THE EFFECTS OF THE MONETARY POLICY ON STOCK MARKET PERFORMANCE IN ZAMBIA. A CASE STUDY OF LUSAKA SECURITY EXCHANGE

By

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A Dissertation Submitted to University of Zambia in partial fulfilment of the Requirements for the Award of the Degree of Master of Business Administration in Finance.

UNIVERSITY OF ZAMBIA

LUSAKA

2020

DECLARATION

I, **Dickson Kaonga** declare that this project report is my own, unless otherwise as specified in the references and acknowledgments. It is submitted in partial fulfillment of the requirements for the degree of Master of Business Administration in Finance at the University of the Zambia, Graduate School of Business. It has not been submitted before at any degree or examination in this or any other university.

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APPROVAL

This dissertation by **Dickson Kaonga** approved as a partial fulfillment of the requirements for the award of the degree of Master of Business Administration in Finance .

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ABTRACT

Stock market plays an integral role in economic development in every economy and as such performance of stock markets remains critical in every country. Equity prices are among the key stock market performance indicators that are closely monitored by economic agents and authorities because of their sensitivity to arrival of new macroeconomic information. This sensitivity can cause price volatility and eventually lead to stock market bubbles which can be damaging for the economy. Therefore, the main aim of this study was to empirically investigate the effect of monetary policy shocks on stock market price returns at Lusaka Security Exchange. The study is a quantitative research which employed an ex post facto research design to investigate the subject matter by using predicator variables namely; exchange rate, lending base rate, bank lending rate and money supply (Narrow Money-M1, M2 and M3 is Broad Money) extracted from BoZ statistical reports and stock market indices (LuSE Statistical Reports) as criterion variables from 2014-2018, using monthly data. Pearson correlation as well as Multi-linear regression model was employed in this study using SPSS version 23 analysis software. Furthermore, Kolmogorov-Smirnov, Shapiro-Wilk was employed to test normality of the data and also descriptive analysis (using mean and standard deviation) to understand the characteristic of the data. The results showed that money supply has a positive effect on stock market price returns and the effect is statistically significant with P-value less than .05 (M1, P=.028,M2,P=.002 and M3, P=.001) . On the other hand variations in Interest rate induced by Monetary Policy has a statistically significant inverse effect on stock market indices with p value less than .05 (Lending base rate, P=.002 and Bank lending rate, P=.001). Similarly, exchange rate exhibits an inverse effect on stock market price returns (P=.001) Therefore, the study concludes that independent variables as captioned above significantly affect stock market performance in Zambia and account for 82% (R Square =0.82) of the changes in stock market indices. It is therefore recommended that Monetary Authority should demonstrate innovations through adjustment of monetary policy instruments to enhance stock market performance be way of attaining stability in stock prices and in exchange rate thereby enhance predictability in the market by economic market agents (Investors) when making investment decisions and also at macro level enable stock market performance to permeate the real sector.

Keywords: Monetary Policy Transmission, Stock Market price returns and Lusaka Security Exchange

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DEDICATION

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ACRONYMS AND ABREVIATIONS

M1 …… Narrow Money (Money Supply)

M2 and M3…….Broad Money (Money Supply)

SP1…….Stock Price Index

LuSE……Lusaka Stock Exchange

BoZ……..Bank of Zambia

GDP…….Growth Domestic Product

CAPM……..Capital Asset Pricing Model

FSDP……Financial Sector Development Policy

VAR…….Vector Auto regression

ARDL…….Employed Auto regression Distribution Lag

MPT……..Modern Portfolio Theory

SPSS……..Statistical Package for Social Sciences

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CHAPTER ONE: INTRODUCTION

1.1 Background

The relationship between monetary policy and stock market performance has been a subject of discussion especially since the collapse of major stock market boom of 2000 and 2007, Yoshino et al (as cited by Ebel and Emmanuel, 2018). Stock market plays an integral financial intermediary role in economic development in every economy and as such performance of stock markets remains critical in every country (Rifat, 2015). Equity prices are among the most closely monitored asset prices in the economy and are commonly regarded as being highly sensitive to economic conditions (Ioannidis and Kontonnika, 2008). This sensitivity can cause price volatility and eventually lead to stock market bubbles which can be damaging for the economy (Samate, 2016).

Hojat et al (2017) postulate that investors decision on what securities to buy or sell in the equity market depends on three (3) factors; (a) changes in current and future dividend or future cash flow (b) changes in short term interest rate and (c) changes in elements of risk involved in investing in a specific stock. In a case of short term interest rate, changes in short term interest rate induced by Central Bank sends a signal to investors about the current and future economic outlook which in turn affects investors buy/sell decision (constructing a portfolio investments that maximizes returns based on available risks) in the equity market. Consequently, investor's decision to restructure their portfolio investments (buy/sell decision) tends to affect the asset prices which in turn affect asset allocation in the broad economy. Nemaorani (2012) postulate that changes in real interest rate as a result of induced monetary policy influences the timing of consumption and investments decisions by households and firms.

In view of the foregoing, monetary policy can indirectly affects stock prices by influencing the determinants of dividends or future cash flow by way of influencing economic agents' future expectations. Alternatively, it can directly affect the equity risk premium which is the determinant of firms' discount rate (cost of equity).

It is argued that since stock market is forward looking , equity price of a specific stock tend to be determined by expectation about the future returns and risk. Argitis (2013) demonstrate that unexpected change in elements of monetary policy which are not anticipated by the market participants have a significant effects on equity prices by altering the equity premium (determinate factor in equity price valuation). This is important because macro-economic variables which affect investments constitute the systematic risk which is out of control of the private investors and firms. However, systematic risk can be controlled by monetary Authorities and can be alleviated. Therefore, risk returns relation is the fundamental principles in theories of investment decision or price equity. Investors invest in specific stocks when the expected rate of returns on the specific equity justifies the risk investors are taking.

Since stock price return gauges the performance of equity market, stock price volatility as a result of induced changes in monetary policy transmission tools can have a significant implications on the performance of the financial sector as well as the entire economy (Bernanke and Gertler, 2001).Therefore, stock market price volatility has long been of great interest for both policy makers and market participants. Policy makers are interested in the spillover effects of volatility on real economy while the latter are concerned about the effects of stock market volatility in ascertaining the intrinsic value of stock so to determine whether stocks are over/underpriced stock (Zare, Azalib and Habibullahc, 2013).

It is against this background that most economics assert that there exist a significant relationship between monetary policy and stock market performance as monetary policy has the capacity to influence the behaviour of households and firms. According to Nwaogwugwu (2018) monetary policy influences stock market returns through credit channel, interest rate channel, exchange rate channel, wealth effect, and expectations. Mishkin (2001) state that the channels through which monetary policy permeates the real sector of the economy are the debt instruments (i.e interest rate) or asset price channel while Laopodis (2004) discovered that monetary policy affects the real economy through financial markets. In other words, financial markets are the connecting links in the transmission mechanism of monetary policy actions to the real economy. Hojat et al (2017) argues that changes in money supply by Central Bank do not have an immediate direct effect on the economy. It affects the investors' expectations and equity prices

first and then later affects the macro variables in the economy. Further empirical research reveals that monetary authorities should also closely monitor asset prices volatility as they reflects future course of macroeconomic condition of an economy (Laopodis,2004; Bernanke and Gertler, 2001;Cecchetti et al, 2000; Mishkin,2001 and ,Hilde and Kai, 2005,2009).

In view of the aforementioned, in spite of the existence of wealth literature aimed at establishing the effect of monetary policy on stock market performance much literature is inclined to developed capital markets than emerging and frontier markets especially in Zambia context. Furthermore, much of the literature in the context of emerging markets has shown complicated, inconsistent and mixed results. Nemaorani (2012) and Sellin (2001) stressed that the strengthen of the association between monetary policy and stock market performance partially depends on structural and institutional features of countries economy therefore rendering much literature in developed markets not applicable in emerging markets (Zambian context). Mishkin (2001) postulate that the reason for inconsistent in study results in the context of emerging markets is partially attributed by non-availability of quality data, inefficient capital market in the context of emerging markets. Besides, much of the changes that took place during financial recession of 2008 were not incorporated by many researchers. Furthermore, limited studies have been done in the context of Zambia as much literature is inclined in establishing the effectiveness of monetary policy (using selected variables) (Zgambo et al, 2014 and Haabazoka et al, 2016) or stablishing the market efficiency of Lusaka Security Exchange (Fuckson, 2011). Further research done by Sichoongwe (2016) and Samate (2016) only used one monetary policy transmission variable each such as exchange and policy rate respectively to establish the effect on stock market performance. This research will examine atleast three monetary policy variables namely exchange rate, interest rate and money supply.

In view of this analysis, there is a gap in literature in the context of emerging/frontier markets especially Zambia unlike developed markets. This study strive to fill the gaps existing in literature in the context of emerging/frontier markets especially in Zambia so that policy makers and investors would be better informed in decision making.

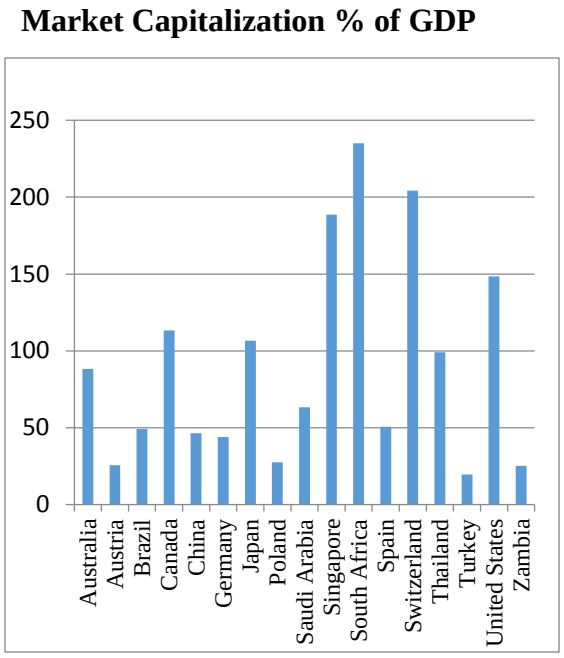
1.1 Overview of Lusaka Security Exchange

After attainment of political independence in 1964 most of the industries in Zambia were owned, controlled and financed by the Zambia government through tax payers' monies under social policies. However, most of the these state owned firms subsequently started making significant losses as a results Zambia's economy since the 1980s was characterized by growing foreign debt burden, balance of payments difficulties and lack of resources to support these state enterprises and to fund new investments (Fackson, 2011).In this vain, most of the state owned firms were privatized as an economic reforms under structural adjustment programme.

Lusaka Security Exchange was established in 1993 with the assistance of International Finance Corporation and World Bank but operations commenced in 1994 (Samate, 2016). This was government economic reform programme aimed at developing financial and capital market in Zambia in order to support private sector initiatives, enhance citizenry ownership as well as attracts foreign portfolios investment. The market has grown since inception with a market capitalisation of K679, 884 million in January 1995 to K56.78 billion as at 8th November 2019. However, its performance has been relatively poor to other markets (developed and emerging markets). Literature have shown that a well-functioning stock market should facilitate reallocation of resources in the economy from economic agents who have surplus to areas of deficit and this should have a spell over effect to the economy. In this regard, monetary policy plays a major role in reallocation of resources in the economy through interest rate manipulation which in turn influences investors' return expectation and their buy and sell decision in the equity market (Hojat and Sharifzadeh, 2017).

A situation analysis done on the performance of Lusaka Security Exchange and it contribution effect on economic growth done by Technical Committee-National Financial Sector Development Policy (2010, 2017) revealed that the stock market performance remained relatively low with low market capitalization to GDP ratio of 16 percent as at 2016 year end (and 25.29 percent as at January, 2019) and Market Liquidity to GDP ratio stood at 0.013 percentage as at December 2018.The Zambian capital markets remain largely underdeveloped and are

characterized by low issuances, illiquidity, low turnover, lack of depth, erosion in value on some stocks, and low interest from both potential investors and issuers. Find below a detailed analysis of the comparative performance of stock markets on Figure 1.1 (Market capitalization percentage of GDP comparative analysis by countries) and Figure 1.2 (market liquidity comparative analysis).



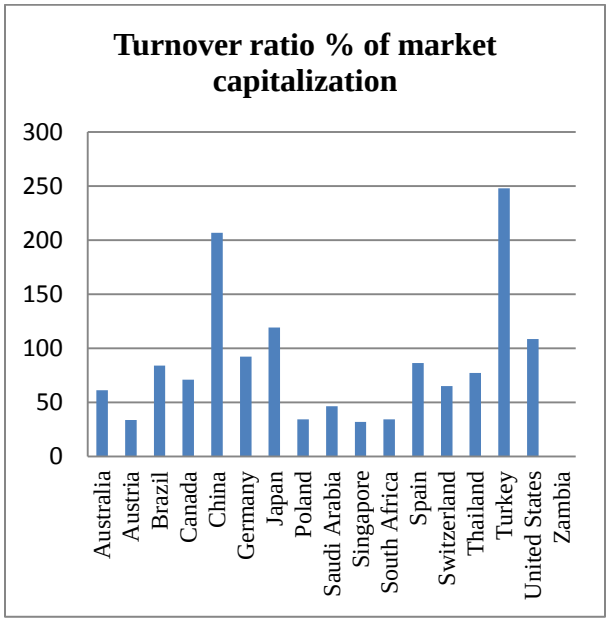


FIGURE 1. 1: Market Capitalization % of GDP FIGURE 1. 2: Market Liquidity

Source: World Development Indicators and Stock markets and Lusaka Security Exchange Annual reports (2019)

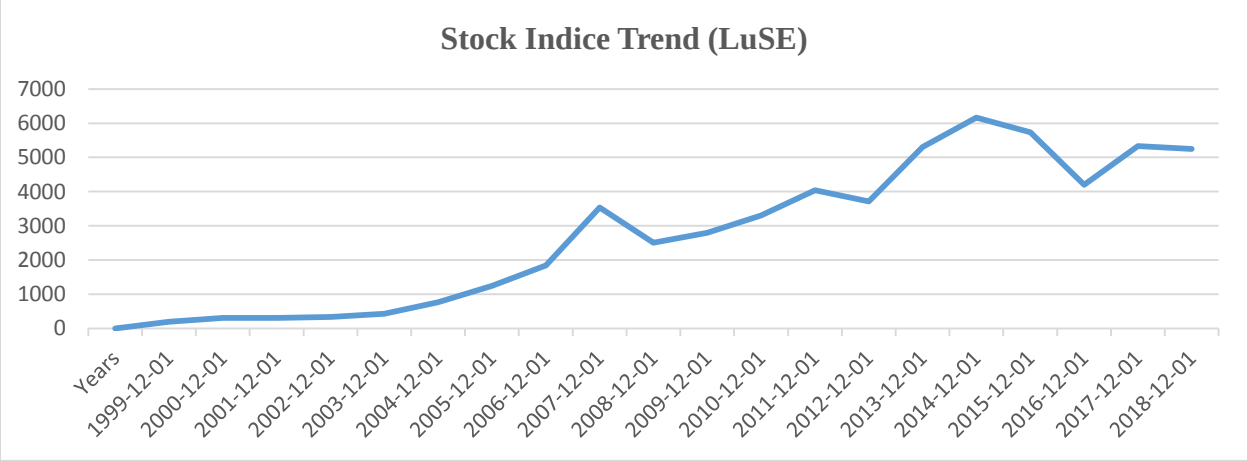


FIGURE 1. 3: Stock Indices Trend (LuSE)

Source: Lusaka Security Exchange Annual reports (2018)

Market capitalization is stock market performance indicator which signifies the amount of growth in the market (Makau and Atanda, 2010).It is believed that stock market as a financial intermediary plays a significant role in economic growth .Stock market performance in terms of its contribution to economic growth is measured by market capitalization to GDP ratio. Therefore, a higher market capitalization to GDP ratio signifies that a stock market significantly contribute to economic development. Osuagwu (2009) found that a 1% increase in stock market capitalization ratio would lead to about 30% raise in real GDP, which implies that stock market has continually affected real GDP growth rate and on the other hand demonstrates a long-run equilibrium relationship between the variables under study .Therefore, market capitalization measures the monetary value of the entire capital market, whereas the all share index captures the daily price movements of equities.

Figure 1.1 and Figure 1.3 captioned above depicts Lusaka Security Exchange Stock prices performance trend and the comparative performance relative to other stock markets. Since 1994 when Lusaka Security Exchange was operationalized, the stock market has been characterized by a fluctuating growth in stock market capitalization from K0.680 billion in January 1995 to K56.78 billion as at 8th November 2019 and in terms of stock price indices from K195.38 (December 1999) to K5248.39 (December 2018) In spite of this growth, the growth in terms of stock price indices has been volatile as depicted in Figure 1.3. Furthermore, at macro level the market capitalization to GDP ratio has been insignificant relative to other market. Figure 1.1 (Comparative analysis of market capitalization percentage to GDP) reveals an insignificant market capitalization to GDP ratio of 25.29 percent at Lusaka Security Exchange (LuSE) relative to other markets such as South Africa 235 percentage and United State, 148%.

Market liquidity is a subject of discussion globally as it is recognized for playing an integral role in capital market development. Regulators usually strive to achieve a sustainable degree of liquidity in a capital market and also manage occurrences of extreme trading activity. This entails that markets are resilient to adverse impacts of a financial crisis. Regulatory efforts are targeted to lend support to developing a structural framework that can ensure deep, broad and robust market.

Market Liquidity is a market ability to absorb large amount of trades without causing excessive price movements and is characterised by narrow bid and ask spread (Report of the IOSCO Emerging Markets, 2007). Harris (2003) defines liquidity as ability to trade large volumes of assets quickly at low cost, as and when required. Measures of stock market liquidity include the turnover/market capitalization ratio and the number of trades (Samate, 2016). ISOCO report (2007) postulate that a liquidity market has dual benefit both at macro and macro level. From macro perspective, liquid capital markets are essential for the efficient allocation of capital which in turn lowers cost of capital for issuers while at micro level, a liquid market ensures access to a wide range of investors with various trading strategies. Therefore, a liquid market helps easy participation of economic agents in the capitals to easily diversify their portfolio at minimal loss to nominal values, low transaction costs, and within a short time frame.

