

# The Effect of Selected Macroeconomic Factors on a Stock Market Performance in Zambia

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Received: 25-01-2024

Revised: 12-02-2024

Accepted: 28-02-2024

## ABSTRACT

This was a study on the effect of selected macroeconomic factors on a stock market performance in Zambia. The study objectives were to determine the effect of the exchange rates on the LuSE all shares index in Zambia; to investigate the effect of inflation on the LuSE all shares index in Zambia and to establish the effect of interest rates on the LuSE all shares index in Zambia. Interest rate, inflation rate and exchange rate were the independent variables while stock market index was the dependent variable. The study targeted 24 firms listed on the Lusaka Stock Exchange. The study used secondary data which was sourced from the Bank of Zambia. The findings of the study reveal that the selected macroeconomic variables have an effect on stock market performance. This is because the study findings revealed that interest rate, inflation rate and exchange rate have a correlation with stock market index which can either be positive or negative. From the various tests and correlation models used, based on the study findings, the study concludes that selected macroeconomic factors in the country over the study period have been changing greatly. There were huge variations in the interest rates, inflation rates and exchange rates. Generally, the study concludes that interest rates, inflation rates and exchange rates influence the LuSE performance and can be used to predict the stock market performance. There was a strong and significant relationship between all the macroeconomic factors and the stock market performance. This implies that the macroeconomic environment in Zambia is a key determinant of business activities including the performance of the stock market. As a result, the study recommends that there is need for the Bank of Zambia to maintain a stable foreign currency exchange in order to attract foreign investors to the LuSE.

**Keywords:** macroeconomic factors, stock market, stock exchange

## I. INTRODUCTION

Stock market is a vital actor of financial sector and provides a platform to the users and suppliers of the financial resources for investment purpose in the stocks of companies. According to Alam and Rashid (2014), the stock markets facilitate economic growth by enhancing liquidity and providing funds for industrialization and economic development. They also act as interesting investment centres. Efficient stock markets are critical for the development and growth of any economy. It is the characteristic of this efficient market that it reflects the information in the share prices prevailing in the economy. With increasing globalization process the economies of nations are also globalizing. This global integration is useful for the progression of economies on one end but on the other hand, it has an adverse exposure as the financial disaster of one market leads to the disaster of another market very badly when it is integrated with a big market and disaster originates from that market. The world economy has gained considerable economic growth strength in financial markets. Investors have long used stock exchanges to reduce risk and mobilize financial resources (Mohamed et al, 2021). These unintended capital inflows into the economy have unintended consequences for economic growth. Individuals will have more options as the economy grows. As a result, what happens in the stock market has an enormous impact on people's lives.

The Lusaka Stock Exchange (LuSE) in Zambia was opened on 21 February, 1994. The establishment of the LuSE was done as part of government's broader economic reforms, which were aimed at stimulating the private sector as the primary engine for economic growth in Zambia. The objective was to enable local businesses to raise relatively cheaper long-term capital and attract foreign direct investment (FDI) for re-capitalization of local industries (LuSE, 2019).

As part of the Zambian government's strategy for private sector reforms, these operations were anchored on the Privatization Act No 21 of 1992, which recognized the importance of citizens' participation in the growing economy. With the government seeking to privatize state owned companies, the Act sought to hold shares from these privatized state companies

on behalf of Zambians for divestiture through the Zambia Privatization Trust Fund (ZPTF). This was primarily to maintain participation in the economy by citizens in the post-privatization era by empowering them through the ownership of shares (LuSE, 2019).

The LuSE, though relatively new as a capital market by international standards, has grown since its establishment in 1994. Though the number of listed companies on the LuSE is currently 25 (LuSE, 2019), this can only be viewed as a part of its growth trajectory that has seen the number of listed companies grow from a mere two companies in 1995 (Zambia Invest, 2014). However, the stock market performance in Zambia has deteriorated. All the sectors trading on the stock market have seen declines in market capitalization. Four sectors of companies including financials, telecoms, utilities, and oil and gas—saw the largest declines in market capitalization when examined on a sector-by-sector basis. PwC (2020) attributed the decline in share prices of businesses in these sectors mainly due to sluggish economic growth and an unstable and weak currency between 2019 and 2020. The LuSE All-share index (ASI) decreased by 8%.

