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Sibiya, Manqoba

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The Influence of Monetary Policy on Stock Market Performance Before, During, and After the COVID-19 Pandemic: Empirical Evidence from Emerging Markets

Submitted by

Manqoba Sibiya

Student No: 368132

Supervised by Professor Thabang Mokoaleli-Mokoteli

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Chapter 1: Introduction and Background

1.1 Introduction

Crises have profound effects on global economies, prompting central banks to implement monetary policies aimed at mitigating economic downturns. This research seeks to investigate the impact of monetary policy on the stock market performance in emerging markets, before, during, and after the COVID-19 pandemic.

Monetary policy influences economic activity through mechanisms such as interest rate channels (Mishkin, 1995). The stock market, often regarded as a barometer of economic health (Jagannarayan and Jayachitra, 2021) reacts to changes in monetary policy reflecting investor sentiment and economic expectations. By examining the relationship between monetary policy and stock market performance within the context of the COVID-19 pandemic, this research contributes to the understanding of the effectiveness of monetary policy in emerging markets, and its role as a potential market stabiliser (Shan et al., 2023).

This research focuses on emerging markets, namely Brazil, China, India, Mexico, South Africa and Turkey, which, while vulnerable to global economic fluctuations also have opportunities for growth (Almansour et al., 2015). The period of the study is segmented into three phases. One the pre-covid phase, which is a period of relative economic stability, serving as a baseline for analysing the relationship between monetary policy and stock market performance. Two, during COVID-19 phase, which examines the immediate economic disruptions caused by the pandemic and the monetary policy responses implemented to counteract them. Three, post-COVID-19 phase which assesses the recovery process and evaluates the long-term effect of the monetary policies enacted during the pandemic on the stock market performance.

The rest of the chapter is organized as follows: Section 1.2 provides the background of the study, while Section 1.3 define the research problem. Section 1.4 outlines the research objective, and Section 1.5 introduces the research questions. Section 1.6 discusses the significance of the research, followed by Section 1.7 which highlights the structure of the paper and Section 1.8 concludes the chapter.

1.2 Background to the study

Monetary policy is a tool utilised by central banks to manage money supply to reach certain targets such as the containment of inflation, this can be achieved for instance by setting interest rates (Warin, 2005). The primary aim of the monetary policy is to stabilise the economy, by promoting growth and therefore lowering unemployment (Yellen, 1996). Central banks mainly use interest rates to stabilise the economy, Kuttner and Mosser (2002) point out that the interest rate is the primary tool in conventional macro models. The authors further elaborate that an increase in the interest rate (real) this leads to an increase in the cost of capital (money), therefore discouraging consumers from moving consumption to the future and spending less today.

Smal and de Jager (2001) explains how interest rates as transmission tool, that the change in the repurchase rate then translates to domestic banks to adjust their interest rates of their financial products, which then impacts the cost of borrowing for both firms and individuals. Adekunle et al., (2018) state that many economists view the interest rate channel as an effective channel of monetary policy transmission.

Comincoli (1996) states that stock markets are a predictor of economic performance. The key indicators of stock market performance are stock prices, stock indices, market capitalization and trading volumes. Stock prices show the market's expectations or sentiments. Stock indices capture the aggregate performance of the whole market.

Duttagupta and Pazarbasioglu (2021) state that there is no formal definition of emerging markets. They then identify attributes such as global economic relevance, sustained market access and middle-income levels. The International Monetary Fund (IMF) classifies countries with these characteristics as emerging markets: a high potential for growth and lower middle income per capita. This classification would therefore include the BRICS nations, namely, Brazil, Russia, India, China and South Africa. Other countries that would qualify under this classification would be Mexico, Iran, and Saudi Arabia to mention a few. Some of the challenges commonly experienced by these countries are, but not limited to financial volatility, monetary policy spillovers from industrialised countries and fluctuations in capital flow (Alfaro and Mendoza, 2020).