Figure 1.2 (comparative analysis of market liquidity) shows a comparative liquid capital markets for both emerging markets and developed market. It is evident that Lusaka Security Exchange is relatively underperforming with Turnover/market Capitalisation ratio of 0.123 percentage as at December 2018 (significant decline from 2.47 percentage as at December 2015) while South Africa recorded a stock market turnover ratio of 34.1 percentage. Further, market liquidity to GDP ratio only account for 0.013 percentage which is relatively very low to other markets such as South Africa with 80 percentage. The numbers of listed campaigns listed on Lusaka Security Exchange are relatively low to other competitive markets. Lusaka Security Exchange has 23 listed campaigns as at December 2018 since inception in 1994 while South Africa Capital market has 289 listed campaigns as at December 2018.

In view of the foregoing, Technical Committee-National Financial Sector Development (2010, 2017) findings reveals that Lusaka Security Exchange was characterized with low issuances, illiquidity, low turnover, lack of depth, erosion in value on some stocks, and low interest from both potential investors and issuers is consistent with the above stock market performance analysis. Therefore, available literature done by Hilde and Kai (2005); Mishkin (2001) and Kontonikas (2008) propound that stock market performance is influenced by macroeconomic factors which are in turn affected by monetary policy. Therefore, to improve performance of a capital market, monetary authority should use deliberate and innovative way through monetary

transmission mechanism to influence stock prices and perhaps use stock prices as feedback to track private sector expectations so as to permeate the real economy. Therefore, this research endeavors to establish weather monetary policy transmission channels have an effect to stock market performance in the context on Zambia bearing in mind that the structural and institutional features of the economy differs from one country to another (Sellin,2001).

1.2 Statement of the Problem

One of the primary objective of monetary policy in Zambia is price stability which is attained through inflation targeting. Price volatility creates uncertainty in the minds of existing and prospective investors hence reduces market liquidity and prospect investment opportunities due increase in perceived equity risk premium. The most commonly monitored asset prices are stock prices because of their sensitivity to arrival of new macroeconomic information. This sensitivity can cause price volatility and eventually lead to stock market bubbles which can be damaging for the economy (Samate, 2016).Therefore, monetary policy is usually used as a tool to influence macroeconomic variables to create financial stability in the country.

In the context of Zambia, while there has been a considerable growth in the market capitalisation to GDP ratio from K0.680 billion, in January 1995 to K56.78 billion as at November 2019 at Lusaka Securities exchange as captioned on Figure 1.1, the comparative growth is still not significant. Analysis of the strategic documents such as National Financial Sector Development Policy (2010, 2017), 10 year Capital Master Plan and Lusaka Security Exchange statistical stock indices performance trend (Table 1.3) revealed that the stock market is poorly performing which is characterized with stock price volatility, erosion in value on some stocks, and low liquidity which could be one of the contributing factor to low participation by economic agents on the stock market. In this vain, in spite of empirical evidence (Chen,2007 ,Hojat et al,2017 ,Ullah et al, 2017 ,Bernanke and Kuttner ,2003) that postulate that monetary policy has an effect on stock market performance, it could be argued that the response of emerging/frontier stock markets to monetary policy could be different especially in the context of Zambia as compared to mature markets. This is because mixed and inconsistent research results are evident in emerging/frontier capital markets unlike developed capital market. Mixed and Inconsistent research results in the

case of emerging and frontier capital markets could be partially attributed by different economic structures and Institutional features of countries, non-availability of quality data, inefficient capital market (especially from emerging and frontier stock markets) (Sellin 2001,Nemaorani, 2001, Hojat et al 2017 and Mishkin 2001).Furthermore, Sourial (2002) argues that the response of a stock market to monetary policy also depends on the degree of development of the financial system and the equity culture therefore rendering much literature especially in developed capital market not applicable in the context of emerging/frontier markets (Zambia Inclusive).Therefore, understanding the effect of changes in elements of monetary policy on stock market performance (by use of stock price index as performance indicator) in Zambia context is useful to both monetary authorities and investors.

1.3.0 Objectives

1.3.1 General Objective

i. To empirically investigate the effect of monetary policy shocks on stock market performance in Zambia for the period 2014 to 2018 by employing monthly data.

1.3.2 Specific Objective

i. To establish the effect of money supply on stock market price returns at Lusaka Securities Exchange (LuSE)
ii. To establish the effect of Interest rate on stock market price returns at Lusaka Securities Exchange.
iii. To establish the effect of exchange rate on stock market price returns at Lusaka Security Exchange.

1.4. Research Question

i. What is the effect of variations in money supply induced by monetary policy on stock market price returns at LuSE?
ii. What is the effect of variations in Interest rate induced by Monetary Policy on stock market price returns at LuSE?
iii. What is the effect of exchange rate movements induced by monetary policy on stock market price returns at LuSE?

1.5 Assumptions of the Study

i. This study assume that stock market prices are determined in a forward-looking manner, and encompass relevant information vis-à-vis future expectations therefore reflecting the expected future discounted sum of return on assets. Changes in asset prices can then be due to changes in the expected future dividends, the expected future interest rate or changes in the stock risk premium (Fama, 1965).
ii. Investors are rational and that they are risk averse hence would clearly select investments or structure a portfolio in such a way as to maximize returns based on the prevailing market risk.
iii. Investors have similar economic expectations and analyze securities in the same way.
iv. There is a risk-free asset in the market from which all investors can lend or borrow.
v. The Markowitz model is used by all investors to select an efficient portfolio (Markowitz, 1952).

1.6 Ethics Statement

This research used secondary monthly data on the LuSE historical market indices, and Bank of Zambia monetary transmission tools statistics ; interest rate, money supply (M1, M1 and M3) and exchange rate that already had ethical documentation and we only did further analysis. Statistical data used was accorded strict confidentiality with their specific experiences masked beyond specific identification by future researchers and users of this prospective dissertation.

1.7 Justification of the Study

The study undertaken provides insight to monetary policy makers besides the main objective of Inflation targeting to understand the growing need to formulate monetary policies that would contribute to stock market performance which would in turn significantly spill over and permeate the real economy.

The study also provides insight on the effect of monetary policy and stock market returns. Literature on market efficiency as postulated by Fama (1965), Modern Portfolio Investment Theory by Markowitz (1952) and Capital Asset Pricing Model (CAPM) by Sharpe have shown that in perfect information efficient market stock prices tend to fully incorporate all economic information to reflect correct equity risk premium so as to avoid over/under pricing (mispricing). Therefore, the results of this study would provide insight to investors to aid decision making when constructing portfolio that maximize returns based on perceived equity risk premium triggered by interest rate shocks among other factors. Furthermore, monetary Authority would be better informed in policy making to avoid discretionary policies that disrupt Lusaka Stock Exchange performance and thus preempting stock market crushes. .

In addition, the study complements the existing studies on stock markets performance since limited literature exists in emerging markets (particularly in Zambia) relative to developed markets. Therefore, the research also contributes to the wealth of literature in Zambia. The finding of this study therefore would go a long way in enhancing the performance of stock prices on LuSE through deliberative monetary transmission channel innovations by policy makers.

1.8 Scope of the Study

A quantitative study was undertaken by employing ex-post facto research design to investigate the effect of monetary policy on stock market performance. The study employs predicator variables namely Interest rates (Bank average lending rate and BoZ Policy Rates), Money Supply

(M1, M2 and M3|) and Exchange rate while the criterion variables includes only Stock Market Indices derived from Lusaka Stock Exchange. The empirical research employed Pearson correlation and Multivariate regression analysis model using SPSS Version 23 analysis software. Panel data was collected from Bank of Zambia fortnight reports, World Bank and Lusaka Security Exchange (LuSE) year End Statistics reports ranging from 2014 to 2018.

1.9 Dissertation Outline

The structure of this paper includes; Chapter One provides the background to the study, Chapter Two gives a literature review, Chapter Three gives the theoretical and conceptual framework of the study, Chapter Four outlines the methodology, Chapter Five gives the data analysis, interpretation and discussion and lastly, Chapter Six gives the conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Stock market plays an integral role in economic development in every economy and as such performance of stock markets remains critical in every country. Equity prices are among the key stock market performance indicators that are closely monitored by economic agents and authorities because of their sensitivity to arrival of new macroeconomic information as changes in risk/ returns affect buy/sell decision by investors in constructing their portfolio investment. This sensitivity can cause price volatility and eventually lead to stock market bubbles which can be damaging for the economy (Samate, 2016). Fama (19650) propounded that in an informational efficient capital market, stock prices should fully reflect all available information making it impossible for market participants to beat the market (Fama, 1965). Therefore, stock prices incorporate economic information which provide as a signal of investor's perceived risks and also present and future economic conditions (Bernanke and Kuttner, 2003).Financial economic researchers postulate that changes in elements of monetary policy that are unexpected by the public have a significant effect in equity price by altering the equity premium. Therefore, monetary policy has been deemed by many researchers that it has the capacity to influence economic agents, which in turns affect investments. Furthermore, it is asserted by Hojat et al (2017) that macro-economic variables as induced by monetary policy constitutes the systematic risk which is out of the control of private investors and companies . However, systematic risk can be controlled by monetary policy and it can be alleviated. It is against this background that this research has been inspired to explore the effect of monetary policy on stock market performance.

2.2.1 Overview of Stock Markets

The importance of stock market worldwide has reinforced the belief that finance is an important ingredient of economic growth and development (Nowbutsing and Odit, 2009). Available studies undertaken have revealed that stock market plays an integral role in economic developments (Mishkin, 2001; Ioannidis et al, 2008; Osuagwu, 2009; Gowriah, Seetanah and John and Keshav, 2014).According to Zafar (2013) financial sector plays an integral roles in any country'

economic growth. This proposition is consistent to many studies done on the subject matter. Equity markets is financial sector's key institution which provides a platform to resource mobilization and reallocation from economic agents who have surplus (borrower) and to areas of deficit (lender) who in turn invests in productive ventures to boost economic growth.

An equity market is an institutional arrangement that facilitates the sale of stocks, which are equity investments (also referred to as capital).A well performing stock market provide the opportunity for investor to allocate capital to productive investment efficiently (Nowbutsing and Odit ,2009).According to Osinubi (1998), stock markets enables firms and the government in particular to raise long-term funds through equity and debt capital for financing new projects, expanding and modernizing commercial/industrial concerns. Stock market therefore provides an advantage to investors to easy liquidity, economical information gathering. Ideally, Investors are incentivized to invest in a capital market that is highly liquidity as they can easy sell or buy assets. This is important because in an efficient market, Investors can easily switch from one asset to another (from holding stock to bond or vice versa) depending on the perceived equity risks premium embedded in assets, existing information asymmetry or change in investors risk attitude among other factors. This is consistent with the existing theories such as efficient market theory by Fama (1965, 1970), Modern Portfolio investment Theory by Markowitz (1952). Fama and French (1988) results revealed that stocks earn high returns during more difficult economic conditions when capital is relatively scarce and the default-risk premiums in interest rates are high. Markowitz argues that it is possible to construct a portfolio by selecting assets that maximizes the overall return of the portfolio at a given level of risk based on the statistical measure of covariance and correlation. He explained the risk-return relationship on the basis of a portfolio of risky asset. Therefore, because of the indispensable role stock markets plays in capital mobilization and allocation towards the enhancement of economic growth, the stock market is often referred to as the engine of economic growth.

In view of the foregoing, a raising concern worldwide has emerged to understand the determinant factors of stock market performances. A study done by Zafar (2013) revealed that the determinants factors of stock market performance includes; expansion in the country's economic activities, strength in the exchange rate, decrease in lending interest rates ,

improvement in recovery of loans , investors friendly policies and strong regulatory framework. A similar study done by Yart (2008) revealed that growth in domestic investment, banking sector, private sector capital inflow, stock market liquidity and Institutional determinants such as political risk and laws. Rakhab (2015) found that stock markets are affected by interest rates and exchange rate while Maku, Olukayode and Abdulmaliq (2010) founds that the determinant factors are inflation rates, money supply and real output. Maku et al (2010) found that Nigeria stock market performances are influenced by shocks in inflation, money supply and real output with other macroeconomic factor exerting its effect in the long run.

2.2.2 Determinants of Stock Market Performance

A Wealth of available literature have shown that there many factors that affect stock market performance. These includes the following as measuring determinants (performance indicators) for stock market performance; market capitalization as ratio to GDP, Share price index, Ratio of total value shares traded to GDP, concentration of firms in the market and number of listed companies (Levine and Zervos, 1998; Ndekano and Pesakovic, 2017; Thorsten and Levin, 2013; Garcia and Liu, 1999; Panano 1993; Kunt (1996) ;Garcia and Liu, 1999).Market capitalisation is viewed as a value of equity traded on the stock market relative to Growth Domestic Product (GDP). It is used to measure the size of stock exchange. While, lliquid stock market provide an incentives to investors to easily convert existing assert into cash at a reasonable price when they what to restructure their portfolio. Therefore, stock market liquidity is equally important as performance indicator from investor's point of view as the more liquid the stock market is, the larger the amount of saving channeled to stock market.

According to Molilewa and Deborah (2015), liquidity of stock markets is critical ingredient to the growth of the markets and at large an economy. Liquid equity markets enables investments relative more attractive as it is less risky. It allows prospective investors to acquire an asset (equities) and to sell them quickly and cheaply. Furthermore, liquid markets help to facilitate reallocation of capital and enhance prospects for long term economic growth through the facilitation of longer term, and profitable investments. Lastly, stock market liquidity help

stimulate establishment of more investment by enabling investment less risky and more profitable.

2.2.3 Zambia Financial Market Reforms Overview

Establishment of Lusaka Security Exchange was government economic reform programme aimed at developing the financial and capital market in Zambia in order to support private sector initiatives, enhance citizenry ownership as well as attracts foreign portfolios investment.

This establishment was premised on the arguments by many researchers that stock market is a financial pillar to real economic growth. In this vain ,Governments of Zambia has had made main reforms to support the growth of financial markets since inception in 1993.This is evidenced by the financial pillars which underpin the Vision 2030 toward achievement of economic development envisioned as "To have a robust and world class financial sector that supports the country's development aspirations". In recognizing the important role financial sector plays, Zambia embarked on the development of a National Financial Sector Development (FSDP) Policy aimed at growing and transforming the financial sector. The Policy aims at having a well-developed and inclusive financial system that supports efficient resource mobilisation and investment for sustainable economic development. The Policy comes after Zambia's first and second Financial Sector Development Plans (FSDPs), which ran in two successive five-year cycles from 2004 to 2009 and from 2010 to 2015. The FSDPs represented both a vision and a comprehensive strategy by the Government to address weaknesses in the Zambian financial system by focusing on five core pillars: legal reforms and corporate governance, payment systems, market efficiency and contractual savings, financial education, and access to finance and financial markets (National Financial Sector Development Policy, 2017). This research will focus only on financial (Stock) market performance by using stock market capitalization on GDP ratio and stock market indices as performance indicators while other researchers will explore on impact of financial education, payment systems on governance and legal reforms on financial sector (stock market) development. Furthermore, effort has been made by Zambian authority to improve the performance of the stock market as evidenced by the establishment of the 10-years Capital Markets Master Plan whose vision is "Repositioning the

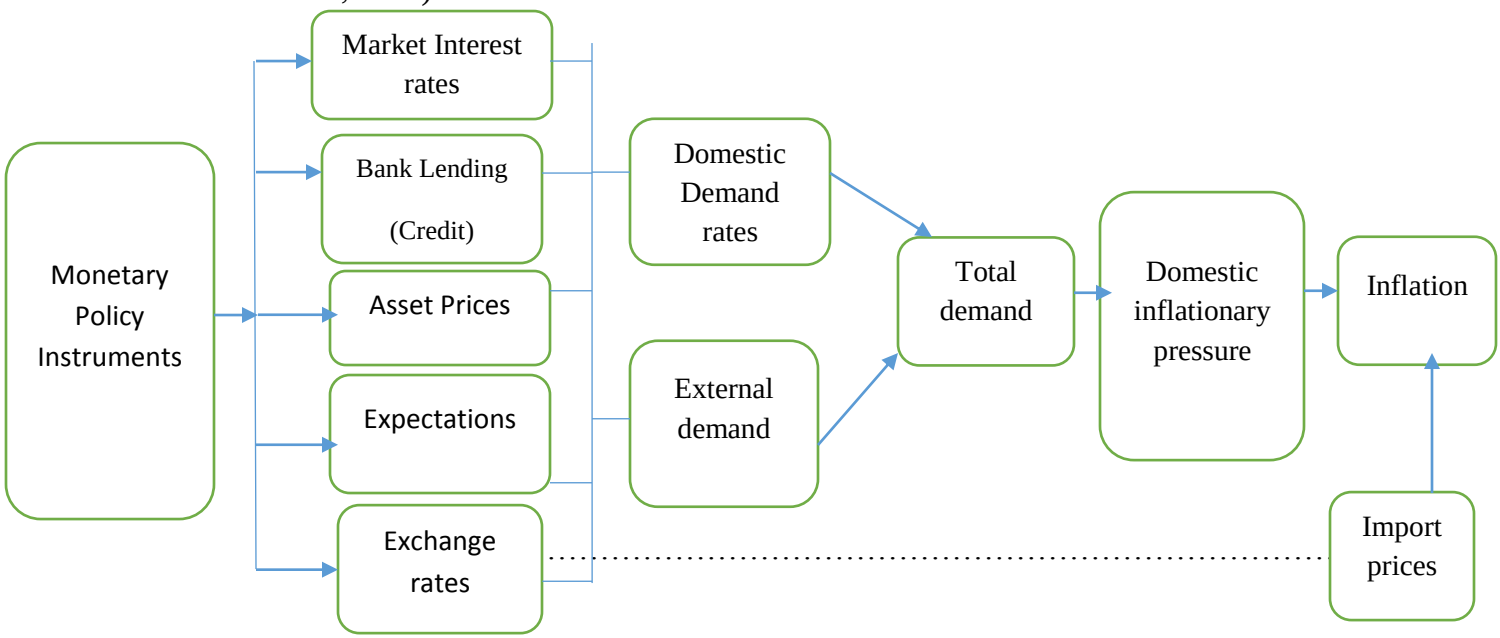
Zambian Capital Markets as an Enabler to Achieving Sustainable and Significant Economic Growth". Despite all these efforts, Lusaka Security Exchange (Capital market) remains underperforming characterized with by ,stock price volatility, low issuances, illiquidity, low turnover, lack of depth, erosion in value on some stocks, and low interest from both potential investors and issuers. It is against this background that the primary motivation for this study was to enable policy makers understand the growing need to formulate monetary policies that will be responsive to changes in stock prices, because the equity market is a veritable source of long-term capital. The effectiveness of monetary policy should therefore be anchored on the effects of its instruments on stock market performance.