According to the Ministry of Finance, the global pandemic-related slowdown in economic activity caused Zambia's economy to contract by 2.8% in 2020 as opposed to the growth of 1.44% in 2019 (Ministry of Finance, 2020 Annual Economic Report). Thus, a sustainable macroeconomic environment and business performance cannot be separated from the performance of a stock market. Therefore, it is necessary to consider how the macro environment influences the performance of the stock market in the country (Kisten, 2020; Aifuwa, 2020).

## II. STATEMENT OF THE PROBLEM

The unprecedented difficulties that Zambia's economy has been facing in recent years have been reflected in the capital market's performance over the last few years (PwC, 2022). Slowing economic growth, unsustainable fiscal balances, unmanageable public debt, and significant pressures from inflation and currency depreciation are just a few of the major issues that have affected the economy in recent years. As a result, according to a PwC report (2020), market capitalization for all the companies listed on LuSE reduced from USD4 billion on December 31, 2019 to USD2.7 billion as of December 31, 2020, which represents a decrease of USD1.3 billion between the two years. Thus, there was need to examine how the economic variables affect the performance of the stock market in Zambia. Empirical evidence (Chen et al., 1986; Flannery, 2002; Mukherjee & Naka, 1995; Narayan & Narayan, 2012; Okon, 2012; Zhao, 1999) is, however, largely inconsistent and quite varied on the influence and effects of macro-economic variables on the stock market performance both in the emerging and pre-emerging markets. This study was aimed at establishing country specific effects of the selected macroeconomic factors on the stock market.

## III. MAIN HYPOTHESIS

**H0:** There is no relationship between macroeconomic factors and stock market performance.

**H1:** There is a relationship between macroeconomic factors and stock market performance.

The current study will enable listed companies on the Lusaka Stock Exchange to build capacity to survive negative macroeconomic conditions. If Lusaka Stock Exchange is found to be negatively or positively influenced by these macro-economic variables, then the key stakeholders and other policy authorities will have the task to re-organize the capital market in such a manner as to make Lusaka Stock Exchange perform optimally so as to address economic issues at both the micro and macro levels of the Zambian economy.

## IV. EMPIRICAL LITERATURE REVIEW

Stock Market Performance can be defined as an indicator of the performance of a stock market as a whole or of a specific stock (Economy watch, 2022). It gives signal to the investors about their future moves. The movement in the price of a stock and the indexes gives the idea of the near future trend of the stock, sector or the economy as a whole. As financial domain is the most important one of an economy, so the stock market performance works as an indicator of the overall health of the economy.

Maghayereh (2002), and Osisanwa and Atanda (2012) established that the main stock prices determinants are as follows: "GDP, inflation rate, intrigued rates and USD foreign exchange". These variables should be closely monitored so as the investors can get the best returns from putting their money in the stock market.

Abbas, et al., (2014) investigated relationship between five Independent Variables namely Inflation, exchange rate, Gross Domestic Product, gold prices & T-bills rate and Dependent Variable Karachi Stock Exchange 100 index. The study used data on monthly base a period from January 2002 to December 2012. The authors employed Regression and Pearson correlation method find that Dependent variable (DV) negatively co-related with all independent variables (IV), insignificant

positive relationship between exchange rate (ER) and stock return, the relationship between inflation rate (IR) and stock return is negative insignificant, Treasury bills (T-bills) is insignificant negatively co-related with Stock Return, Gold prices (GP) is negatively insignificant and Gross Domestic Product has positively insignificant relation with Stock Return in Pakistan.

**Khodaparasti (2014)** examined how exchange rates, inflation, industrial index and M1 as Independent Variables on Tehran Stock Index (TSI) Dependent Variables affect. The authors used secondary data base a period from 2007- 2011. Researcher used Pearson correlation and ANOVA method get that exchange rates and industrial index have more effect on the stock return than inflation and Money supply in Iran.

