investment firm in Kenya. The summary of finding is presented in succeeding sub sections.

5.2.1 Investment Portfolio Diversification

The Pearson correlation analysis revealed that the correlation between investment portfolio diversification and financial performance was positive. In the absence of control variables (firm size and Liquidity); analysis of variances (ANOVA) showed that investment portfolio diversification had a significant effect on financial performance of financial performance among investment firms listed at the NSE Kenya. Additionally, the regression coefficient revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya. In the presence of control variable, the regression coefficients revealed that investment portfolio diversification had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya. The addition of control variables (Firm size and Liquidity) to the model in equation (2) has led to enhancement of the coefficient of investment portfolio diversification and increase in t statistic.

5.2.2 Firm Size

The correlation analysis revealed that the correlation between firm size and financial performance was positive. Additionally, the regression analysis revealed firm size had a positive and significant effect on financial performance of investment firms listed at the NSE Kenya. The positive effect implies that increasing firm size in terms of total assets, leads to improvement of financial performance of listed investment firms. The study further reveals that improving firm size by one unit leads to improvement in financial performance by less than one unit. The positive effect of firm size on financial performance can be explained by the law of increasing returns to scale that states that within a given range of output, increasing the inputs (i.e. assets) results to increasing marginal returns. The economies of scale brought by firm size leads to reduction in average cost of production that further leads to increasing profitability.

5.2.3 Liquidity

The correlation analysis showed that liquidity and financial performance were positively correlated implying that improving liquidity was associated with improving financial performance. Additionally, liquidity had a positive but statistically insignificant effect on financial performance of investment firms listed at the NSE Kenya. The positive effect shows that improving liquidity by one unit leads to improving financial performance by less than one unit.

5.3 Conclusion

Based on study findings, the study makes a number of conclusions. First, regarding the effect of investment portfolio diversification, the study concludes that the positive effect of investment portfolio diversification on financial performance in model equations (1) & (2) implies that improvement in portfolio diversification leads to improving financial performance of the listed investment firms. In addition, the study concludes that the addition of control variables (firm size

and liquidity) to the estimation model improves the effect of investment portfolio diversification on financial performance. The positive effect can be explained by Markowitz's Modern Portfolio Theory (MPT) that holds that diversification leads to spreading of risk associated with a particular asset over the portfolio of assets such that the average risk of the portfolio lies below the total risk of specific assets. The falling of average risk of portfolio means that the portfolio becomes desirable as the risk falls and performance of the portfolio improves.

Regarding the effect of firm size on financial performance, the positive effect of firm size on financial performance implies that increasing firm size in terms of total assets, leads to improvement of financial performance of listed investment firms. The study further concludes that improving firm size by one unit leads to improvement in financial performance by less than one unit. The positive effect of firm size on financial performance can be explained by the law of increasing returns to scale that states that within a given range of output, increasing the inputs (i.e. assets) results to increasing marginal returns. The economies of scale brought by firm size leads to reduction in average cost of production that further leads to increasing profitability. Expanding firm through addition of firm assets in the region of increasing returns to scale leads to improving returns to scale in the form of profitability.

Finally, regarding the effect liquidity on financial performance of listed investment firms in Kenya, the study concludes that the positive effect of liquidity on financial performance can be explained by the fact that firms that have adequate liquidity are able to settle maturing obligation without fail hence; they enjoy good relationship with their suppliers, financiers and the regulator. The improved relationship can make it possible for such firms to enjoy discounts hence lowering their costs of operation and improving profitability. Additionally, the excess liquidity can be invested in short-term investment like treasury bills that earn interest to the firm hence improved financial performance. However, the effect was not statistically significant implying that the effect of

liquidity on financial performance may not be major especially if the excess liquidity is not invested in marketable securities to earn a firm interest.