Therefore, knowledge of how monetary policy affects the equity market is important in order to understanding the ways monetary policy impacts the stock market and broader economy. However, the challenges is that despite prior studies examining the effect of monetary policy transmission tools on the equity market, inconsistent/mixed results have been produced as other researchers did not cover all the changes that have occurred in the financial market, specifically in the equity market since the 2007–2008 financial crisis (Mishkin,1995).

2.3.1 Monetary Policy Transmission Mechanisms to the Stock Market

Central banks usually use monetary policy as a tool to influence the economic variables such as GDP, Consumer Price Index , Inflation rate ,Exchange rate, , Industrial Production Index among other criterion variables. One of the most popular monetary tools applied by central banks is to alter the short term interest rate to achieve the macroeconomic goals of government (Rifat, 2015). Monetary policy and its resultant effects on essential economic activities is conventionally recognized and given special consideration by economists and policy makers. Key macroeconomic indicators such as investment, general price level, employment, etc. are influenced by monetary policy through policy instruments of variation in money supply and the cost of credit (interest rate). Increase in money supply, for instance, increases the level of investment in the economy and this has long run effect on the development of the stock market as it would enhance the contribution of the stock market to economic growth and development. According to the discounted cash flow model, stock prices are equal to the present value of expected future net cash flows. Monetary policy therefore play an integral role in determining

equity returns either by altering the discount rate used by economic agents or by influencing market participants' expectations of future economic activity. Monetary transmission channels are interlinked since during contractionary monetary policy affect both higher equity risk premium (determinant of discount rates) and also future cash flows (June, 1997). Ioannidis and Kontonikas (2008) argue that stock market returns tend to be higher during periods of expansionary and lower during restrictive monetary policy. Therefore, market participants tend to track monetary policy decisions and macroeconomic news as this becomes the basis for restructuring of portfolios (construction of portfolio). Interest rate decisions made by the central authority represent new macroeconomic information for market participants. Changes in interest rates can affect stock prices in two ways: first, it affect the equity risk premium (determinant of cost of equity/capital) which market participants use to calculate the present value of firms' future cash flows .Secondly, changes in interest rate influences expectations of companies' prospect performances. It is important to note that the first effect is due to changes in the risk free-rate which is the determinant for the required return for firms while the later effect is due to changes in overall economic variables and the cost of borrowing funds in the market. These changes equally affect the future cash flow market participants use to valuation of present value of a firm (Bernanke and Kuttner, 2005; Lobo, 2008; Ioannides and Kontonikas, 2008; Chen, Mohan and Steiner, 1999).



Source: Adopted from Samate (2016) and Bank of Zambia

Figure 1.4: The Monetary Policy Transmission Mechanism

2.3.2 The Traditional Interest Rate Channel

Stock market is greatly affected by monetary policy innovations through several channels and one of the main channels through which monetary policy propagates the real economy is the interest rate channel. The theories that attempt to explain the effect of interest rate on real economy inclusive the stock market performance is described by classical monetarism, as well as in modern literature such as the Keynesian IS–LM (investment saving–liquidity preference money supply) model (Nwaogwugwu, 2018 ; Geraldo, 2011 and Yoshino et al, 2014). It is said that changes in interest rate affect aggregate demand including demand for investing in capital market. The central bank is able to manipulate short term real interest rate thereby inducing economic agents to change their investment and consumption expenditure and thereby changing economic activity.

The interest rate channel suggests that changes in interest rates have effect on the corporate cost of capital, which eventually influences the present value of firms' net cash flows. An Expansionary monetary policy through easing of interest rate would lead to high stock prices and vice versa. This channel represents the traditional Keynesian view of the transmission mechanism of interest rates (Nwaogwugwu, 2018, Yoshino et al, 2014 and Chatziantoniou, David Duffy, George Filis, 2013). On the other hand , a restrictive monetary policy, for example, lowers stock prices by raising the expected equity premium due to an increase in risk which may be caused by an increase in interest expense or a weakening of the balance sheet or a fall in the expected level of consumption (Brown ,2014).

2.3.3 The credit channel

The credit channel suggests that the central bank influences investment and consumption in the country by altering interest rates consequently affecting the market value of firms . Mishkin (1995) argues that the credit channel explains the impact of monetary policy via the effects of informational asymmetry between the lender and the borrower . The Commercial Banks plays an intermediary role in solving the informational asymmetry through bank lending

channel (quantity of loans issued) and Firms/Households balance sheets effect channel (Zgambo and Chileshe, 2014 and Nwaogwugwu, 2018).

The bank lending channel operates via the influence of monetary policy on the supply of bank loans(quantity rather than the price of credit). Easing of interest rate through expansionary monetary policy make credit available as access to bank reserves increase. According to Yoshino et al (2014) easing of interest rates increases the demand for credit and in turn increases aggregate demand, including the demand for investing in the capital. Therefore, an increase of credit available provides an incentive to bank dependent economic agents through multiplier effect to increase investment which in turn increase economic activity (aggregate demand) and consequently improves and firm's cash flow. Therefore, according to stock price determinant model (Dividend valuation model), an increase in firm's present value of future cash increase stock prices and easing of interest through deceased the cost of capital (through an interest rate channel). Other hand the increase in interest also raises the cost of credit and the demand for credit diminishes affect level of investment which in turn adversely affects firm's future cash flow.

Easing of interest through expansionary monetary policy affect the balance sheet of economic agents by reducing the firms and households debt servicing burden which in turn improves the firms cash flow and increase the credit worth of firm to access loans. The improvement in the balance sheets of households and firms due to expansionary policy reduces the possibility of moral hazard and adverse selection. The net effect of this balance sheet channel influences the consumer spending and investments which consequently increase stock prices (Zgambo and Chileshe, 2014).

2.3.4 The Exchange Rate Channel

The exchange rate channel helps explain the way in which interest rates may influence stock prices. Empirical studies done by Clarida and Gertler (1997 and Sims (1992) have revealed that restrictive monetary policy increases interest rate which consequently is associated with an appreciation of the nominal exchange rates while a expansion monetary policy on the

other hand triggers depreciation of local currency against dollar. In the case of depreciation of exchange rates as a result the domestic financial assets are perceived to be more attractive to investors than foreign financial assets because domestic products become relatively cheaper hence increasing exports than imports. Therefore, this eventually have a negative effect on the competitiveness of the country, leading to a reduction in production, which will eventually lead to lower asset prices (Chatziantoniou, Duffy, Filis, 2013 and Yoshino et al, 2014). On the contrary currency appreciation causes the cost of imported inputs declines and the firm's costs in general. This would benefit companies whose product markets are overseas, which would be reflected by an increase of their stock price (Yoshino et al, 2014).

2.3.5 The Asset Price Channel

The asset price channel of monetary policy transmission is perceived to operate through two mechanisms namely; the Tobin‘s (1969) Q-theory of investment and Ando-Modigliani (1963) life cycle theory of consumption (Zgambo and Chileshe, 2014). Asset price channel depends on effect of monetary induced changes in equity prices on the Tobin‘s q. According to Tobins (1969) the effects of monetary policy on investment is reflected in the value of Q, which is defined as a ratio of market value of a company to the replacement cost of capital owned by that company. Contractionary monetary policy increases interest rate which in turn affect the equity risk premium which is a key determinant in firms cost of capital. According to Tobin, cited by Mishkin (1995), if Q is high the market value of the firm is relatively high to replacement cost of capital implying that new plants and equipment are relatively cheap to the value of the firm. In this vain, companies can fetch a relative high amount from issuance of equities and spend less on replacement of equipment. This has a tendency of increasing investment expenditure as firms can buy a lot of new investments goods with only small issuance of equity. The opposite is true when firm q is relatively very low. In other words the concept of Tobin's Q attempts to link firm value by measurement of q ratio to level of investment the firm is capable to procure.

According to Chileshe (2014) Q ratio is a measure of the impact of financial markets on purchases of goods and services. Tobin as cited by Chileshe (2014) argues that although in equilibrium Q has a normal value equal to one which sustains capital replacement and having a

steady growth, in reality Q has a tendency to exceed one by the capitalised value of monopoly profits and rents. It is argued that in the short run, q changes as a result of random events emanating from policy shocks and changes in investors' expectations which create or destroy incentives for capital investment. In view of how the value Q, monetarists and Keynesians both agree that monetary policy affect the asset prices such as bonds, equity and real estate, however, they disagree on channels which affect it. Monetarist believes that expansionary monetary policy, affect quantity of money supply by reduction of interest rate which in turn affects aggregate demand because economic agents have excess cash to spend on stock market. Reduction of interest rate and the resulting effect of increased aggregate demand have a tendency to reduce equity risk premium which consequently increases Tobin Q ratio and latter increases stock prices (Mishkin, 1995). On the other hand, Keynesian as espoused by Keyne (1936) argued that the reduction in interest rates following monetary expansion makes bonds less attractive to investors relative to equities, thereby making the prices of equities to increase and vice versa. Mishkin (1995) summaries the effect to Tobin Q based on Keynesian and Monetary view as follows; that higher equity prices (Pe↑) leads to higher q(q↑) which consequently leads to higher investment spending (I↑)(M↑= Pe↑= q↑= I↑=Y↑ where Y is equity/aggregate demand.

The wealth effect is the alternative asset price transmission channels as propounded by Modigliani (1963) a life cycle theory of consumption. According to Modigliani, a consumer spending is determined by life time resources of consumers which are made up of human capital, real capital and financial wealth. Equity is the major component of financial wealth. In view of the effect of money policy on asset prices, consumers tend to adjust consumers' portfolio composition in accordance with the risk of each asset class (Mishkin, as cited by Chileshe, 2014). In this regard, lower interest rates as a result of expansionary monetary policy encourages people to reduce their holding of interest bearing assets such as deposits and bonds and substitute them with equity, which later increases stock prices (Afandi, 2005). Stock been the major component of financial wealth, an increase in stock prices increases their wealth resulting in higher consumption expenditure and hence output.

2.3.6 The Expectations Channel

Economists generally agree that expectations are important in influencing economic activity. However, divergent view exist on how these expectations are generated with Friedman (1963) and other monetarists postulating an adaptive expectations while the new classical school lead by Lucas and the New Keynesian School argue for rational expectations (Chileshe,2014). The underlying principle regarding expectation channel is that since economic agents are forward looking and rational, the expectation channel is in effect fundamental to the working of all channels of monetary policy transmission.

2.4.1 Review of Empirical studies

The effects of monetary policy on stock market performance has long been of interest to both policy makers and also the markets participants because of the prevailing assertion that monetary Authority has the capacity to control macro-economic variables which in turn alleviate systematic risk. In view of the indispensable role stock markets plays in capital mobilization and reallocation towards the enhancement of economic growth (engine of economic growth), many researchers have attempted to established if monetary policy transmission tools has an effect on stock market performance.In addressing the problems of the stock market performance from the monetary perspective, researchers have placed emphasis on how monetary policy affects the stability of the Stock market (Abel and Emmanuel, 2019) which later spell over to the real economy. Ideally, the principle behind these studies is that stability of the stock market is a perfect reflection of economic stability and thus a relatively stable market can be deemed to be developed. Emphasis on this approach is consistent with the assertion advanced by Hojat et al (2017) who postulate that changes induced by Central banks do not have an immediate effect on the economy. It first affects the investors' expectations and equity prices and then affects the macro variables in the economy.

On the other hand, other researchers have approached it from the perspective of how monetary policy affects stock returns or stock prices. It is believed that stock prices/indices are the mostly closely monitored indicators by main economic agents because of their sensitivity to unexpected

new macroeconomic information (Ioannidis and Kontonnika, 2006). This sensitivity can cause price volatility and eventually lead to stock market bubbles which can be damaging for the economy (Samate, 2016).

In an informational efficient capital market, stock prices should fully reflect all available information making it impossible for market participants to beat the market (Fama, 1965). Therefore, stock prices incorporate economic information which provide as a signal of investor's perceived risks and also present and future economic conditions (Bernanke and Kuttner, 2003). In view of the prevailing literature, Markowitz and Sharpe postulated that a risk averse investors should construct a portfolio in such a way as to maximise returns based on perceived equity risk premium incorporated on stock prices. If stock prices are perceived to be mispriced (over/under pricing), it implies that equity risk premium is perceived to be either too low or too high. In other words, investors' perceive equity risk premium incorporated in prices could not be consistent with available economic information and risk appetite of the investor. In such a cases, an investor can beat the market. In view of the foregoing, it is asserted by many scholars that monetary policy pays a significant role in determination of equity risk premium and in turn expected rate of return which in turn affect equity price valuation.

These research have been done from both developed and emerging stock markets. From the available literature, there seem to be consensus in findings from the perspective of developed/advanced capital markets however, mixed and inconsistent results are evident from the perspective of emerging markets. It is argued that mixed and Inconsistent in research results in the case of emerging and frontier capital markets could be partially attributed by different economic structures and Institutional features of countries, non-availability of quality data, inefficient capital market (especially from emerging and frontier stock markets) (Sellin 2001,Nemaorani, 2001, Hojat et al 2017 and Mishkin 2001). Furthermore, Sourial (2002) argues that the response of a stock market to monetary policy also depends on the degree of development of the financial system and the equity culture therefore rendering much literature especially in developed capital market not applicable in the context of emerging/frontier markets (Zambia Inclusive). Analytic review of literature from both developed/advanced markets and emerging/frontier markets are analysed below. It is worth noting that classification of studies

done in different countries as either developed or advanced markets or secondary emerging or frontier markets on the subject matter was guided by FTSE (2018).

2.4.2 Empirical Studies in Developed and Advanced Stock Markets

A study done by Ioannidis a and Kontonikas (2008) on the impact of monetary policy on stock returns in thirteen (13) OECD countries (United States, United Kingdom, Japan, Germany, France, Italy and Canada and other European economies: Sweden, Finland, Switzerland, Belgium, Netherlands, Spain) over the period 30 years revealed that monetary policy shifts significantly affect stock returns. The results showed that restrictive monetary policy of 80% of countries investigated are associated with contemporaneous declines in stock market value. The variables under investigation included Interest rate variables (short-term Treasury bill rate and a dummy variable reflecting discount rate changes. Therefore, Interest rate measure of monetary policy contains significant information that can be used to forecast expected stock returns. Furthermore, consideration of effect monetary policy tools in stock price volatility helps market participant in price determination and portfolio formation. And also helps monetary policy markets to determine whether monetary policy actions are transmitted through financial markets. Another study done by Norfeldt (2014) investigated the interaction between returns on the US stock market (Standard & Poor's 500 and Dow Jones Industrial Average), US monetary policy and the Investor Sentiment for from 2000 to 2014 using a structural vector autoregressive (VAR) methodology and Policy rate, growth rate of Money Supply (M2).The result showed that there is a statistically significant relationship between an expected change in the fed fund target rate and stock market price returns.

Bernanke and Gertler (1989, 2001) applied Markov Switching Model to investigate the asymmetric response of stock market returns and volatility to monetary policy (policy rate) in bull and bear markets in Turkey over the period of 2002:1- 2016:12 by usage of policy rate as monetary. The empirical results indicated that monetary is more effective in bull market period than bear period. Monetary policy rates positively influence stock market volatility in bull and bear market. However, stock market returns are not affected by changes in monetary policy in both markets. The finding is consistent with the similar study done by Chen (2007) on whether

monetary policy had asymmetric effects on stock returns using revised Markov-switching models developed by Hamilton (1989) and monthly returns on the Standard and Poor's 500 price index. However, unlike Bernanke and Gertler who used Policy rate as independent variables, Shen (2005) used money aggregates (M2), discount rates (DR), Federal funds rates (FF), and VAR-based measures of monetary policy. The results also revealed that monetary policy has larger effects on stock returns in bear markets periods than the effects during bull-market periods. However, a restrictive monetary policy leads to higher chances of switching to the bear-market regime. Restrictive monetary policy shock may lower the probability of staying in the bull market regime and increase chance of staying in the bear-market regime. He suggested that tightening monetary policy depresses stock returns by lowering the returns directly and making the returns more likely to shift to low-return regimes (bear markets). A similar study done by Cheng Jiang (2018) on the asymmetric effects of monetary policy on the U.S. stock market across different monetary policy regimes and stock market phases using Markov-switching dynamic factor model similarly revealed that changes in monetary policy regimes and stock market conditions shape the time-varying relationship between monetary policy and stock returns. Changes in monetary aggregates as a result of monetary policy tools have fewer impacts in bear markets than bull markets. However, changes in the federal funds rate can be more influential in bear markets. This implies that increases in monetary aggregates or reductions in the federal funds rate have positive contemporary impacts on stocks only during the periods in which they are used as the monetary policy target particularly by the Federal Reserve.

Similarly a study done in ASEAN5 countries (Malaysia, Indonesia, Singapore, the Philippines and Thailand) by Zare et al (2013) from 1991-2011 on the asymmetric response of stock market volatility to monetary policy over bull and bear market by employing the well-tested pooled mean group (PMG) technique and Markov-switching models , results showed that a contractionary monetary policy (interest rate increases) has a significant long-run effect on stock market volatility in bear markets than bulls consistent with the prediction of finance constraints models. Another study done Ullah et al (2017) examine the significance of macroeconomic variables (interest rate, money supply, exchange rate and Inflation rate) in effecting stock market performance of SAARC countries using the OLS multiple regression Model from 2005 to 2015 (annual data).The findings of the study showed that macroeconomic variables i.e. exchange rate

and interest rate are all statistically significant and positive relation in affecting stock market performance of SAARC countries whilst money supply reviewed a weak negative but significant relationship in affecting stock market performance. Therefore, it was concluded that macroeconomic variables do in fact significantly affect stock market performance, except for inflation and money supply which had a negative relation to market performance but do not significantly effect it.

A study done by Hilde and Kai (2005), argues that there is great interdependence between interest rate setting and stock prices. The study finding reviewed that stock prices immediately fall by 1.5 percent due to a monetary policy shock that raises the federal funds rate by ten basis points. An increase in stock prices as a result of stock price shocks by one percent leads to an increase in the interest rate of five basis points. Stock price shocks are orthogonal to the information set in the VAR model and can be interpreted as non-fundamental shocks. It is argued that asset prices provide information that about the state of the economy, therefore monetary policy makers should either set asset prices per se, i.e., stabilization of asset prices as a separate objective or to some extent use asset-price information as indicators of the monetary-policy stance, i.e., Central bank should respond with the monetary policy instrument to asset price movements.