**Ouma and Muriu (2014)** investigated the impact of macro-economic variables on stock prices. The researchers employed three Independent Variables namely Money Supply, exchange rates and inflation to be tested the dependent Variable Nairobi Stock Exchange (NSE 20). The study worked data a period from January 2003 to January 2013 on monthly base. Applied technique the classical regression model, best linear unbiased estimates (BLUE), Augment Dickey-Fuller (ADF) and find result that interest rates (IR), there are a significant relation between stock returns (SR) and macroeconomic variables, Money supply (M1) and inflation (IR) are found to be significant relation of the Stock returns. Exchange rates (ER) have a negative impact on stock returns, while interest rates (IR) no relation long-term return. And there is positive significant relationship between Money supply (M2) on stock returns and also negative & significant impact of exchange rate on stock returns, while a positive impact of inflation on stock returns. There is no impact of Interest rates (IR) on stock returns exist in Kenya.

**Wasseja et al (2015)** analyse the Causal Relationship between Macroeconomic Variables and Stock Prices in Kenya, used Augmented-Dickey Fuller Unit Root Test, Johansen co-integration test, Regression, Granger-causality test and vector autoregressive (VAR) model. These five Independent Variables are namely Treasury bill, Inflation rate, money supply, Real Exchange Rate and Gross Domestic Product and dependent Variable Nairobi Stock Exchange (NSE 20). The study worked historically annual data a period from 1980 to 2012. Researchers used technique Augmented-Dickey Fuller Unit Root Test, Johansen co-integration test, Regression, Granger-causality test and vector autoregressive (VAR) model. The result are that macroeconomic variables have no significant effect on stock prices except for inflation rate; exchange rate and change in stock prices also an insignificant factor explaining part of the movement in the macroeconomic variables except for market interest rates. In regression analysis all the macroeconomic variables are jointly significant in explaining the variations in stock prices. The causality between macroeconomic variables and stock prices runs entirely in one direction from inflation rate (IR) and exchange rate (ER) to stock prices (SP) and from stock prices (SP) to market interest rates (IR) in Kenya.

**Alam and Rashid (2014)** explore the interaction between Independent Variables namely inflation, industrial production, money supply, exchange rate and interest rate dependent Variable Karachi Stock Exchange 100 index. A period of secondary data collected from 2001 to 2011 on monthly base. Researchers find out result by used Johnson Co-integration test, Augmented Dickey Fuller (ADF) Unit Root Test, Phillip Perron (PP) tests and Autoregressive Conditional Heteroskedasticity Lagrange Multiplier (ARCH LM) test, that there is an impact of macroeconomic indicators on the Karachi stock market (DV) on consumer price index, money supply, exchange rates and interest rates negatively connected with the stock returns, while the industrial production index positively connected with the stock returns. All the variables were significantly connected to stock market returns except inflation in Pakistan.

**Issahaku et al (2013)** examines the association between five Independent Variables namely Exchange rate, Consumer Price Index (inflation), treasury-bill rate, money supply & FDI and Ghana Stock Exchange (GSE) as a dependent Variable. The study worked period from January 1995 to December 2010 and collected data on monthly base with used technique Unit Root Test, Co-integration and Granger Causality Test. There was a significant relationship among stock returns and inflation, money supply and FDI. Also, in the short term significant relationship among stock returns and interest rate, inflation and money supply. There are insignificant relationships between stock returns and FDI in short-run. And a causal relationship existing between in inflation and exchange rate to stock returns has been established in study. Also, a causal relationships appeared from stock returns to FDI, interest rate, and money supply Exists in Ghana.

## V. THEORETICAL LITERATURE REVIEW

### The Classical Theory of Interest

The Classical theory of interest rate enumerated by Alfred Marshall and Pigou as enumerated in Jhingan (2003) argues that the demand for capital consists of the demand for production and consumption purposes. But, it should be noted that the productivity of capital is subject to the law of variable proportion. That is, upon addition of units of capital to a fixed factor, a stage comes when the employment of an additional unit will not add more productivity. Thus, the demand for capital is inversely related to the rate of interest, and the schedule for capital or investment or investment slopes downward from left to right. A rise in the rate of interest will make loan less desirable, hence a fall in investment and output of firms.

### **The Negativists' Theory**

Inflation is an enemy of savings and, as a result, contributes negatively to firms' profitability positions, which results in low investment, claims Hager's (1977) formulation of the negativist theory. According to Cameron (1972), one persistent critique of this widely accepted theory of the money supply is that inflation reduces the purchasing power of money and increases risk, which discourages investment (Oleka, et al, 2014). This school of thought contends that inflation distorts business performance and capital valuation, which in turn influences management and investment decisions. The argument in the contribution is that when unexpected inflation occurs frequently, the level of risk associated with financial investments is alarming and demoralizing because the increasing level of uncertainty deters investors from making large-scale purchases or long-term commitments. According to this theory, inflation has a negative impact on investment choices and also other indicators of economic performance, especially the GDP of the overall economy.