5.4 Recommendations

The study makes recommendations for practice, theory and policy. Regarding the positive and significant effect of investment portfolio diversification on financial performance, the study recommends to management of listed investment firms to diversify their investment portfolio. The firms should broaden their portfolio by addition more assets classes to their portfolios. Firms should enhance their investment in real estate, common stock and government securities. The firms should also hold a variety of assets under each assets class that have inverse relationship in the risk profiles and returns under different market conditions. The study also recommends to capital market authority to regulate and encourage investment of listed investment firms to diversify their investment portfolios. The regulator should also enhance information symmetry and encourage adoption of latest technology in trade in common stock and real estate traded funds.

The study also established that firm size had a positive and significant effect on financial performance hence need for recommendation. The study recommends to management of listed investment firms to improve their assets through additional investment. The listed investment firms should offer more common stock to the current and prospective shareholders to boost their capital. The generated capital can be invested into more assets including shares of other companies, government bonds and bills as well as real estate. The firms can also enhance their leverage ratios by taking on more long-term debts to finance noncurrent assets that can earn more revenues in the future. The capital market authority should also simplify the process of application and approval for firms opting to raise additional funds through public offer. The regulator should also increase the minimum capital requirement for listed firms to enhance their capital base and assets.

The study revealed that liquidity had a positive effect on financial performance of listed financial firms hence makes reconditions. The study recommends that management of investment firms should enhance their liquidity position by ensuring they have adequate short-term assets to settle short-term obligations when they fall due. The firms should also have line of credit agreement with financial institutions to ensure they can get adequate credit to offset short terms deficit in their liquidity. The capital market authority should also put in place policy measures regarding liquidity positions that must be maintained by all listed investment firms at the NSE. The regulator should ensure that all listed firms have adequate liquidity to enhance their performance and ward off liquidity risk.

5.5 Limitations of the Study

The current study was based on the listed investment firms including Centum Investment Plc, Olympia Capital Holdings Ltd, Trans-Century Ltd, Home Afrika Ltd and Kurwitu Ventures this limits its application to non-listed investment firms. The application of the findings to decision making regarding non-listed investment firms and other firms should be done with caution given that listed investment firm have slightly different operating environment with non-listed investment firms in Kenya. The findings may also not be applicable to non-investment firms that diversify in terms of products, services and income.

The study was also based on only three asset classes including the common stock, government security and real estate. This scope is not exhaustive and the findings should be applied with restrain regarding decision making especially regarding assets classes that are not covered in the scope of the study. Asset classes omitted in the study includes money market funds, mutual funds, exchange traded funds, derivatives, currencies, precious metals and other assets.

The study was also based on assets diversification through three assets classes including common stock, government security and real estate. The study therefore ignored other forms of diversification including income diversification, product diversification, geographic diversification and credit diversification. The study hence may not be applicable when making decisions regarding the diversification strategies not covered.

5.6 Areas for Further Studies

The current study was based on the listed investment firms including Centum Investment Plc, Olympia Capital Holdings Ltd, Trans-Century Ltd, Home Afrika Ltd and Kurwitu Ventures this limits its application to non-listed investment firms. The findings may also not be applicable to non-listed investment firms. The study therefore recommends that future studies should be comprehensive enough by including both listed and non-listed investment firms.

The study was also based on only three asset classes including the common stock, government security and real estate. This scope is not exhaustive and omitted asset classes including money market funds, mutual funds, exchange traded funds, derivatives, currencies, precious metals and other assets. The study therefore recommends that future studies among listed investment firms should be comprehensive enough by including more asset classes in the scope of the studies especially the assets classes that were not in the scope of the current study.

The study was also based on assets diversification through three assets classes including common stock, government security and real estate. The study therefore ignored other forms of diversification including income diversification, product diversification, geographic diversification and credit diversification. The study therefore recommends that future studies

should include other firms of diversification including income diversification, product diversification, geographic diversification and credit diversification.