The premise of the argument is based on the fact that there are at least two reasons why stock price information may influence the monetary policy stance. The first is that stock prices may be leading indicators of the target variables. Stock prices may influence consumption through wealth effects and influence investments through the Tobin Q effect (Tobin, 1969) and, moreover, increase a firm's ability to fund operations (credit channel). If stock prices fall, the expected attainable stream of future consumption services is reduced and consumers will cut back on current consumption expenditure. Additionally, the market price of capital is reduced compared to its replacement cost, thus reducing the investment incentives. Furthermore, a fall in asset prices is likely to reduce the value of collaterals, which makes it more difficult for borrowers to obtain credit, thereby restricting aggregate demand (see Bernanke, Gertler and Gilchrist, 2000, and Bernanke and Gertler, 1989). Furthermore, reduction in aggregate/equity demand may mean a weakening of cash flows, which in turn reduces spending. This is the

financial accelerator effect as described in (Bernanke, Gertler and Gilchrist, 1996).Besides; reduced spending as result of contraction in aggregate demand may lead to a fall in asset prices.

Another reason for using asset price information is that it provides details about the expected development of the determinants of the targeting variables. According to the traditional theory, going back to Gordon (1962), asset prices are forward-looking variables reflecting the expected future return to the asset which is once more determined by fundamental variables. If the policymaker is at an informational disadvantage versus the private sector or the fundamentals are not fully observable to the policymaker, asset prices may be helpful as performance indicator variables as they reflect private sector expectations about the state of the economy. In this vain, asset prices may help obtain information about the state of the economy. However, the problem is complicated by the fact that the information content (stock prices) of forward-looking asset prices is dependent on the particular policy under implementation. In this vain, the information and the leading indicator properties of asset prices would therefore be expected to be responsive with the systematic part of monetary policy. It can be argued on the contrary that asset prices do not only reflect the fundamentals, but also frequently include bubble components. Given the inefficiency of such bubble components and the assumption that monetary policy may reduce their size. The non-fundamental view implies that there is a role for the central bank contributing to stabilizing the asset prices around the efficient price level (Cecchetti et al., 2000).

2.4.3 Empirical Studies in Secondary Emerging and Frontier Stock Markets

The work done by Suhaibu, Harvey and Amidu (2017) on monetary policy and stock market performance from African perspective (Ghana, South Africa, Namibia, Nigeria, Morocco, Mauritius; Kenya, Egypt, Botswana, Ivory coast, Zambia and Zimbabwe) from 1979 to 2013 using five data points namely; S&P global equity indices, inflation rate, money and quasi growth (M2), real interest rate and GDP growth in a panel VAR model. The results of the study revealed that stock markets of the 12 African countries are positively affected contemporaneously by their respective monetary policies through the interest rate channel, however could not find evidence of the endogeneity correlation. However, using an estimated impulse function it was established that both money supply and real interest rate decline in response to positive and negative stock market shocks respectively, whiles inflation responds positively to an inverse stock market

shock. When the forecast error variance decompositions was used it was discovered that between the two monetary policy stance considered (money supply and real interest rate), real interest rate has the greatest influence on the stock market and inflation. On the contrary, the stock market turns to exert greater influence on real interest rate than it does on money supply. Therefore, this indicates a bidirectional relationship between monetary policy and the stock market. A similar study done by Mangani (2012) in the context of Malawi using Granger-Causality and block erogeneity test from 1994 to 2009 and independent variable; bank rate, reserve money, broad money and exchange rate showed that although lending rate had influence on the money supply, the bank rate, money supply, reserve money had no effect on prices except for exchange rate which had a significant influence. The findings entailed that Keynesian theory and Classical view of policy transmission-Quantity theory of Money (Friedman Schwartz, 1963) has no effect in Malawi. Although results was not consistent with finding in existing literature in developed countries, it can be deduced that in the case of finding for exchange rate having significant effect in prices is consistent with other similar studies done in Kenya by Rotich et al., 2007, Ghana - Ocran, 2007 and Nigeria-Olubusoye and Oyaromade, as cited by Mangani, 2012) and Malawi-Ngalawa (2009; 2011).

A study done by Echekoba, Ananwude and Lateef (2018) on empirical effect of monetary policy tools on performance of the Nigerian capital market showed that the monetary policy tools and capital market performance in Nigeria are not co-integrated. The study also noticed that Nigerian capital market performance is not significantly affected by monetary policy announcement by the Central Bank of Nigeria. However, it is monetary policy rate that is significantly influenced by performance of the capital market. The study employed Autoregressive Distributive Lag (ARDL) in estimating the model and for co-integration assessment, while granger causality analysis helped in ascertaining the effect of monetary policy tools on capital market performance. The study employed monetary policy rate , cash reserve ratio, liquidity ratio and loan to deposit ratio as variables under study to investigate. It can be argued as noted by Echekoba et al (2018) that in view of the prior studies done from the African Context the real effect of monetary policy tools on capital market performance is still not clear both from theoretical and empirical background especially in emerging and frontier Stock markets. Furthermore, Nemaorani (2012) also noted noticed inconsistence in the results from

prior studies. He later investigated impact of monetary policy (interest rate) on stock prices from Botswana context from 2001- to 2011 and discovered that shifts in monetary policy leads to a change in stock returns. The results illustrated that coefficient of the real 91 day BoBC rate is significant and positive which suggested a positive relationship between monetary policy and stock prices in Botswana existed. The findings are consistent to the study done by Galebotswe and Tihalegang in Botswana from 1993-2010 using Vector Auto regressions (VAR) technique. Similarly Rafit (2015) also found that there is no significant relationship between monetary policy instruments and stock market for in Bangladesh by employing Vector Error Correction model.

Furthermore, a study done in the context of Mauritius by Gowriah; Seetanah, John; Seetah Keshav (2014) established that a significant long run relationships exist between the monetary variables: money supply, interest rate and inflation with stock price. However, only a short run significant relationship was obtained between money supply and stock price. Recent study done in the context of Nigeria done by Ebel (2018) revealed prime lending rate has had a negative impact on the development of the stock market in Nigeria.

Prahalathan and Fernando (2017) studied the relationship between macroeconomic variables and stock prices in Sri Lanka stock market by employing secondary data (predicator and criterion variables) for years from 2007 to 2016 as monthly vice. The impact of macroeconomic variables on stock prices in Sri Lanka stock market was examined through descriptive statistics such as mean, standard deviation and coefficient of variance, and inferential statistics such as correlations and regression models by using E-views time series analysis. The regressed results showed that Interest rate and Exchange rate have insignificantly negative relationship with stock prices while money Supply showed significantly negative relationship with stock prices.

Another study done by Ekong and Onye (2016) which examined stock market performance (measured by Market Turnover, Market Liquidity and All-Shares Index) and dynamic reactions to monetary policy shocks in Nigeria by use of structural Vector Autoregressive (SVAR) regression technique results showed that monetary policy (money supply and interest rate) shocks are not altogether neutral to the performance of the Nigerian stock market. The quantity-

based nominal anchor (M2) proved to be more effective than the price-based policy variable (MPR) in enhancing the overall performance of the Nigerian stock market. Therefore, it was recommended that Nigeria central bank should implement contractionary monetary policy when stock prices become persistently bullish because stock prices were found to respond quickly and positively to shock in real GDP, boasting real economic activities becomes a fundamental prelude for stabilizing the stock market in Nigeria.

2.4.4 Empirical Studies in Zambia

A study done in Zambian context by Sichoongwe (2016) where the effects of exchange rate volatility on the stock market were examined from 2000-2015 by employing Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models, the results showed that they exist an inverse relationship between exchange rate volatility and stock market returns. This implied that global economic conditions affect the stock market in Zambia. Thus the exchange rate volatility has a serious implication on the Zambian stock market thereby creating uncertainty in investors as to whether to invest or not in the market.it is recommended that policy makers should timely intervene on abnormal exchange rate volatility so as boost investor confidence and also there is need for increased use of efficient hedging instruments by firms on the stock markets thus eliminating negative effects. Further recommendations are that exchange rate movement should be stabilized (stock market return reduces due to exchange rate depreciation) and be used as a policy tool to attract foreign portfolio investment by relevant policy-makers.

Samate (2016) investigated the extent to which the Lusaka Security Exchange reacts to monetary policy actions by examining the response of all companies listed on the stock exchange to policy rate announcements by employing policy rate as predicator variable and market stock returns as criterion variables. Event study methodology was used in this study to analyse data from January 2011 to June 2016. The results reviewed that the policy rate announcement has an insignificant negative impact on stock prices in the event of a policy rate increase and an insignificant positive impact on stock prices when the policy rate is maintained.

Other studies done in context of Zambia are more inclined to Informational efficiency of Lusaka Security Exchange and effectiveness of monetary policy in influencing macroeconomic variables. A study done by Zgambo and Chileshe (2014) investigated the effectiveness of monetary policy in Zambia by focusing on the money demand function and the monetary transmission mechanisms (MTMs). Haabazoka and Nanchengwa (2016) investigated the relationship between the policy rate and the rate of inflation in the country while Fackson (2011) studied informational efficiency of the Lusaka Security Exchange regression model developed by Granger (1969) using monthly and quarterly secondary time series data from BOZ on money supply and stock price index from LuSE for the period from January 1999 to December 2009.

2.5 Critics of Existing Literature

In spite of the existence of wealth literature aimed at establishing effect of monetary policy on stock market performance much literature is inclined to developed capital markets than /frontier markets especially in Zambia context. Furthermore, much of the literature in the context of emerging markets have shown complicated, inconsistent and mixed results. Nemaorani (2012) and Sellin (2001) stressed that the strengthen of the association between monetary policy and stock market performance partially depends on structural and institutional features of countries economy therefore rendering much literature in developed markets not applicable in Zambian context. Mishkin (2001) postulate that the reason for inconsistent in study results in the context of emerging markets is partially attributed by non-availability of quality data, inefficient capital market in the context of emerging markets. Besides, much of the changes that took place during financial recession of 2008 were not incorporated by many researcher. In view of this analysis, there is a gap in literature in the context of emerging markets especially Zambia unlike developed markets. This study strive to fill the gaps existing in literature in the context of emerging markets so that policy markets would be assisted in decision making.

CHAPTER THREE: THEORETICAL AND CONCEPTURAL FRAMWORK

3.1 Introduction

This chapter discusses theoretical background and conceptual framework to be adopted in this study. It would also provide justifications on why their inclusion in a research and it also thoroughly explain the meanings of the two frameworks, their distinctive roles that they play in the research process, their differences, how they are constructed and where they must be presented in a dissertation research write-up. Researchers and students must tactfully incorporate theoretical and/or conceptual framework in their research inquires to increase their robustness in all its aspects.The theoretical and conceptual frameworks explain the path of a research and grounds it firmly in theoretical constructs.

From review of existing literature, it was observed that there exists a number of models that can used to explain the relationship between monetary policy and stock market price return. This study was based three models i.e Capital Asset Pricing Model, Gordon Growth Model, Modern Portfolio theory. It is worth noting that equity risk premium is discussed separately in this study it is theory that embedded in capital Asset pricing model and modern portfolio theory. Efficient market hypotheses provide theoretical foundation how stock prices incorporate macroeconomic information

The main aim of these theoretical frameworks is to make research results more meaningful, acceptable to the theoretical constructs in the research field and ensures generalizability Imenda (2014).It is the blueprint for a research (Grant and Osanloo, 2014).

3.2.1 Equity Risk Premium (ERP)

According to Damodaran (2019) equity risk premium is the price of risk in equity markets, and it is a key input in estimating costs of equity and capital in both corporate finance and valuation. In other word, the equity risk premium is the premium that investors requires for the average risk investment, and by extension, the discount that they apply to expect cash flows with average risk

.He cited that the main determinants for equity risk premium includes; investor risk aversion and consumption preference, information uncertainty and perceptions of macroeconomic risk. Prior studies by Bernanke and Kuttner (2003); Hojat el at (2015); Nemaorani (2012) ; Mishkin (2001) among others concludes that Monetary policy pays a significant roles in determination of equity risk premium and in turn expected rate of return which in turn affect equity price valuation. There is consensus in literature and available models that Equity risk premium plays a significant role in every valuation and portfolio management as it helps portfolio managers, Financial Analysis and evaluate the risk built in the equity prices and attach a price to attach to the prevailing risk. However, there are diversion views on the determination of the risk in different models such as Arbitrage Pricing model, Multi-Factor Model and Proxy Models. For example, in the capital asset pricing model (CAPM), the market risk is measured with a beta, which when multiplied by the equity risk premium yields the total risk premium for a risky asset. In the competing models such as the arbitrage pricing as well as multi-factor models, betas are estimated against individual market risk factors, and each factor has its own price (risk premium).

Damodaran (2019) argues that equity risk premium helps to determination the classes of asset a manager should invest in either equity or bonds. It is argued that an efficient market is one where the correct equity risk premium is built in the market prices. Otherwise, the investors or portfolio managers will perceive to be underpriced or over-priced or asset bubbles.it is believed that if investors perceive market prices for equity to be overpriced, in other words the equity price premium built in the equity price is perceived to be too low relative to what they should be (based on the risk in equities and investor risk aversion) hence that investor would rather invest in say bonds where the equity risk premium is high. On the other hand, investors who believe that stocks

are collectively underpriced are advancing an assertion that the equity risk premium in the market today is much higher than what you should be making (again based on the risk in equities and investor risk aversion).Alternatively, if you determine that the risk premiums in financial assets (stocks and bonds) are too low, relative to what you can earn in real estate or other real assets, investors may tends to redirect more of your portfolio into the latter. Therefore,

Damodaran concludes asset allocation decisions that investors make are explicitly or implicitly affected by investor views on risk premiums and how they vary across asset classes and geographically.

Bernanke and Gertler (2003) advanced studies to understand the relation between monetary policy innovations and asset price volatility. He asserts that not only does monetary policy innovations affects asset price volatility but monetary policy innovations are affected by prices bubbles. Because prices as prices contains information about economic state of the economy form private sector) not captured in the monetary policy. This is consistent with the proposition of Damodaran (2019) who assert that equity risk premium reflects fundamental judgments we make about how much risk we see in an economy/market and what price we attach to that risk. Consequently, it affects the expected return on all risky investment and the value that we estimate for that investment. Furthermore, how allocate wealth across different asset classes and which specific assets or securities we invest in within each asset class matters.

In view of the foregoing, Bernanke and Gertler (2001) advances a proposition that monetary policy makers should pay attention to market price volatility and adjust monetary policy tools to correct mispricing or bubbles in the market. This concept is what is known as Leaning toward the Wind.

3.2.2 Modern Portfolio Theory

Markowitz is said to be the pioneer of modern portfolio theory (MPT) and later won Nobel Prize in economics in 1990.The concept advanced by Markowitz is based on asset selection in portfolio formation based on risk-return relationship or rather perceived equity risk equity premium. Markowitz's model addresses a diversified portfolio of assets for each investor rather than investment in a single asset. He argues that the investors should not only consider the risk and return in a single asset investment but should consider how the investments impact on the overall portfolio risk and return. Therefore, he argues that it is possible to construct a portfolio by selecting assets that maximizes the overall return of the portfolio at a given level of risk based on

the statistical measure of covariance and correlation. He explained the risk-return relationship on the basis of a portfolio of risky asset (Echekoba et al, 2018).

In view of this, he constructed an Efficient Frontier a mathematic model rather a matrix of covariance/variance of returns of all risky assets. An efficient portfolio frontier is a plotted curve of maximum return for each efficient portfolio. In other words, the efficient frontier shows the relationship between the level of risk and return in each portfolio. Markowitz computed the risk that was inherent in each portfolio with a mathematical formulation, suggesting that for any specific investor with a certain level of risk, there is a portfolio of assets that maximizes the rate of return, which he called "efficient portfolios" (Berger as cited in Hojat,2017). The model attempts to construct a portfolio that maximizes return at a given risk. Therefore, Markowitz explained that there are different portfolio for a given risk tolerance levels therefore any portfolio that lie below the efficient frontier are sub-optimal because they do not provide enough return for the level of risk.

3.2.3 Capital Asset Pricing Model

Capital Asset model is the main model in this research. The capital asset pricing model (CAPM) is a Portfolio investment Theory introduced by Harry Markowitz in 1952 inspired his student William Sharpe to publish Capital Asset Pricing Model (CAPM) whose underlying principal is establish a relationship between risk and return and describe the pricing of assets and derivatives. The model incorporate the concept of equity risk which is determining factor for valuation of stock prices or portfolio management and investor's decision based on perceived risk.

According to Harry Markowitz the underlying principal of CAPM is that investors are compensated in two ways: the time value of money and risk. The time value of money, represented by risk-free rate (R.f), compensates the investors for the investment during a certain period of time. Risk measure is represented by Beta (β). A beta of one means the stock moves with the market, while a beta between zero and one moves with the market but to a lesser degree (a conservative investment); an aggressive stock then has a greater than one Beta; a negative beta means thereafter a stock moves in the opposite direction as the market. It can be calculated by

covariance of a market's return and a certain stock's return divided by variance of this market's return (cited by Wang, 2010). CAPM believes if the expected return does not meet the required return, one should not make such an investment. According to the CAPM as adopted by Hojat (2017), the required return for investors is divided into two parts, the nominal risk-free rate and the risk premium (RP). It is said that nominal free risk rate is determined by the market for government treasury bills and depends on the real rate of economic growth, expected inflation rate, investors' time preference and monetary policy parameters. On the other hand risk premium is a required return by investors to compensate for the amount of risk entailed in a specific security. This can be presented mathematically as follows:

$$E(Er) = E(NRFR) + \beta jE(Rm - NRFR)$$

Where;

E (Er) is the expected return on security j, NRFR is the nominal risk free rate, βj is the beta or the systematic risk of security j, and E (Rm) is the expected return on the market. Therefore, constitutes of the equation represents the standard CAPM model. It can be deduced that the systematic risk of a security and investors' required rate of return from the security are linearly related, the higher the systematic risk of a security, the higher the rate of return investors will demand from that security. Secondly, the risk-free rate and market returns stay constant, thereby no other variable is expected to affect expected returns of a security except its own systematic risk. Thirdly, the *y*-intercept of the linear relation between expected returns and systematic risk of any security is the risk-free rate and lastly the beta of the risk-free rate is zero, and the beta of the market portfolio is One, Hojat (as cited by Spyrou and Kassimatis, 2009).