### **The Neutralists' Theory**

Hayek (1931) was the main proponent of this theory which contends that there is no discernible effect of inflation on investment, this theory attempts to reconcile the neutralist analysis of investment decision and inflationary effects. The theory was in agreement that inflation is a legitimately bad phenomenon, but economists have not conclusively demonstrated that inflation is detrimental to any economy. For instance, it has frequently been argued that a price level that changes at a constant proportional rate, is fully anticipated by all economic actors, and is acted upon by them, serves as a good signal to investors for decision-making (Oleka, et al, 2014). Based on this idea, this school cautioned that, until econometric calculations are made, it is naive to assume that any economy is either blessed or harmed by inflation. Until that time, no one is free to state unequivocally whether inflation is a factor that improves or harms a specific entity's performance. Given that this is the case, the neutralists' theorists came to the conclusion that a firm's investment decision is unaffected by the inflationary effect (Selody, 1982).

### **Arbitrage Pricing Theory**

This theory was pioneered in 1976 by Ross. The theory presumes that returns of a given instrument are affected by different economic variables by their impact on future discount rates and dividends (Shrestha and Subedi, 2015). Arbitrage pricing theory (APT) has been extensively used in studies analyzing the relationship between stock market and macroeconomic indicators. An early theory of arbitrage pricing uses a functional form to test the relationship between stock index and macroeconomic variables. All individual stocks are affected by common factors. Market index can be affected by macroeconomic variables, such as changes in interest rate, money supply, economic growth, and inflation.

## **VI. RESEARCH METHODOLOGY**

### **Research Design**

This study adopted a quantitative research method. With this method, the study was able to abide to the chosen ontology (objectivism) and epistemology (positivism) during its operations (Williams, 2007) and (Mwanaumo, E.M., et al, 2020). Therefore, it is the understanding of this study that the relationships between study variables can be established explicitly.

### **Data Collection Tools**

The study used quarterly time series data from 2001 to 2021. The type of data is secondary quantitative data because all the data for the variables that was used were obtained from the Lusaka Stock Exchange and from annual reports of Bank of Zambia.

### **Data Sources**

The source of the data for the dependent variable LuSE Index were obtained from the Lusaka Stock Exchange while data for the dependent variables including interest rates, exchange rate and inflation were obtained from the Bank of Zambia (BOZ) Reports. The LuSE stock index is calculated using the 24 LuSE listed companies.

### **Data Analysis Methods and Tools**

The relationship between the dependent and the independent variables is to be analysed econometrically using regression analysis. The statistical packages employed were E-views and Excel.

### **Model Specification**

#### **Econometric Model**

A review of empirical studies and theoretical models in chapter three indicated a number of possible determinants of the nominal exchange rate volatility. This study employed the functional form utilized by Bouraoui and Phisuththiwatcharavong (2015) and Larina, L.B et al, (2021) with some modifications. Specifically:

$$Y_t = f(IR, INF, EXR)$$

Where,  $Y_t$  = LuSE Index

IR: Interest rate = Commercial Bank Interest Rates (Percent) – BOZ

INF: Inflation Rate = measured using Consumer Price Index (CPI)

EXCR: Nominal Exchange Rate = Kwacha/US Dollar Exchange Rates

Following the mathematical model above, we construct the econometric model to be used in the study. With all the variables in logarithmic terms, this study states the following operational and log form of model above:

$$\ln Y_t = \beta_0 + \beta_1 \ln [IR]_t + \beta_2 \ln [INF]_t + \beta_3 \ln [EXCR]_t + \varepsilon$$

Where,  $\beta_0$  = intercept,  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are the elasticity coefficients of the independent variables and  $\varepsilon$  = error term

Theoretically Expected Signs – a priori expectations,  $\beta_1, \beta_2, \beta_3 < 0$