The pandemic brought about economic shocks, such as shortage of labour due to illness and the rise in mortality, there were also disruptions to movement of people and other goods, the transport and logistics industry was impacted which further led to restriction in trade (Shang et al., 2021). The IMF (2021) states that the global lockdowns in 2020 reduced productive capacity. According to the World Bank's development report (2022), emerging markets suffered the most economically due to already existing economic vulnerabilities, this meant that households in these markets experienced income loss, thus worsening inequality. Debt levels further increased for governments, households, and businesses. The World Bank report further states that global poverty increased to unprecedented levels. To mitigate the impact of economic downturn due to the pandemic, central banks implemented various tools in response. Central banks lowered interest rates thus making it easier for lending, which kept economies going.

Given the interconnectedness of the world and interdependence of the financial markets, the research seeks to assess and understand the impact of the central bank's monetary policy interventions in emerging markets on the performance of stock markets during the COVID-19 pandemic crisis. Furthermore, the research aims to provide insights into the performance of the stock market in emerging countries.

1.3 Problem statement

The COVID-19 pandemic has caused unprecedented disruptions to global economies, particularly affecting emerging markets that are typically more vulnerable to external shocks. In response, central banks worldwide, including those in emerging markets, implemented various monetary policy measures to stabilize financial markets and support economic recovery. However, the effectiveness and impact of these monetary policies on stock market performance in emerging markets remain unclear, especially when considering the distinct phases of before, during, and after the pandemic.

Existing literature that investigates how monetary policy affects equity markets in emerging markets, under normal economic conditions. The uniqueness of the conditions the COVID-19 pandemic necessitates that this relationship be reexamined especially in emerging markets that have unique characteristics including higher volatility, different investor behavior, and varying levels of economic development. Therefore, the paper seeks to explore the effectiveness and

influence of monetary policy interventions on stock market performance in emerging markets during times of crisis such as the pandemic.

1.4 Research objective

The objectives of this research are:

- To analyse the relationship between monetary policy and stock market performance in emerging markets before the COVID-19 pandemic
- To assess the impact of monetary policy on stock market performance in Emerging Markets during the COVID-19 pandemic
- To investigate the influence of post-pandemic monetary policy on stock market performance in Emerging Markets:
- To compare the effectiveness of monetary policy across the three phases (before, during, and after the pandemic)

1.5 Research questions

Based on then above objectives, the following are the research questions:

- How did monetary policy affect the stock market performance in emerging markets before the pandemic?
- What was the impact of policy interventions on the stock market performance in emerging markets during the pandemic?
- How did post-pandemic monetary policy implementation influence stock market movements in emerging markets?
- How does the effectiveness of monetary policy on stock market outcomes across the three phases of the COVID-19 pandemic compare?

1.6 Significance of the study

Understanding the influence of monetary policy on stock market performance in emerging markets, across the three time periods around of the COVID-19 pandemic is important to understand how emerging markets, as stated by Alfaro and Mendoza (2020) as being mostly vulnerable to monetary policy spillovers from other economies, dealt with impact of the pandemic. The study will also, using the performance of the stock markets as a proxy of economic health

(Jagannarayan and Jayachitra, 2021) seek to evaluate whether economies of emerging markets were resilient during the pandemic period.

There appears to be limited research on monetary policy's influence on stock market performance in emerging markets across the various time periods around of the COVID-19 pandemic. Further to the aforementioned, there are few studies on the long-term effects of monetary policy implemented by emerging markets, particularly post the pandemic.

1.7 The structure of the final thesis

The final thesis is organised as follows: Chapter 2 presents the literature review. Chapter 3 discusses research methodology. Chapter 4 will present the research findings while the last chapter, chapter 5 will discuss the results and draw conclusion of the study.

1.8 Chapter Summary

This chapter introduced the study in the influence of monetary policy on stock market performance before, during and after the COVID-19 pandemic in emerging economies. The chapter provided the background of the study, highlighting the role of monetary. The research objective and questions are there to guide the study. The following chapter delves into literature studying the nexus between monetary policy and stock performance.