3.2.4 Gordon Growth Model

A model that strive to value stock based of discounted future cash flow (Vt = Σ DIV et+i/(1+R)I. The price of a firm's stock today can be expressed as the present discounted value of expected future dividends (see Brealey and Myers, 1984).Monetary policy should then play an integral role in determining equity returns either by altering the discount rate used by participants or by influencing market participants' expectations of future economic activity (Nwaogwugwu1

,2018). Interest rates affect stock prices in two ways. Firstly, by affecting economic activity thus altering the amount of dividends paid out (Dt+j) and secondly through affecting the investors' required rate of return (R) with which the investors discount the future dividends (Nemaorani,2012).

3.2.5 Efficient Markets Hypothesis

Fama (1965) first came up with the concept of market efficiency in his Ph.D. thesis (1965). He analyses the behaviour of stock market prices in the short-term to refute the concept of technical stock analysis, which uses past price patterns of stocks to anticipate future price movements. Ultimately, he comes up with the market efficiency hypothesis, which states that stock prices should reflect all publicly available information. He formally summarised the state of the stock market as weak, semi-strong and strong market. Alongside the efficient market hypothesis, the random walk theory states that stock prices follow an unpredictable pattern and therefore cannot be foreseen through an analysis of past behaviour. This random walk usually occurs around an asset's real or intrinsic value.

3.2.6 Rational Expectation Theory

Markowitz modern portfolio theory asserts that investors that are risk averse can clearly select investments or structure a portfolio in such a way as to maximize earnings based on the prevailing market risk. The theory argues that an investment with high risk yields high return relative to investments with lower risks. The portfolio theory enables managers to classify, estimate and control the sources of investments risk and returns (Ibenta, 2012).

The most important component of Markowitz' model was his description of the effect on portfolio diversification by the number of securities within a portfolio and the covariance relationships (Mangram as cited by Megginson, 1996). The process of constructing a portfolio may be divided into two stages. The first stage begins with observation and experience thereafter ends with the beliefs about the prospect performances of available securities. The second stage

starts with the relevant beliefs about future performances and ends with the choice of portfolio (Markowitz, 1952).The rational expectation theory is based on the notion that investors select assets for portfolio construction in the capital market on the bases of their rational outlook, experiences in the past and availability of private and public information. The theory argues that the future state of the economy in the rational thinking of the people is what influences current expectation in the economy. On the premise of the rational expectation theory, firms' depends on past prices to predict likely prices in future which sharpen their future operational pattern. On the argument that individuals are rational in thinking and rely on past information to make future prediction, changes in monetary policy of the Central Bank could be viewed to have some disequilibrium in the capital market and the economy as a whole (Echekoba1 et al,2018).

3.3 Conceptual Framework

A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001). It is linked with the concepts, empirical research and important theories used in promoting and systemizing the knowledge espoused by the researcher (Peshkin, 1993). In this study, we have narrated variables as dependent and independent variables which will assist me as a foundation for the entire research. As we are assuming that dependent variable is stock market prices index and independent variables are money supply, exchange rates and interest rates. The adoption of criterion variables were informed by the monetary policy transmission variables from reviewed literature and theories that are mostly applied likely to affects stock prices. Which stock prices are closely monitored as stock performance indicators because of their highly sensitivity to arrival of unexpected new information as induced by monetary policy. Dividend/Gordon valuation model, stock prices are affected by macro-economic factors (Interest rate, inflation, money supply or exchange rate) that affect risk premium which is a determinate factor for cost of capital or factors that affects expected future cash flow (by altering investors expectation about future cash flow prospects).

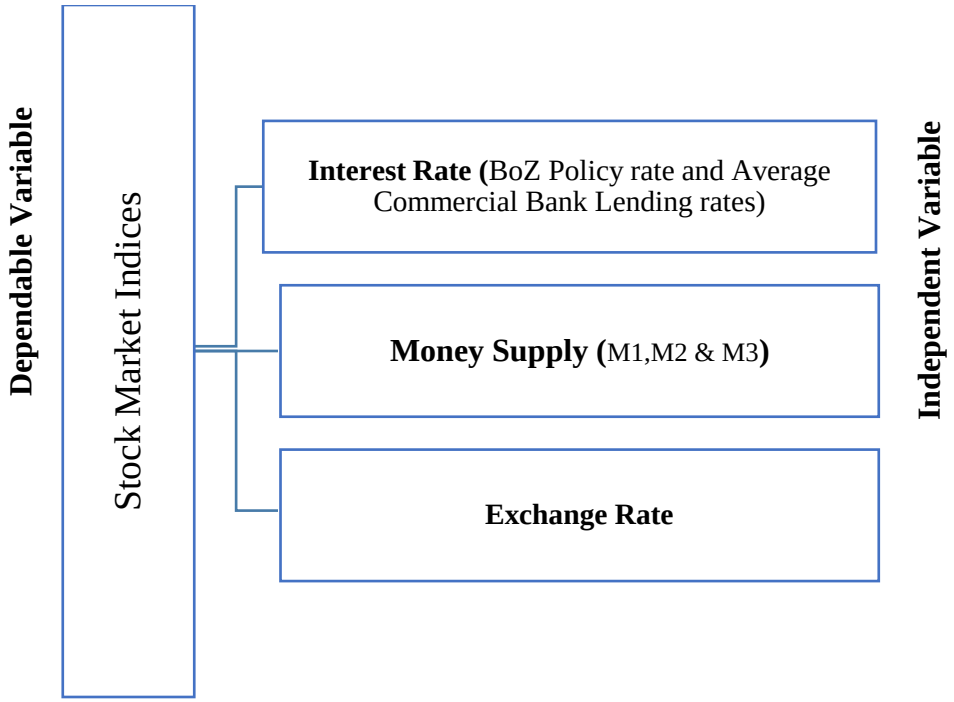


FIGURE 1.4: Conceptual Frameworks

Source: Researcher (2019

3.4.1 Hypothesis

3.4.2 Hypothesis one

i. H_0: Policy induced variation interest rates has no effect on stock market indices at LuSE
ii. H_1: Policy induced variation interest rates has an effect on stock market indices at LuSE

3.4.3 Hypothesis two

i. H_0: Policy induced variation in money supply has no effect on stock market price indices at LuSE.
ii. H_1: policy induced variation in money supply has an effect on stock market price indices at LuSE.

3.4.4 Hypothesis Three

i. H_0: policy induced variation in exchange rate has no effect on stock market price indices at LuSE
ii. H_1: policy induced variation in exchange rate has an effect on stock market price indices at LuSE

CHAPTER FOUR: RESEARCH METHOLOGY

4.1 Introduction.

This chapter describes the methods of research to be applied to objectively establish the effect of monetary policy on stock markets prices. The population of study, research design and research design matrix, data collection and the analysis criteria.

4.2 Research Design

The research is a quantitative which employs an ex-post facto research design to establish the relationships between the dependent variable (stock market index) and the three independent variables (money supply (M1, M2 and M3), interest rate-BoZ base lending rate and Commercial bank lending rates, and exchange rate) using time series data. These independent variables were tested against empirical data to provide an insight nature of the relation that exist in the context of Zambia. The rationale for employing ex post facto design in this study is because the independent variables of the model cannot be experimentally manipulated and, therefore, it would impossible to collect data through experimentation and employ experimental designs (Campbell & Stanley, as cited in Hojat at al 2017).

Research design is "the structuring of investigation aimed at identifying variables and their relationships to one another (Asika 2008). This research adopted a descriptive study so as to describe all elements of the population and also allows estimates of a part of a population that has these attributes.

4.3 Data Collection

In this study data was collected and analysed. The researcher utilized panel secondary data extracted from Bank of Zambia fortnight statistic reports and Lusaka Securities Exchange (year-end statistical reports) for a period of 5 years from the year 2014 to 2018 by use of monthly data. Secondary data is data that has been collected, analysed and made available from sources other

than the researchers (White, 2010). Collecting and analysing of primary data can be expensive and time consuming so the use of secondary data is important**.**

4.4 Data Analysis

The relationship between monetary policy and stock market price returns at LuSE was estimated using SPSS Version 23 software. The software was used to analyse data because it is more user friendly than other econometric packages such as E-views. Data was sorted, classified, corded and then tabulated for easy analysis. The choice of this model (SPSS) was based on its power to take into consideration the different order of integration of financial time series data. Secondary panel data was used in the analysis using both descriptive and inferential statistics. The collected data was then entered in the SPSS and examined using Pearson correlation, Multi-linear regression analysis, descriptive analysis (using mean and standard deviation) and test for normality was undertaken by use of Kolmogorov-Smirnov, and Shapiro-Wilk. In descriptive statistics, the study used the mean and standard deviation. In the inferential statistics, the study used multivariate regression analysis to determine the relationship between the predicator and criterion variables. Secondary data extracted from Bank of Zambia and Lusaka Security Exchange financial annual reports were reviewed for completeness and consistency before statistical analysis. According to Mugenda (1999), data must be cleaned, coded and properly analysed in order to obtain a meaningful report.

4.5 Econometric Framework and Model Specification

Using the collected time series data, the researcher adopted a modified model used by Hojat and Sharifzadeh (2017); Nwaogwugwu (2018); Ioannidis and Kontonikas (2008) and Echekoba1, Ananwude and Lateef (2018) based on the construction of a multiple linear regression analysis so as to establish the extent of the relationship between monetary policy shocks and stock market returns. The study applied the following multi linear regression model;

$$Y = \beta_0 + \beta_1 X_{1a} + \beta_1 X_{1b} + \beta_2 X_{2a} + + \beta_2 X_{2b} + + \beta_2 X_{2c} + \beta_3 X_3 + \varepsilon$$

Where,

β_0= depicts the intercept of the regression equation

β_1, β_2, and β_3= showcase coefficients of the monetary policy variables

Y= A dependent variable entails all share price index which is a gauge for performance of capital market in Zambia (Stock Market Prices measured by LuSE).

X= Independent variables as measured by the BoZ

X_1 = monthly Interest rate (Policy rate denoted as Xa and bank lending rate, Xb) as measured by the Bank of Zambia

X_2 = monthly Money Supply ($X_{2a=}$M1, $X_{2b=}$M2 and $X_{2c=}$M3) as measured by the Bank of Zambia

X_3 = monthly exchange rates as measured by the Bank of Zambia

Money supply is denoted as M1=narrow Money and M2 & M3=Broad Money

ε = error term.

The coefficient of money supply (M1, M2 and M3) is expected to be positively signed because when money supply increases, lowers interest rate and increases the level of economic activities which in turn increases the level of investment in the stock market (Shen (2005) and Ebel et al, 2018) This is consistent with Quantity theory of money as postulated by Friedman (1963). The coefficient of interest rates is expected to be negatively signed because of the inverse relationship between interest rate and stock market activities through investment. The coefficient of exchange rate is expected to be positively signed because depreciation makes import relatively expensive to export hence this encourage greater investment through the stock market.

4.6 Tests of Significance

In order to test the statistical significance, the F-test was employed at 95% confidence level. The F statistic was used to ascertain the statistical significance of regression equation while the statistic was employed to test the statistical significance of study coefficients.

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CHAPTER FIVE: EMPIRICAL DATA ANALYSIS, FINDINGS AND INTERPRETATION

5.1 Introduction

The main aim of this Chapter is centered on the analysis of the collected data from Lusaka Securities Exchanges and Bank of Zambia to help ascertain the effects of monetary policy on stock market prices at Lusaka Security Exchange. Descriptive statistics, regression analysis and correlation analysis would be used and the results of the study are presented in table forms as shown in the next sections.

5.2 Diagnostics Tests

The study looked for the data that would suit and meet the objective of the study. The data was collected from various sources i.e. LuSE monthly data, and BoZ monthly data. Then it was cross examined for errors to test the validity of the data sources. The researcher assumed a 95% confidence interval or 5% percentage significant levels. These values helped to verify the truth or falsity of the data. This was close to 100% confidence interval (and thus, the closer to 0 percent the significance level), the higher the accuracy of data used and analysed is assumed to be. The researcher carried out normality test on the data collected. The null hypothesis for the test was for the secondary data and not normal. If the p-value recorded was more than 0.05, the researcher would reject the null hypothesis. The result of test is as shown in Table 5.1.

5.3 Tests of Normality Analysis

Table 5. 1 Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
SP1-Stock Market Indices	.096	60	.200*	.932	60	.002
M1-Narow Money	.148	60	.002	.882	60	.000
M2-Broad Money	.114	60	.050	.957	60	.036
M3-Broad Money	.127	60	.017	.951	60	.018
Weighted Lending Base rate	.190	60	.000	.859	60	.000
Average Bank Lending Rate	.153	60	.001	.946	60	.010
Exchange Rate	.183	60	.000	.910	60	.000

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Author Findings (2019)

A test of normality was carried out as shown in table 5.1 to check the stationarity of the variables of the model using Kolmogorov-Smirnova and Shapiro-Wilk test .Both models record P-value less than 0.05 which implies that the research data was not normally distributed and therefore the null hypothesis was rejected. The data was not appropriate for the use of conducting parametric tests .However, researcher opted to use parametric test instead on non-parametric test because of the statistic power parametric has in handling complex statistic data ,as such Pearson's correlation, regression analysis of variance was understand.

5.4 Descriptive Analysis

Table 5.2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SP1-1 Stock Market Indices	60	4051.9	6172.0	5,368.69	616.9486
M1-Narow Money	60	11,997,743.8	21,749,030.7	15,237,051.06	2,598,575.80
M2-Broad Money	60	30,146,834.4	57,275,669.5	41,148,210.34	7,287,664.05
M3-Braod Money	60	31,640,880.0	62,997,065.1	44,829,828.78	8,332,506.17
Weighted Lending Base rate	60	9.8	15.5	12.448	2.1311
Average Bank Lending Rate	60	16.4	29.5	23.741	3.7303
Exchange Rate	60	5.3	12.2	9.013	1.9031
Valid N (listwise)	60				

Source: Author Findings (2019)

Descriptive statistics gives a presentation of the minimum, maximum and mean values of variables applied together with their standard deviations in this study. Table 5.2 above shows the descriptive statistics for the variable applied in the study. An analysis of all the variables was obtained by the use of SPSS software for the period of 5 years (2014-2018) on a monthly basis (60 data points). Stock market indices had a mean of 5368.686 with the standard deviation of 616.9486**.** Weighted Lending Base rate had a mean of 12.448 and standard deviation of 2.1311. Average Bank Lending Rate had a mean 23.741 and standard deviation of 3.7303.

Inferential Statistics

5.5 Correlation Analysis

The correlation analysis is carried out to find out the relationship between determinants of the Macro-economic variables and stock price (ASPI). To understand the relationship between these two variables, as indicated earlier, the study is carried out through model

Table 5. 3 : Correlation Analysis

		SP1-1 Stock market Indices	M1	M2	M3	Weighted Lending Base rate	Average Bank Lending Rate	Exchange Rate
SP1-1 Stock Market Indices	Pearson Correlation	1	.284*	.393**	.405**	-.384**	-.859**	-.499**
	Sig. (2-tailed)		.028	.002	.001	.002	.000	.000
	N	60	60	60	60	60	60	60
M1-Narow Money	Pearson Correlation	.284*	1	.915**	.890**	-.572**	.279*	.565**
	Sig. (2-tailed)	.028		.000	.000	.000	.031	.000
	N	60	60	60	60	60	60	60
M2-Broad Money	Pearson Correlation	.393**	.915**	1	.996**	-.322*	.504**	.815**
	Sig. (2-tailed)	.002	.000		.000	.012	.000	.000
	N	60	60	60	60	60	60	60
M3-Broad Money	Pearson Correlation	.405**	.890**	.996**	1	-.269*	.535**	.849**
	Sig. (2-tailed)	.001	.000	.000		.038	.000	.000
	N	60	60	60	60	60	60	60

Weighted Lending Base rate	Pearson Correlation	-.384**	-.572**	-.322*	-.269*	1	.518**	.204
	Sig. (2-tailed)	.002	.000	.012	.038		.000	.118
	N	60	60	60	60	60	60	60
Average Bank Lending Rate	Pearson Correlation	-.859**	.279*	.504**	.535**	.518**	1	.695**
	Sig. (2-tailed)	.000	.031	.000	.000	.000		.000
	N	60	60	60	60	60	60	60
Exchange Rate	Pearson Correlation	-.499**	.565**	.815**	.849**	.204	.695**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.118	.000	
	N	60	60	60	60	60	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author Findings (2019)

Correlation analysis is employed to establish if there exists a relationship between criterion variable(s) and predicator variable(s) which lies between (-) strong negative correlation and (+) perfect positive correlation. For a multiple regression it is expressed as Rab.c = +/-x, where a signifies a criterion variable and b, c are predicator variables. The sign (+ or -), indicates the direction (positive or negative) of the relationship between the variables of interest while the numerical values indicates the strength of the relationship between the variable; this number is expressed as a decimal value that ranges from +1.00 (a perfect positive relationship) to -1.00 (a perfect negative relationship); a correlation coefficient of 0.00 means two variables are unrelated, at least in a linear manner.

This study employs Pearson correlation to analyse the level of association between stock market indices and the independent variables for the study namely money supply(M1-Narrow Money, M2-Broad Money, M3-Broad Money, and Weighted lending base rate, Average Bank lending rate and Exchange rate).

From the correlation analysis as shown in Table 5.3, the study shows existence of a moderate positive correlation between M1-narrow money and stock market (p=.284, p=.028) this implies that the prevailing of M1-narrow money in a country have a positive association with stock market returns and the association is statistically significant as P<0.05. The relationship between M2-broad money and stock market was found to be moderate positive correlation (p=.393, p=.002). This implies that movements in Broad money are negatively correlated to stock market and in a significant manner. Study also shows that there exists a relatively strong positive correlation between M3-broad money and stock market (p=.405, p<.001). This shows that M3-broad money is relatively strong in association with stock market and the association is statistically significant. Equally the study shows that there exists a negative correlation between weighted lending base rate and stock market indices and the association is equally significant (p=-.384, p=0.002). The study also shows that there exists a strong negative correlation between average bank lending rates and stock market indices (p-.859, p<.001) and the association is significant as P<0.05. Similarly there exists a negative correlation between exchange rates and stock market indices (p.-499, p<.001) which shows that the exchange rate has a negative association with stock market indices and the association is statistically significant. Therefore, because the association between independent variables and dependent variables is statistically significant, it can be deduced that the association was is too strong to cause multicollinearity as most of the r-value was above than 0.80. This tells that there is multicollinearity among the independent variables and therefore can be used as determinant of stock market at the LuSE in regression analysis.