## VII. RESEARCH RESULTS AND ANALYSIS

### Descriptive Statistics

**Table 1:** Below Presents Statistical Summaries of Variables under Study

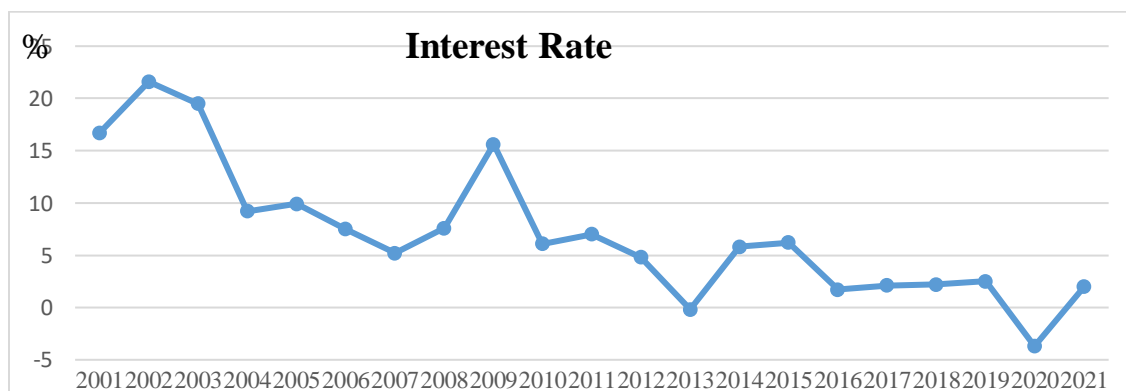
	N	Minimum	Maximum	Mean	Std. Deviation
LuSE	24	1.7769	2.2360	2.035855	.1383281
Interest rate	24	13.6533	20.2133	15.809915	1.9545367
Inflation rate	24	1.9404	2.2705	2.122240	.0963415
Exchange rate	24	1.7969	2.0150	1.939390	.0553332
Valid N (list wise)	24				

**Table 1:** Descriptive Statistics

An analysis of all the variables was obtained using SPSS software. Stock market returns had a mean of 2.0358 with a standard deviation of 0.1383. Inflation had a mean of 2.122 and standard deviation of 0.0963 while interest rates recorded a mean of 15.8099 with a standard deviation of 1.9545 while exchange rate recorded a mean of 1.9394 and a standard deviation of 0.5533.

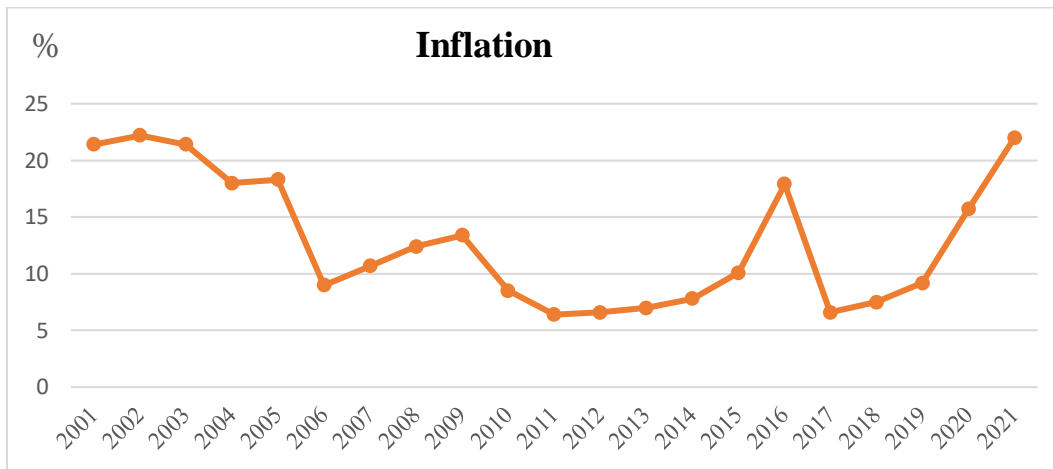
#### a). Interest Rates

Analysis here was done determine the trend in the interest rates overtime in the study period. From the analysis, the interest rates had an increasing trend between the 2001 and 2021. The interest rates had a declining trend in 2003, increased again in 2004 and declined in 2005 and 2006 after which in 2007 there was an increasing trend. In 2009 to 2010 there was a declining trend in the interest rates which continued up to 2013 and rose again in 2014 and remained a bit constant between 2014 and 2015 and declined in 2016 and remained constant till 2019 before drastically declining in 2020. The findings are presented in the figure 1 below;