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APPENDICES

Appendix I: Data Collection Sheet

Year	book value of Bonds and Bills	book value of Real Estate	book value of shares	Total Assets	Net Profit After Tax	Current Assets	Current Liabilities
2019							
2018							
2017							
2016							
2015							
2014							
2013							
2012							
2011							
2010							

Appendix II: Listed Investment firms at the NSE

1. Centum Investment Plc
2. Olympia Capital Holdings ltd
3. Trans-Century Ltd
4. Home Afrika Ltd
5. Kurwitu Ventures

Source: NSE

Appendix III: Study Variables

Firm	year	id	Y	X2	X3	X1
Olyympia	2010	1	0.004755	14.46134	0.216344	1.81158
	2011	1	0.009112	14.45918	2.10201	1.714136
	2012	1	0.012983	14.44018	2.268866	1.53448
	2013	1	0.004155	14.456	2.799067	1.840365
	2014	1	0.028574	14.27062	1.168947	1.460545
	2015	1	-0.0193	14.2417	1.596418	1.362895
	2016	1	0.009233	14.28967	2.385667	2.134184
	2017	1	0.025588	14.25815	1.986445	1.930222
	2018	1	-0.0021	14.32166	1.743531	2.261493
	2019	1	0.003531	14.302	1.595858	2.188154
centum	2010	2	0.132481	15.92645	1.418256	2.111721
	2011	2	0.186349	16.32524	1.823696	1.820547
	2012	2	0.102821	16.26373	1.704505	1.884206
	2013	2	0.132341	16.75792	1.079403	1.800435
	2014	2	0.106047	17.17628	1.471165	1.733242
	2015	2	0.192181	17.53705	1.320521	1.685796
	2016	2	0.14308	17.75792	0.444395	2.048259
	2017	2	0.100041	17.93569	0.474694	2.044687
	2018	2	0.027587	18.38285	0.636392	2.230658
	2019	2	0.040488	18.43816	0.608297	2.191915
Transcent	2010	3	0.041673	16.23468	1.592336	2.489168
	2011	3	0.028337	16.89477	1.224512	2.609735
	2012	3	0.033903	16.89952	1.284566	2.576463
	2013	3	0.026276	16.98689	1.487056	2.588201
	2014	3	-0.11704	16.78406	1.594952	2.79671
	2015	3	-0.11104	16.89825	1.163074	2.795652
	2016	3	-0.04568	16.75528	0.674293	2.265341
	2017	3	-0.23111	16.74622	0.404861	2.816821
	2018	3	-0.04109	16.62901	0.253051	2.915307
	2019	3	0	14.6979	1.227744	2.362168
Home Afri	2010	4	0.015237	13.80399	0.636943	1.605238
	2011	4	-0.08966	14.62011	0.636943	2.612615
	2012	4	0.043609	14.7234	0.636943	2.474427
	2013	4	0.026311	14.93538	0.636943	2.621839
	2014	4	0.002408	15.12887	0.636943	2.477485
	2015	4	-0.101	15.16678	0.636943	2.383678
	2016	4	-0.04287	15.18415	0.636943	2.409612
	2017	4	-0.04052	15.31465	0.636943	2.498394
	2018	4	-0.07689	15.32014	0.688109	2.705467
	2019	4	-0.20443	15.28518	0.628933	2.812117
Kurwitu V	2010	5	0	14.6979	1.227744	2.362168
	2011	5	0.017986	8.378164	1.25	1.691572
	2012	5	0.013472	8.258816	1.25	1.549827
	2013	5	-0.00759	11.58524	1.25	1.825391
	2014	5	-0.1003	11.77026	1.25	2.397843
	2015	5	-0.05325	11.72912	1.25	1.877315
	2016	5	0.125473	11.87045	1.25	1.782883
	2017	5	-0.07518	12.16912	3.537417	2.120682
	2018	5	-0.07715	11.8525	3.009723	2.703622
	2019	5	-0.039	11.83708	0.638542	2.026111