5.6 Regression Analysis

Table 5. 4 : Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.905[a]	.820	.799	276.4104	.693

a. Predictors: (Constant), Exchange Rate, Weighted Lending Base rate, Average Bank Lending Rate, M1, M3, M2

b. Dependent Variable: SP1-1 Stock market indices

Source: Author Findings (2019)

Stock market indices was regressed against six predictor variables; exchange rate, weighted lending base rate, Average bank lending rate,M1-Narow money,M2-broad money and M3-broad money. The regression analysis was undertaken at 5% significant levels. The critical value obtained from F-value table was compared with one of the table obtained from regression analysis. The results are shown in the above model summary.

R squared represents the main coefficient determinant in this study which indicates the degree of deviations in criterion variable that could be explained by the changes in the predictor's variables. In view of the results in the above Table 5.5, the value of R square was 0.820 which implies that 82 percentages of the deviations in stock market indices at LuSE are caused by changes in exchange rate, weighted lending base rate, average bank lending rate, M1.M2 and M3. In other word, the value of R-squared 82% indicates that movement is stock market index is explained by the regression model used in this paper. This implies that 18% of the variations in the stock index movement are due to other variables not included in the model. The adjusted R-square value of about 79.9% shows that the model is significant in representing the population under study. Therefore, In view of the results it be deduced that that the model is significant in explaining the stock market price return variations as evident by 0.82 R-squared based on coefficient determinants of the selected predicator variables (when taken in aggregate).

A durbin-watson statistic of .693 which is lies between 0 to 2 indicates that the variable residuals show that there were serially positively correlated since there more than 0.6.

5.7 Analysis of Variance

Table 5. 5 : Analysis of Variance

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18407562.560	6	3067927.093	40.155	.000[b]
	Residual	4049342.977	53	76402.698		
	Total	22456905.537	59			

a. Dependent Variable: SP1-1 Stock market indices

b. Predictors: (Constant), Exchange Rate, Weighted Lending Base rate, Average Bank Lending Rate, M1, M3, M2

Source: Author Findings (2019).

The significant value P-value= .000 as shown the above captioned Table 5.5 which is less than .001 (P<.001). This can be written as F (6, 53) =40.155, P<.001, R Squared=.82. This implies that the overall regression model was statistically significant in predicting how Exchange Rate, Weighted Lending Base rate, Average Bank Lending Rate, M1, M3, M2 at LuSE and change in dependent variables account for 82%.

Given 0.00% (P<.001) level of significant, Table 5.5 above shows computed F-value as 40.155. This confirms that overall multiple regression models is statistically significant, it is suitable prediction model for explaining how the selected independent variable affects stock market at Lusaka Security Exchange (LSE).

5.8 Model Coefficients

Table 5. 6 : Model Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8866.533	772.941		11.471	.000
	M1-Narow Money	.000	.000	.697	2.991	.004
	M2-Broad Money	6.529E-5	.000	.771	.783	.437
	M3-Braod Money	.000	.000	2.064	2.106	.040
	Weighted Lending Base rate	-66.909	57.860	-.231	-1.156	.253
	Average Bank Lending Rate	-195.890	22.980	-1.184	-8.524	.000
	Exchange Rate	-146.794	83.622	-.453	-1.755	.085

a. Dependent Variable: SP1-1 Stock market indices

Source: Author Findings (2019)

The study employed a Durbin Watson multi-linear regression model to estimate coefficient determinants that would help in predicting criterion variables by a unit change of a predicator. In this study the model of specification applied includes;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_{2abc} + \beta_3 X_3 + \varepsilon$

Where,

β_0= depicts the intercept of the regression equation

β_1, β_2, and β_3= showcase coefficients of the monetary policy variables

Y= A dependent variable is entails all share price index which is a gauge for performance of capital market in Zambia (Stock Market Prices measured by LuSE).

X= Independent variables as measured by the BOZ

X_1 = monthly Interest rate (Policy rate-X1a and bank lending rate-X1b) as measured by the Bank of Zambia

X_2 = monthly Money Supply ($X_{2a=}$M1, $X_{2b=}$M2 and $X_{2c=}$M3) as measured by the Bank of Zambia

X_3 = monthly exchange rates as measured by the Bank of Zambia

ε = error term.

Applying the above coefficient determinants of predicator variables in the model specification to estimate the LuSE stock market price returns Regression model equation formulated by the software is as follows;

y=8866.533-66.909x1a-195.890 X1b+0.000X2a+6.529 X2b+0.001X2a-146.794X3+ ε

Coefficients of determinant were used as indicators of the direction of the relationship between predicator variables namely; exchange rate, weighted lending base rate, average bank lending rate, M1, M3, M2 at LuSE. The coefficient determinant 66.909 implies that if monetary Authority adjust Policy rate downward by 1 percent change the stock market price return will decrease by 66.909. Similarly if the lending rate was adjusted downed a unit change as a result of expansion ally monetary policy the stock market returns would increase by 195.890. In light of expansionary monetary policy, a unit change increase in money supply as a result of lower interest will result to increase in stock market price returns by approximately 0.001(M1), 6.529 (M2) and 0.001 (M3) respectively. Similarly a unit change in depreciation of kwacha currency against dollar would decrease stock market return by 146.794 .

Note that P-values as captioned in Table 5.6 were used as an indicator to determine statistical significance of the relationship between the criterion and the predicator variables. Note that at 95% confidence level, p<.05 was interpreted as a measure of statistical significance. Such that the p-value was below 0.05, indicates a statistical insignificant relationship between the independent variables and dependent variables. The regressed results as shown in the Table 5.6 indicates the following; Evidence shows that exchange rate, Policy rates and M2 are statistically significant determinant of stock market price returns as indicated by a p-values that is greater 0.05 (P>.05). Whilst average bank lending rate, M1 and M3, shows p-value of less than .05 implying that these predicators variables are statistically significant in predicting the stock market price returns and accounts for a significant unique amount of variance in causing dependence variance. Since P-values are less than the level of significance 0.05, it could be

deduced that that the independent variables in the model are jointly significant in explaining the movement is stock market indices.

5.8 Test of Hypotheses

5.8.1 Decision rule

The null hypothesis is rejected if the p-value of F-statistic in coefficient regression table is less than 0.05. On the other hand, if the null hypothesis is accepted if the p-value of is greater than 0.05.

Table 5. 7 : Test of Hypothesis

Model (SP1= M1,M2,M3,PL,BLR and ER)		t	Sig	Decision
1	(Constant)-SP1	11.471	.000	Reject Ho
	M1-Narow Money	2.991	.004	Reject Ho
	M2-Broad Money	.783	.437	Fail to reject Ho
	M3-Braod Money	2.106	.040	Reject Ho
	Weighted Lending Base rate (PL)	-1.156	.253	Fail to reject Ho
	Average Bank Lending Rate (BLR)	-8.524	.000	Reject Ho
	Exchange Rate (ER)	-1.755	.085	Fail to reject Ho

5.8.1 Hypothesis one

i. H_0: Policy induced variation in interest rates has no effect on stock market indices at LuSE
ii. H_1: Policy induced variation interest rates has an effect on stock market indices at LuSE

Since the p-value are less that the significant level of 0.05 the hull hypothesis is rejected implying that the policy induced variation in interest rates (average bank lending rate) significantly influence changes in stock market indices. However, the Hull hypothesis is accepted with regard to Bank lending base rate (proxy for Policy rate) as P-values are more than

.05. This implies that the variation in stock market indices could be attributed by chances or other factors.

5.8.2 Hypothesis two

i. H_0: Policy induced variation in money supply has no effect on stock market price indices at LuSE.
ii. H_1: policy induced variation in money supply has an effect on stock market price indices at LuSE.

The Hull hypothesis is rejected as the p-value is less than 0.05 with regard to policy induced variation in Narrow money (M1) and Broad Money (M3). This implies that changes in narrow monies significantly affects stock market price returns. On the other hand, we fail to reject the hull hypothesis as the p-values of broad money (M2) are more than the P-value of 0.05. This implies that variations in stock market returns can be attributed due to chances and not significantly by policy induced variations in broad money (M2).

5.8.3 Hypothesis Three

i. H_0: policy induced variation in exchange rate has no effect on stock market price indices at LuSE
ii. H_1: policy induced variation in exchange rate has an effect on stock market price indices at LuSE

The results signifies that we fail to reject the Hull hypothesis as the p-value is more than 0.05 with regard to policy induced variation in exchange rates. This implies that changes in exchange rate insignificantly affect stock market price returns.

5.9 Discussion of Research Findings

This study investigated the effects of monetary policy on stock market price returns in Zambia at Lusaka Security Exchange Market (LuSE) by employing ex post facto research design. Panel

data was collected for the period form 2014-2018 (monthly data).the study employed predicator variables namely; exchange rate, weighted Lending base rate, average bank lending rate, money supply (M1, M2 and M3) as measured by BoZ sourced from Fortnight Statistic reports. On the other hand stock market indices were the dependent variable and it was measured by LuSE monthly. Pearson correlation was used to analyses the level of association between stock market indices and the independent variables for the study and Multi-linear regression was used as a model using SPSS Version 23.

Theories and literature in many countries advocate that there is a positive relationship between money supply and equity indices returns and an inverse relationship between interest rate and stock market price return. This implies that during expansionary monetary policy, changes in interest rate affects the investors risk and return perception and increases consumption which in turn affects aggregate demand. Investors have a tendency to adjust their portfolio investment based on perceived risk and return. This is consistent with Quantity theory of money as advanced by Milton Friedman, Gordon growth dividend model and Tobin (1969) theory on investment by application of either credit transmission channel, or asset channel or expectation channel.

Objective 1: To establish the nature of the relationship between money supply and stock market price returns at LuSE

The study findings as shown by Pearson correlation analysis indicates that there exist a moderate positive correlation between M1-narrow money and stock market (p=.284, p=.028).Similarly a positive correlation exist between Broad money (M2) and stock market price returns and the association is statistically significant as shown by positive p-values (p=.393, p<.002). The results are consistent with predicator variable M2 and criterion variables as shown by p=.405, p<.001 and association is statistically significant. This implies that there exists a moderate positive association between money supply and stock market indices performances. In other words, restrictive monetary policy would contract aggregate demand and subsequently leading to fall in equity prices indices; inversely expansionary monetary policy would lead to an increase in stock prices as result of increase in aggregate demand and level of investment in stock market. The findings of this study are consistent with Shen (2005) and Ebel et al (2018) who found that there exist positive relations between money supply and stock price returns in Nigeria. The increase in money supply and its resulting decrease in interest rates tend to make stock and equity more

attractive investment relative to other investment vehicles. If other investment vehicles provide investors with a low rate of return through lending, then they tend to allocate more money to investment in stocks. Therefore, this has a tendency of not just to increase the size of the stock market but also its liquidity, thus enhancing its contribution to economic growth and development. Therefore, the findings implies that the exist a relationship between money supply and stock market performance (stock price indices as performance criteria).

Objective 2: To establish the nature of the relationship between Interest rate and stock market price returns at LuSE

On the other hand predicator variables namely weighted lending base rate and average bank lending rates (proxy for prime rate) as provided in Table 5.5 indicates a statistically significant inverse relationship with stock market indices performance as evidenced by P-values which is less than .05 ,p-.859, p<.001 and p.-499, p<.001 respectively. This implies that interest rate provide a statistically significant in predicating changes in stock market price indices. The findings of this research are consistent with studies done by Suhaibu et al (2017) in 12 African countries (Ghana, South Africa, Namibia, Nigeria, Morocco, Mauritius; Kenya, Egypt, Botswana, Ivory Coast, Zambia and Zimbabwe) and Gowriah et al (2014) in Mauritius. The findings entails that there exist a relationship between interest rate and stock market returns at LuSE.

Objective 3: To establish the nature of the relationship between exchange rate on stock market price returns at LuSE

Similarly, the result indicate a statistically significant negative correlation between exchange and stock market indices performance, which is a disincentive to investment in the stock market regarding local firms as locally produced goods (exports) becomes cheap This implies that global economic conditions affect the stock market in Zambia. This implies that a change in exchange rate as a result of monetary policy action affects both aggregate demand and aggregate supply. Expansionary monetary policy through reduction in interest rate makes the kwacha currency against dollar to depreciates as investors tends to divest from the local markets to invest in

foreign markets as real depreciation of local currency makes country's exports becomes cheaper relative to foreign produced products (imports).In other words, depreciation has a tendency of affecting stock market returns on local firms and the opposite is true on the foreign firms. This has a tendency of affecting the competitiveness of local firms against foreign firm which an adverse effect on the economy. From the supply perspective, real depreciation of currency tends to raise the domestic prices of imported goods which in turn increase domestic inflation.

In view of the results as captioned in Table 5.5 , exchange rate has statistically significant inverse ($p=-.499$, $p<.001$) relationship with stock market returns , therefore monetary should regulate the exchange rate volatility has a serious implication on the Zambian stock market as it create uncertainty in investors as to whether to invest or not in the market. Therefore, since exchange rates has an inverse effect on stock markets, it can be used by monetary authorities (via interest rate or direct intervention in foreign exchange market or influencing inflationary expectations) to make predictions about the stock market performance. The findings of this study are consistent with similar studies done in Zambia by Zgambo et al (2014) and Sichoongwe (2016) who found that exchanges rate have an inverse relationship with stock market returns. Therefore, it be deduced that there exist a relationship between exchange rate and stock price returns at Lusaka stock exchange.

The model summary revealed that the independent variable; exchange rate, weighted lending base rate, average bank lending rate, M1, M2, M3 account 82.0% of changes in dependent variable as indicated by the value of $R^{2.}$.The model was found to be fit at 95% levels of confidence interval since the F-values of 40.155 is higher than the critical values. This implies that the overall multiple regression models are statistically significant, in the sense that it suits the prediction model for explaining the stock market indices at LuSE.

In of the foregoing, there exist a relationship between predicator variables selected in this study and stock market performance. Therefore Monetary Authority should demonstrate innovations through adjustment of monetary policy instruments to enhance stock market performance. Central Bank should strive to attain stability in stock prices and attain a stable exchange rate thereby enhance predictability in the market by economic market agents (Investors) in investment decisions and also at macro level enable stock market performance to permeate the real sector.

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter summarises the findings of the previous chapter, conclusion, limitations encountered during the study. This chapter also elucidates some policy recommendations that policy makes can implement to achieve the expected stock market indices at the LuSE. Lastly the chapter will present suggestion for further research which can be useful for future researchers.

6.2 Summary of Findings

The study sets out to examine the effects of monetary policy on stock market prices in Zambia particularly at Lusaka Stock Exchange. Using Expo facto design, it employed predicator variables such as exchange rate, weighted lending base Rate, Average bank lending rate, Narrow money (M1) Broad money (M2) and Broad money (M3).The study adopted a descriptive research design and employed secondary data was extracted from BoZ Fortnight statistic reports and LuSE and correlation and multi-linear regression analysis was done using SPSS software version 23. The study used monthly data covering a period of 5 years from 2014 to 2018.

The finding of this study reviewed a statistically significant positive correlation between money supply by employing a M1, M2 and M3 as a proxy and stock market price indices performance. However, predicator variables namely interest rate and exchange rate demonstrated that statistically significant inverse relationship exist with stock market price returns. According to Model Summary (Table 5.5) and ANOVA Table 5.4 results indicate the predicator variables are co-integrated as they are able to cause multi-linearity in predicating criterion variables (Stock market indices).This is evidenced by R-Squared results (main coefficient determinant predicator) where predicator variables account for 82% in causing changes in stock market indices and is statistically significant as shown by P- Values less than 0.5 ($P<0.001$) in ANOVA Table 5.4. ANOVA results show that the F statistic was statistically significant at 5% levels with a $P=40.155$. This implies that the overall multiple regression models are statistically significant, in the sense that it suits the prediction model for explaining the stock market indices at LuSE.

The regression results shown in model coefficient Table 5.7 indicate that when all the selected independent variables (Exchange rate, weighted lending base Rate, Average bank lending rate, M1-Narow money, M2-Broad money and M3-Broad money) are related to zero, the stock market indices would be 8866.533. With regard to expansionary monetary policy which reduces interest rate, a unit increase in M1-Narow money would lead to an increase in stock market indices by 0.001 while a unit increase in M2-Broad money would lead to an increase in stock market indices by 6.529. Similarly a unit increase in M3-Broad money would lead to an increase in stock market indices by 0.000 (r<.001). Authority adjust Policy rate downward by a unit change, stock market price return will decrease by 66.909. Similarly if the lending rate was adjusted downed 1% as a result of expansion ally monetary policy the stock market returns would increase by 195.890. Exchange rate have an inverse relationship with stock market returns hence a unit increase (depreciation of currency against dollar) would lead to a decrease in stock market indices by 146.794 as export products become relatively cheap. Analysis of model coefficients revealed that only weighted lending base rate is statistically determinants of stock market indices while exchange rate, average bank lending rate, M1-Narow money, M2-Broad money and M3-Broad money was found to be insignificant determiner.

6.3 Conclusions

The study results from Pearson correlation model indicate that there is correlation between predicator variable (money supply, interest rate and exchange rate) and criterion variable (stock market indices). The results show a positive correlation between money supply and stock market price returns and according to regressed results the association is statistically significant in predicating changes in dependent variable. On the other hand there exist an inverse relationship between interest rate and stock market indices and equally the relationship is statistically significant. Similarly, exchange rate exhibits an inverse relationship between stock market price returns. Therefore the study concludes that independent variable selected for the study namely; exchange rate, weighted lending base rate, average bank lending rate, Narrow money (M), Broad money (M2) and Broad money (M3), significantly influence stock market performance in Zambia and account for 82% of the changes in stock market indices. The fact that the six independent variables accounts for 82% in predicating stock market price indices, the overall

model was found to be significant as explained by F-statistics. It is therefore sufficient to conclude that these variables significantly influence stock market performance as shown by the p-value in ANOVA summary. Note that the findings are consistent with the existing theories such as Quantity theory of Money as espoused by Milton Friedman (1987), Gordon growth dividend model by Gordon (1962) and Tobin (1999) theory on investment by application of either credit transmission channel, interest channel or asset channel or expectation channel. Equally available literature done by Subaibu et al (2017) ,Zgambo (2014) ,Sichoongwe (2005) , Shen (2005) , Ebel et al (2018, Gowriah et al (2014) among others reviewed similar results patterns.