**Figure 1:** Interest Rate

**b). Inflation Rate**

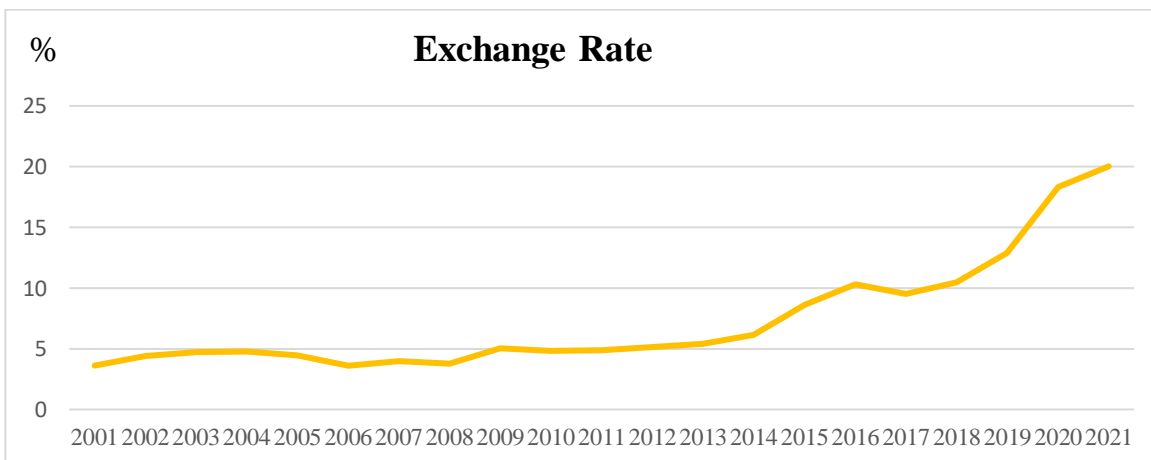


**Figure 2: Inflation Rate**

According to figure 2 above, between 2001 and 2021, inflation rate was at its lowest in 2011 with 6.4 % and highest in 2002 at 22.2%.

**c). Exchange Rates**

The purpose of the analysis here was to determine the trend of exchange rates over time. Foreign exchange rate used was the US Dollar. This currency is regarded the strongest and it is also the most traded foreign currency in Zambia at LuSE. The study used the US Dollar exchange rates from the period of 2001 to 2021. The trend analysis findings are presented in the figure below;



**Figure 3: Exchange Rate**

Foreign exchange rate used was the US Dollar. This currency is regarded the strongest and it is also the most traded foreign currency in Zambia at LuSE. The study used the US Dollar exchange rates from the period of 2001 to 2021. From the analysis, exchange rate had an increasing trend over time from 2001 to 2021. However, there were significant fluctuations in exchange rates over time. The minimum value of exchange rate recorded was 3.61 while the highest value obtained was 20.02

**Correlation Analysis**

The correlation matrix in Table 2, produced by SPSS version 27, depicts the extent of co-movement in the variables under consideration.

**Table 2:** Correlation Matrix

		LuSE	Interest rate	Inflation rate	Exchange rate
NASI	Pearson Correlation	1	-.634**	-.370*	-.689**
	Sig. (2-tailed)		.000	.019	.000
	N	24	24	24	24
Correlation Interest rate	Pearson	-.634**	1	-.029	.415**
	Sig. (2-tailed)	.000		.857	.008
	N	24	24	24	24
Correlation Inflation rate	Pearson	-.370*	-.029	1	.674**
	Sig. (2-tailed)	.019	.857		.000
	N	24	24	24	24
Correlation Exchange rate	Pearson	-.689**	.415**	.674**	1
	Sig. (2-tailed)	.000	.008	.000	
	N	24	24	24	24

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

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

Pearson correlation was employed to analyze the level of association between stock market performance at the LuSE and the independent variables for this study (interest rates, inflation rates, exchange rate). The study also showed the existence of a strong negative correlation between interest rates and exchange rates with stock market returns ( $r = -.634$ ,  $p > .000$  and  $-.689$ ,  $p > .000$ ) respectively. This goes to show that the prevailing interest rates and exchange rates in a country have a strong negative association with stock market returns and that association is significant. From correlation analysis, The relationship between inflation and stock market returns was found to be weak, negative and significant ( $r = -.370$ ,  $p = 0.019$ ). This implies that movement in the inflation rate is negatively correlated to stock market returns and in a significant manner. Economic growth and balance of payments had positive association with stock market returns but the correlation was not significant as shown by p values that were more than 0.05. Although the independent variables had an association to each other, the association was not strong to cause Multicollinearity as all the r values were less than 0.70. This implies that there was no Multicollinearity among the independent variables and therefore they can together in regression analysis.