6.4 Recommendations

In view of available results from this study, it is evident that monetary policy plays a significant role in influencing stock market performance at Lusaka Stock Exchange. Therefore, Monetary Authority should demonstrate innovations through avoidance of discretionary policies that might hike the rate of interest and also should institute consistent policy plans that aim to support the development of stock market and thus preempting stock market crushes. It is worth noting that restrictive monetary policy would have a negative effect on the stock prices which may eventually affect the overall economy. Therefore, Bank of Zambia should strive to attain stability in stock prices and attain a stable exchange rate thereby enhance predictability in the market by economic market agents (Investors) in investment decisions and also at macro level enable stock market performance to permeate the real sector. This is evidenced by increase in Market Capitalization to GDP ratio and increase employment in employment level. At Micro level investors should take interest to changes in macro-economic information emanating from activity of Central bank in valuation of stock prices and constructing of portfolio investment based on perceived risk and return.

Stock prices and exchange rate volatility creates uncertainty in the minds of existing and prospective investors hence reduces market liquidity and prospect investment opportunities Therefore this study recommends that policy markets to boost investors' confidence evidenced by enhanced market liquidity and participation in stock market by way of creating portfolios . This can be achieved through monetary policy innovations that attempt to create stable stock

prices, inflation and exchange rates. Exchange rate movement should be stabilized (stock market return reduces due to exchange rate depreciation) and be used as a policy tool to attract foreign portfolio investment. Finally, stock exchange Securities authority to take interest in regulating stock market in an attempt to build a robust stock market that is investment friendly. Similarly interest rate should be proactively regulates as it affects micro and macro variables (.e.g. inflations rate, exchange rate, money supply) and has a potential to adversely affect the growth of the economy.

6.5 Limitations of the Study

This study was limited to secondary data analysis from Lusaka Stock Exchange, Bank of Zambia and World Bank .Therefore, the accuracy of the data lies on the Authorities that generated the primary data. Furthermore, the study does not incorporate all (23 listed companies) equities listed on the LuSE but opted to use market Indices that are representative of stock market performance by analyzing only monthly returns from 2014 to 2018.Aditionally, yearly statistics data was readily available from different sources however, monthly data from Bank of Zambia extracted from Fortnight reports was only limited from 2014 to 2018 therefore limiting the study sample size to 60 data points.

6.6 Areas of Further Research

A furthermore study could be done in the context of Zambia to assess to establish the combined effect of monetary policy and fiscal policy on stock market performance. Further, a similar study could be done using extended period more than 5 years and also by applying other economic model such Ganger model or Victor Auto Regression model.

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APPPENDIXS

APPENDIX 1. 1 : Financial Statistical data

MONTH	SP1-1	Narrow Money (M1)	Broad Money (M2)	Broad Money (M3)	Weighted Lending Base rate	Average Bank Lending Rate	Exchange Rate
30/1/2014	5,395.32	13,261,351.10	30,146,834.35	31,640,880.00	9.75	16.44	5.33
2/1/2014	5,297.22	13,542,383.68	30,774,744.80	32,358,850.98	9.88	16.63	5.69
3/1/2014	5,814.49	13,745,806.39	31,853,100.63	33,430,737.22	10.25	16.95	6.09
4/1/2014	5,985.35	13,653,885.25	32,590,890.33	34,384,687.61	12.00	18.71	6.20
5/1/2014	6,027.98	12,626,836.40	32,986,589.87	34,958,230.98	12.00	18.26	6.61
6/1/2014	6,111.15	12,262,149.46	30,297,035.69	32,685,729.21	12.00	18.66	6.31
7/1/2014	6,134.17	11,997,743.78	30,189,826.71	32,504,468.32	12.00	19.04	6.15
8/1/2014	6,135.12	12,683,282.50	31,236,706.39	33,284,795.92	12.00	19.76	6.12
9/1/2014	6,153.56	12,958,194.62	31,334,177.40	33,620,531.96	12.00	19.28	6.15
10/1/2014	6,142.25	12,842,231.77	31,658,017.60	33,833,683.26	12.00	19.76	6.32
11/1/2014	6,158.92	12,809,158.16	31,818,376.75	33,796,800.26	12.50	20.51	6.35
12/1/2014					12.50	20.45	6.34

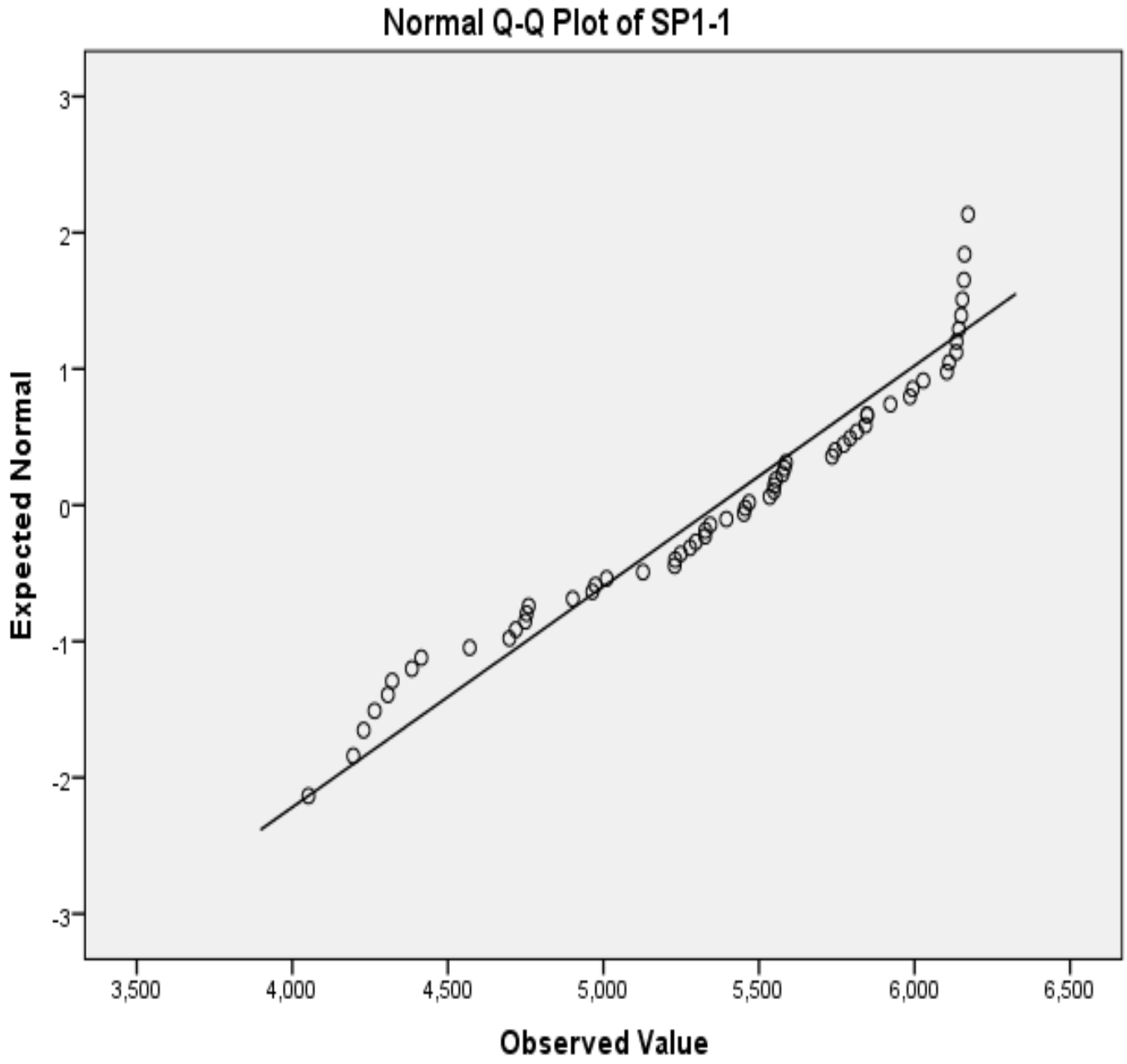
	6,160.66	13,537,055.19	32,880,092.14	34,959,146.92			
1/1/2015	6,172.03	13,563,940.27	33,775,522.48	35,840,524.48	12.50	20.52	6.46
2/1/2015	6,149.86	13,231,452.15	33,851,579.89	35,800,586.24	12.50	20.39	6.75
3/1/2015	6,103.71	12,497,226.19	35,079,605.27	37,475,637.69	12.50	20.41	7.33
4/1/2015	5,922.62	12,616,713.43	33,971,290.11	36,536,140.91	12.50	20.46	7.41
5/1/2015	5,994.04	13,531,344.74	34,997,382.06	37,500,568.14	12.50	20.51	7.26
6/1/2015	5,842.02	12,831,070.62	34,314,724.70	36,862,944.35	12.50	20.40	7.33
7/1/2015	5,847.31	13,432,946.23	34,823,458.83	37,450,282.68	12.50	20.73	7.68
8/1/2015	5,847.31	14,303,142.65	39,221,173.94	42,399,811.85	12.50	20.73	8.09
9/1/2015	5,792.52	13,855,841.64	42,479,614.85	46,565,428.04	12.50	20.78	10.20
10/1/2015	5,772.35	14,960,898.10	45,593,256.20	50,170,371.65	12.50	20.78	12.02
11/1/2015	5,744.56	14,279,589.40	42,572,350.92	46,316,202.03	15.50	23.57	12.18
12/1/2015	5,734.68	14,147,088.05	41,061,299.46	47,262,134.73	15.50	23.82	10.84
1/1/2016	5,553.74	12,876,368.43	39,747,424.76	45,526,184.94	15.50	25.84	11.13
2/1/2016	5,575.15	12,927,740.45	40,155,846.81	45,771,318.47	15.50	26.01	11.33
3/1/2016					15.50	26.47	11.34

	5,534.39	12,750,292.07	40,286,306.99	44,941,102.66			
4/1/2016	5,010.14	13,269,637.70	38,739,778.08	43,844,118.09	15.50	27.54	9.74
5/1/2016	4,964.44	13,300,583.55	41,143,297.50	45,729,357.43	15.50	28.00	10.05
6/1/2016	4,753.24	13,421,283.01	40,623,538.55	44,129,836.03	15.50	28.59	10.70
7/1/2016	4,697.77	14,785,930.53	42,353,208.19	46,378,383.07	15.50	28.98	9.90
8/1/2016	4,384.03	14,774,623.70	39,822,702.25	43,753,247.90	15.50	28.79	10.01
9/1/2016	4,320.71	14,194,350.93	40,454,872.27	44,218,018.92	15.50	28.92	9.98
10/1/2016	4,307.30	14,553,177.61	40,563,827.66	44,239,695.38	15.50	28.68	9.88
11/1/2016	4,264.54	15,560,111.56	42,791,287.65	46,625,433.69	15.50	29.38	9.82
12/1/2016	4,195.95	15,690,411.94	41,118,071.25	44,567,119.02	15.50	29.46	9.85
1/1/2017	4,051.92	14,377,449.44	39,828,419.48	44,402,427.14	15.50	29.24	9.93
2/1/2017	4,229.22	15,299,854.68	41,606,817.10	45,515,406.21	14.00	28.94	9.76
3/1/2017	4,414.49	15,016,212.59	43,125,757.00	46,846,775.56	14.00	28.76	9.60
4/1/2017	4,570.08	15,032,850.74	42,429,034.14	46,578,919.70	14.00	28.19	9.44
5/1/2017	4,718.24	15,454,675.10	43,253,897.91	47,255,646.51	12.50	27.68	9.26
6/1/2017					12.50	26.59	9.25

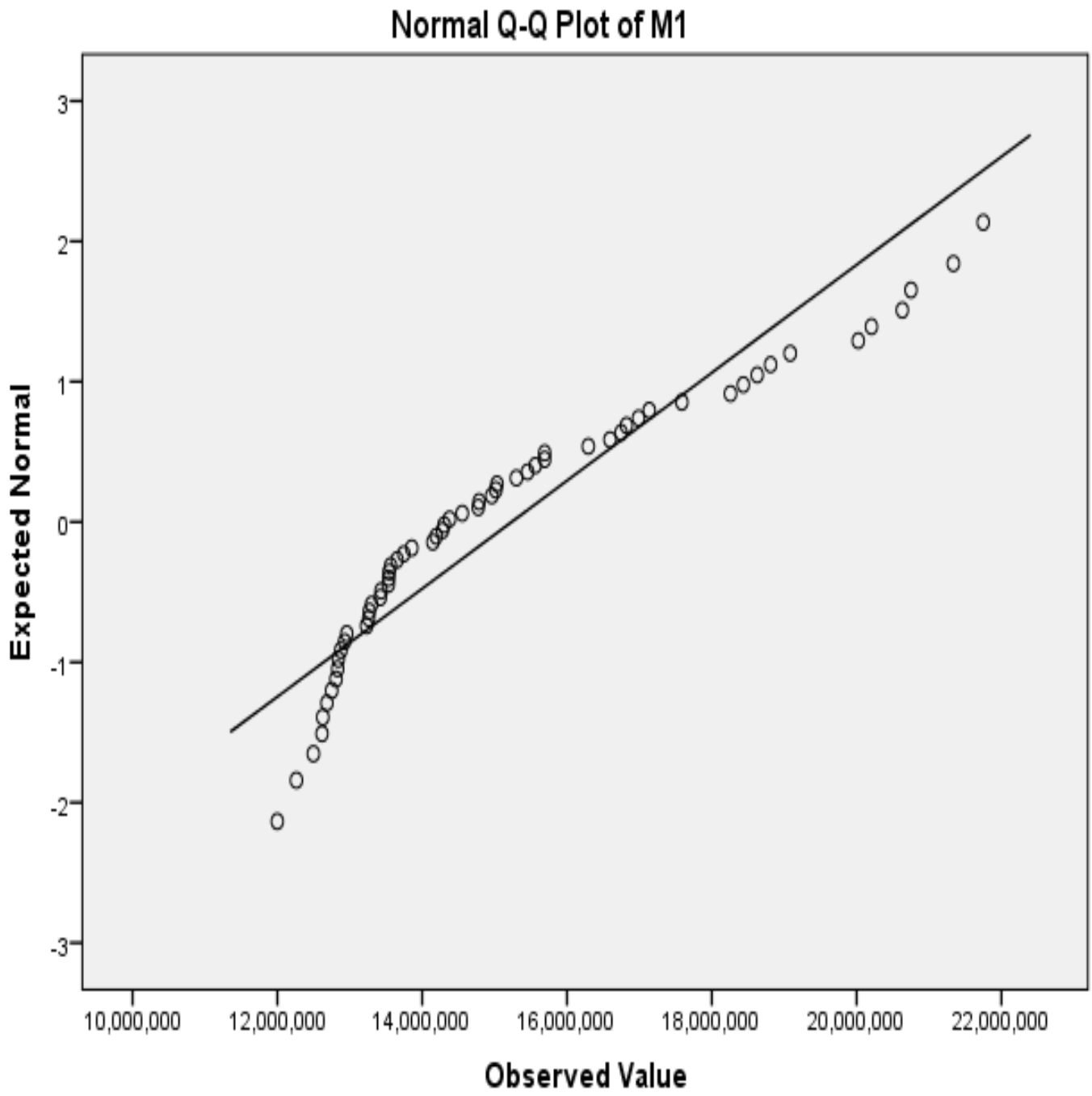
	4,759.65	15,691,029.39	44,171,201.88	47,788,299.39			
7/1/2017	4,748.79	16,294,364.03	43,270,771.46	46,892,348.38	12.50	26.31	8.94
8/1/2017	4,901.14	16,593,889.13	45,565,494.02	49,393,695.47	11.00	26.56	9.02
9/1/2017	4,974.02	16,821,715.18	46,034,845.56	50,083,716.32	11.00	25.41	9.39
10/1/2017	5,127.27	17,586,301.28	46,513,189.99	50,754,788.31	11.00	25.41	9.76
11/1/2017	5,343.25	18,257,878.88	47,044,274.93	51,903,083.30	10.25	25.53	10.04
12/1/2017	5,327.58	19,082,211.15	49,618,194.39	54,084,937.88	10.25	24.57	10.03
1/1/2018	5,326.77	18,627,617.29	48,717,259.08	53,133,055.04	10.25	24.52	9.86
2/1/2018	5,586.64	16,988,431.19	48,565,958.53	53,391,427.38	9.75	24.27	9.79
3/1/2018	5,548.02	16,747,381.30	47,458,474.71	51,470,913.71	9.75	24.11	9.59
4/1/2018	5,582.09	17,135,646.30	48,735,751.06	52,794,891.60	9.75	24.08	9.52
5/1/2018	5,549.25	18,435,003.67	51,441,948.83	55,835,099.92	9.75	23.91	10.02
6/1/2018	5,455.83	18,811,280.05	49,626,624.19	55,252,447.79	9.75	24.13	10.04
7/1/2018	5,451.62	20,022,404.12	50,811,570.68	55,093,392.82	9.75	23.70	9.89
8/1/2018	5,230.77	20,630,939.52	51,419,144.88	55,653,703.28	9.75	23.46	10.10
9/1/2018					9.75	22.98	10.95

	5,468.17	21,336,078.49	56,873,941.80	62,433,343.05			
10/1/2018	5,229.03	20,204,486.99	52,867,392.76	58,043,592.11	9.75	24.38	11.91
11/1/2018	5,278.33	20,750,488.99	55,329,173.27	60,827,760.05	9.75	23.97	11.85
12/1/2018	5,248.39	21,749,030.74	57,275,669.45	62,997,065.12	9.75	23.56	11.91

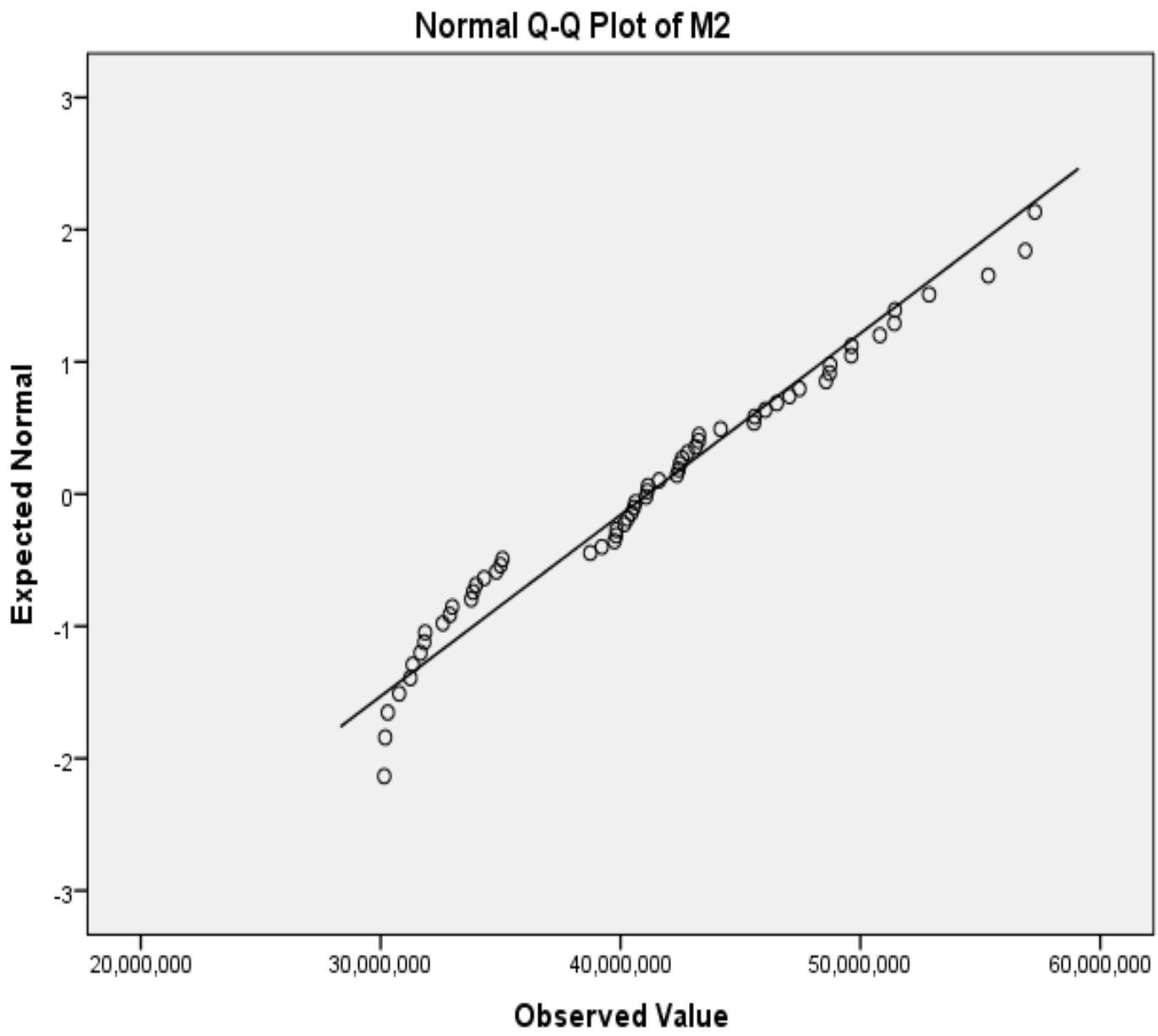
Source: Lusaka Security Exchange end year statistic reports and Bank of Zambia Fortnight statistic report.



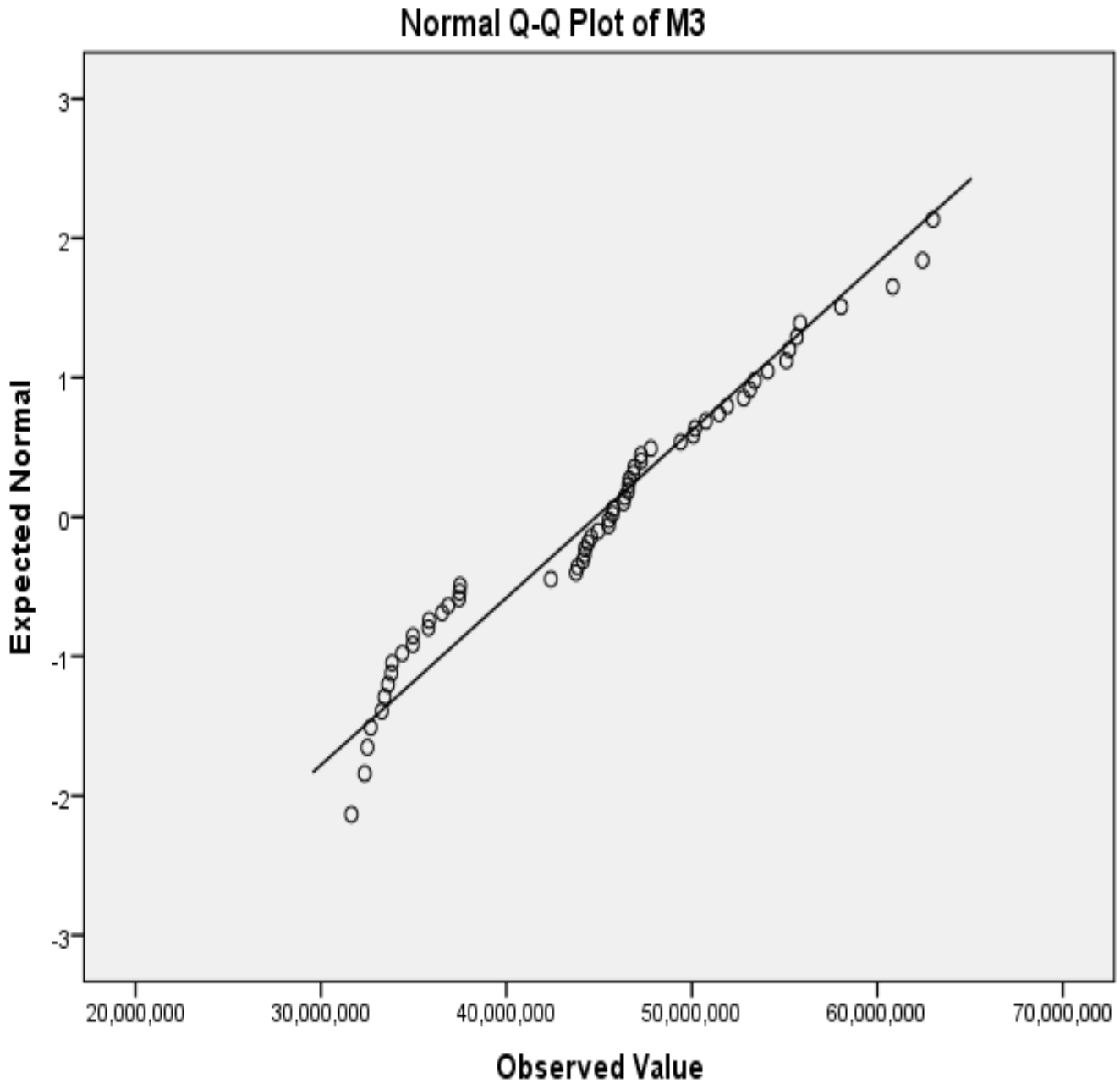
APPENDIX 1. 2 : Normal Q-Q Plot of Stock Price Indices



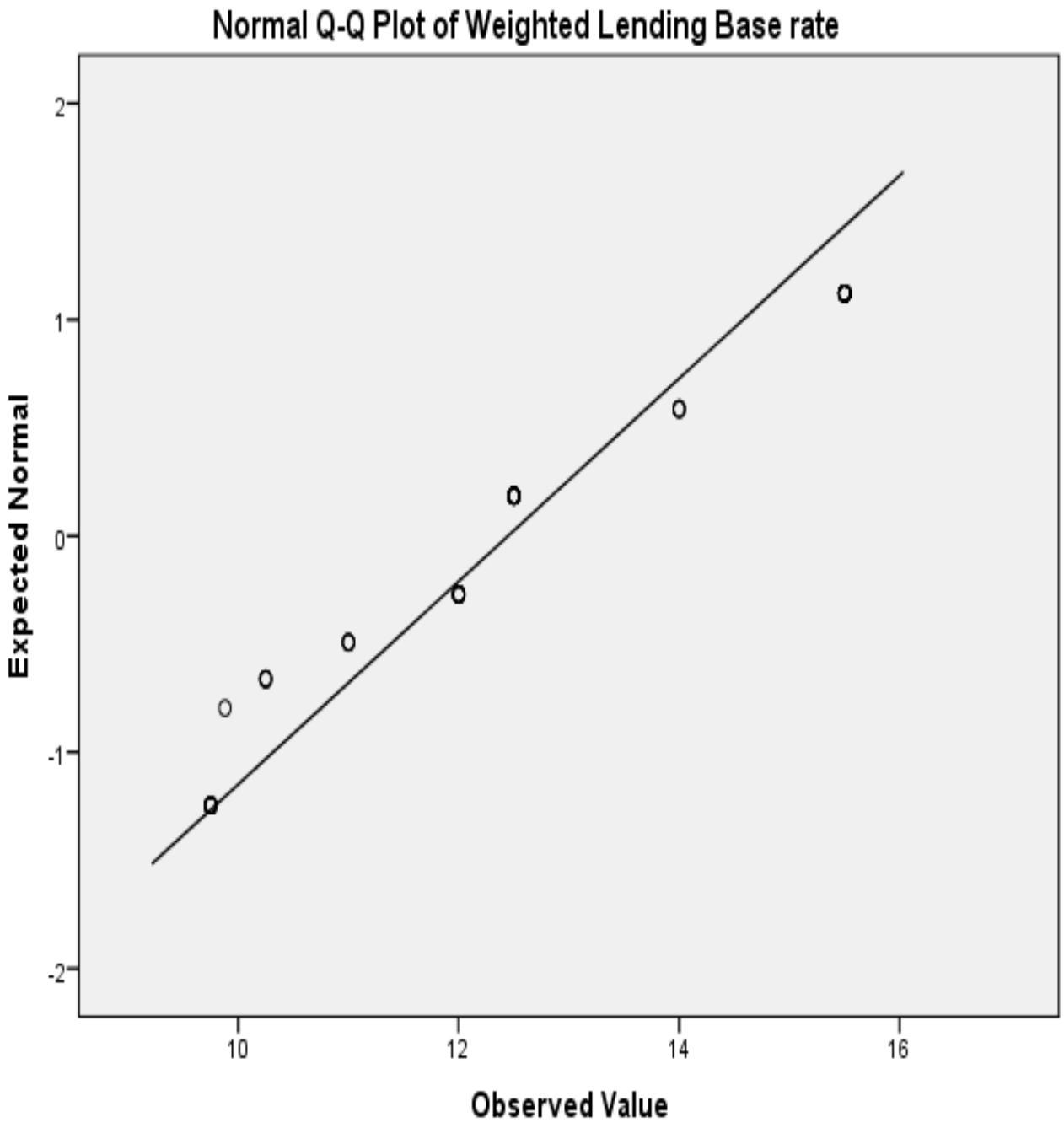
APPENDIX 1. 3: Normal Q-Q Plot of M1



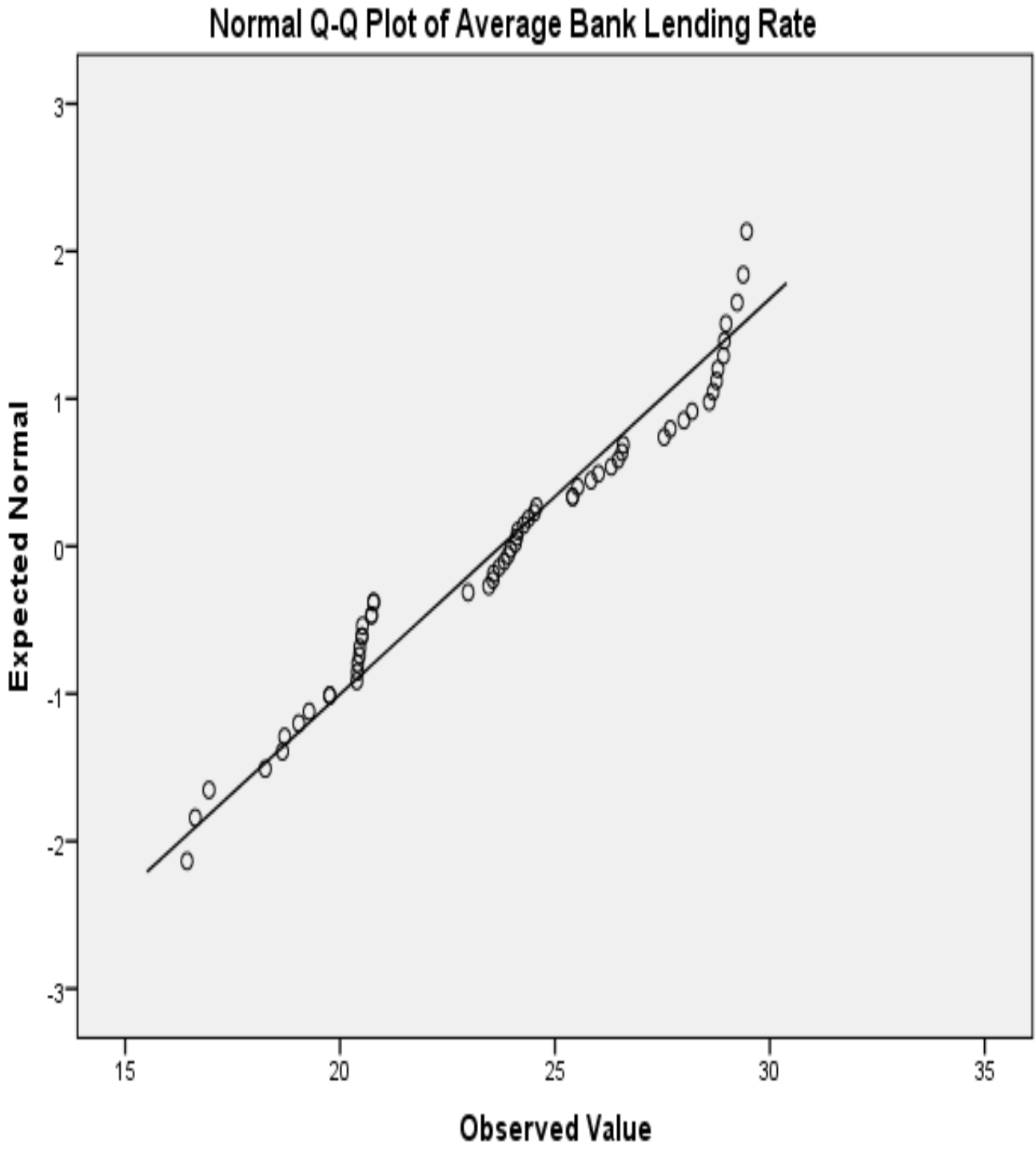
APPENDIX 1. 4: Normal Q-Q Plot of M2



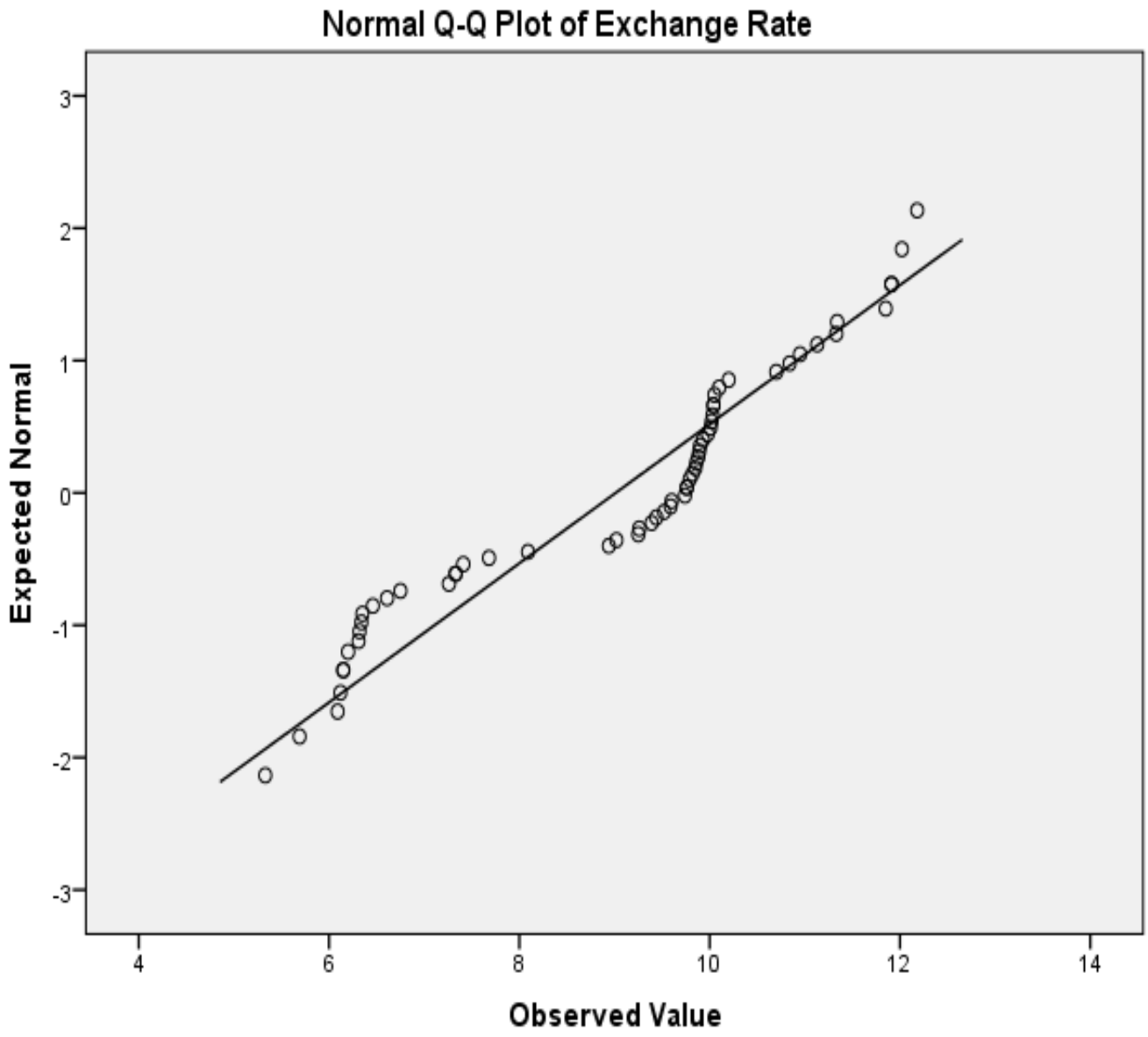
APPENDIX 1. 5: Normal Q-Q Plot of M3



APPENDIX 1. 6 : Normal Q-Q Plot of Weighted Lending Base rate



APPENDIX 1. 7 : Normal Q-Q Plot of Average Banking Lending Rate



APPENDIX 1. 8 : Normal Q-Q Plot of Exchange Rate