**Stationary Tests  
 Unit Root Testing**

**Table 3:** Unit Root Testing

Variables Dic	key-Fuller test for t-statistic	unit root Num Critical value (5%)	ber of obs =24 P-value
LuSE Performance	-3.650	-2.869	0.005
Interest rates	-5.071	-2.927	0.000
Inflation rates	-5.566	-2.828	0.000
Exchange rates	-3.246	-2.727	0.017

From the findings on the table 3, in absolute terms, the Test Statistic value for interest rates is less than the critical values at 5%. This implies that the first order differenced interest rate data is stationarity. In the initial tests, the Augmented Dickey-Fuller test for unit root indicated that the data had a unit root and hence not stationary. The data was therefore differenced in order to make it stationary. For exchange rates, in absolute terms, the value of Test Statistic is greater than the critical values at 5%. This indicates that the Inflation is stationary. This was however achieved by obtaining order 1 differencing of the data as the original data was not stationary. Regarding exchange rate, in absolute terms, the value of Test Statistic is greater than the critical values at 5%. This indicates that exchange rate is stationary. Regarding LuSE, in absolute terms, the

value of Test Statistic is greater than the critical values at 5%. This indicates that LuSE data was stationary. This was however achieved by obtaining order 1 differencing of the data as the original data was not stationary.

**Test of Cointegration**

Analysis was done to determine the order of integration of each variable. This was done using the Johansen tests for cointegration. The findings are presented on the table below;

**Johansen Tests for Cointegration**

Johansen tests for cointegration

Trend: constant Number of obs = 24 Sample: 2001q1 - 2021q4

Lags = 2

**Table 4: Test for Cointegration**

Maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	12	-301.222		.8280	29.68
1	17	-277.781	0.704	8.969*	15.41
2	20	-283.827	0.302	1.045	3.76
3	21	-283.304	0.047		

Based on the findings on table 4 there was cointegration of order 2 because it is the last order in which the trace statistics at r=0 is greater than the critical value.

**Diagnostic Tests**

**a). Normality Tests**

Test of normality was done to determine whether the variables are normally distributed or not. This was done using Shapiro-Wilk test. The findings are presented on the table 5;

**Table 5: Normality Test**

Stock market Returns	Shapiro-Wilk		
	Statistic	Df	Sig.
Interest rates	.917	24	.832
Inflation rates	.882	24	.785
Exchange rate	.913	24	.776

Shapiro-Wilk tests recorded p-values greater than 0.05 which implies that the research data was normally distributed and therefore the null hypothesis was rejected. The data was therefore appropriate for use to conduct parametric tests such as Pearson’s correlation, regression analysis and analysis of variance.

Based on the findings on table 4, the Shapiro-Wilk p values of all the variables are greater than that 0.05. This means that they are not significant which implies that the variables are normally distributed.

**b). Serial Correlation**

Positive serial correlation results in coefficient standard errors which are too small leading to misleading results. The null hypothesis is that the residuals are not correlated. The serial correlation test results are presented in the table below;

**Table 6: Serial Correlation**

Breusch-Godfrey Serial Correlation			
F-statistics	1.735	Probability	0.012
Obs*R-squared	2.678	Probability	0.326

Autocorrelation is the situation whereby the residual terms of the independent variables are correlated with each other. Based on the analysis, the Breusch-Godfrey serial correlation test gives a probability of 0.0116. This value is significant and a conclusion is made that there is no autocorrelation.



**c). Autocorrelation Test**

**Table 7: Autocorrelation Test**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.880 <sup>a</sup>	.778	.733	.0715041	1.677

- a. Predictors: (Constant), Interest rate, Inflation rate , Exchange rate
- b. Dependent Variable: LuSE

**d). Multicollinearity Test**

The researcher carried out diagnostic tests on the collected data. A test of Multicollinearity was undertaken. Tolerance of the variable and the VIF value were used where values more than 0.2 for Tolerance and values less than 10 for VIF means that there is no Multicollinearity. For multiple regressions to be applicable there should not be strong relationship among variables. From the findings, all the variables had a tolerance values

>0.2 and VIF values <10 as shown in table 8 indicating that there is no Multicollinearity among the independent variables.

**Table 8: Multicollinearity Test for Tolerance and VIF**

Variable	Collinearity Statistics	
	Tolerance	VIF
Interest rates	0.360	1.382
Inflation	0.398	1.982
Exchange rates	0.388	1.422

**VIII. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

**Summary of Findings**

He study sought to determine the effect of the macroeconomic factors in the country on stock market performance. Specifically, the study sought to analyse how changes in interest rates, inflation rates and the exchange rates on the stock market performance. A descriptive research was used in this study and data collected for the duration between 2001 and 2021. Analysis was done using both descriptive and inferential analysis methods. Descriptive analysis was done using means and percentages. Inferential analysis was done using time series analysis.

The findings reveal that there were fluctuations in interest rates over the period between 2001 and 2021. From the analysis, the interest rates had an increasing trend between the 2001 and 2021. The interest rates had a declining trend in 2003, increased again in 2004 and declined in 2005 and 2006 after which in 2007 there was an increasing trend. In 2009 to 2010 there was a declining trend in the interest rates which continued up to 2013 and rose again in 2014 and remained a bit constant between 2014 and 2015 and declined in 2016 and remained constant till 2019 before drastically declining in 2020.

According to figure 2 above, between 2001 and 2021, inflation rate was at its lowest in 2011 with 6.4 % and highest in 2002 at 22.2%. In general, the study revealed that inflation brings down share prices because consumer confidence (and consumer spending) tends to decrease. Specifically, growth stocks tend to be worse off during inflationary periods, with investors often turning to value stocks instead.

Regarding the exchange rates, the study observed that the exchange rates has been having an increasing trend over time from 2001 to 2021. From the trend, the study found out that the exchange rates have been greatly fluctuating over time in the study period. These changes can be attributed to changes in the economic conditions in the country and variations in the macroeconomic environment in the country.

**Conclusions**

It can be concluded from the study findings that stationary tests, test of cointegration and diagnostic tests show that macroeconomic factors have an effect on a stock market performance in Zambia. From the study findings, it can be concluded that there was a statistically significant relationship between the study variables and stock market performance (p value=0.000<0.05). This implies that changes in the independent variables led to significant changes in the stock market performance. Regarding the interest rates, the study found out a significant relationship between the interest rates and stock

market performance (P value  $0.0010 < 0.005$ ). The findings imply that a change in the interest rates led to significant changes in stock market performance. The correlation coefficient was negative which implies that an increase in the interest rates led to decline in the stock market performance. This can be interpreted to mean that an increase in interest rates discourages borrowing which in turn discourages investment including investment in the stock market performance. This in turn led to reduced performance. The study also found out a significant relationship between the inflation and stock market performance. This implies that changes in the inflation led to significant changes in the stock market performance. The findings could be interpreted to mean that favorable inflation rate encouraged investment and, in this case, a healthy inflation encouraged investment in the stock market (LuSE). The correlation coefficient was negative implying that changes an increase in exchange rates led to a decline in stock market performance and vice versa.

### Recommendations

Due to the fact that the study established a statistically significant relationship between interest rates and the stock market performance and that high interest rates discourage investors from taking loans and other financial institutions which generally reduces the available funds for investment;

- There is need for the LuSE monetary Committee to maintain stable interest rates in order to encourage borrowing as would foster investment in the LuSE and other sectors.
- There is need for the Bank of Zambia to maintain a stable foreign currency exchange in order to attract foreign investors to the LuSE. This would help to promote stock market performance.
- There is also need to conduct a similar study using other test apart from the stationarity tests, diagnostic tests and use other models other than those used in this study. This is because the tests and models used in this study have their own shortcomings, using other tests and models would help to determine whether the findings from this study are a true reflection of what is prevailing on the ground.

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