Chapter 2: Literature Review

2.1 Introduction

This chapter reviews the literature on the relationship between monetary policy and stock market performance in emerging markets. The chapter is organized as follows: section 2.2 presents the theories underpinning this research. Section 2.3 and Section 2.4 describe monetary policy and mechanisms through which monetary policy operates, respectively. Section 2.5 and Section 2.6 discuss the relationship between monetary policy, economic performance, and the stock market. Section 2.7 looks at how the COVID-19 pandemic impacted monetary policy. Section 2.8summarises the gaps identified in the literature. Section 2.9 concludes the chapter.

2.2 Theoretical background

The nexus between monetary policy and the stock market is grounded in various economic theories and frameworks (Schrank, 2024). Bernanke and Blinder (1992) highlights that interest rates on Federal funds provide critical information about macroeconomic variables. Thus, any change in the interest rate impacts a range of economic variables. The effects of monetary policy can be both direct and indirect. Bernanke and Kuttner (2005) studied the relationship between monetary policy and equity markets and found that stock markets respond to monetary policy changes, as predicted by the Capital Asset Pricing Model (CAPM). The CAPM was established by Sharpe (1964), and it explains how changes in interest rate, risk factors and investor expectations impact asset prices according to Schrank (2024).

2.3 Monetary policy as an economic tool

Monetary policy is a tool utilised by central banks to manage money supply to reach certain targets such as controlling inflation. This can be achieved, for instance, by setting interest rates (Warin, 2005). Mbutor et al., (2016) from the Central Bank of Nigeria defines monetary policy as deliberate actions by central banks to control the circulation or supply of money in an economy as to stabilize it. According to Omankhanlen et al., (2019), monetary policy can either increase or decrease the interest rate based on the macroeconomic objectives of a sovereign state. Theoretical and empirical evidence is an effective tool for achieving price stability (Rangarajan, 1997). Objectives of monetary policy also include promoting output growth and lowering unemployment (Yellen, 1996).

When the central bank announces the change in interest rate, the question that normally arises is how does the central bank implement its monetary policy stance? The Bank of England (1999) outlines various ways in which the change in interest rates affects the economy. First, through market interests such as mortgage rates, bank deposit interest rates and lending rates. Second, the policy actions and announcements affect the expectations of various economic players thereby impacting saving, investment, and spending behvaiour of both firms and individuals.

There are several channels through which monetary policy can be transmitted in an economy. Mishkin (1995) identifies monetary policy transmission channels such as the interest rate channel, other asset price channels, and credit channels.

2.4 Monetary policy channels

2.4.1 Interest rate channel

Kuttner and Mosser (2002) identify the interest rate channel as the primary mechanism in conventional macro models. They explain that an increase in the real interest rate raises the cost of capital which discourages consumers from current consumption in favour of future consumption, thus reducing current spending. Miskin (1995) notes that tightening of money, i.e., increasing interest rate eventually leads to a decline in aggregate demand and a fall in output, with the inverse also holding true. Smal and de Jager (2001) crystalise this transmission, noting that the changes in the repurchase rate prompt domestic banks to adjust their interest rates on financial products, impacting the cost of borrowing for both firms and individuals. Adekunle et al., (2018) state that many economists view the interest rate channel as an effective means of monetary policy transmission. Suhaibu et al., (2017) studied stock markets of 12 African countries and found a positive, complex, and statistically significant correlation between monetary policy via the interest rate channel and the stock market performance.

2.4.2 Exchange rate channel

Mishkin (1996) postulates that globalization has heightened the importance of exchange rates for economies due to their impact on imports and exports. Gumata et al., (2013) argue that although higher interest rates can temporarily stop the outflow of funds from South Africa, they do not necessarily lead to inflows of capital.

2.4.3 Asset price channel

Smal and de Jager (2001) state that with expansionary monetary policy, consumers have more disposable income due to lower debt costs and lower returns on government bonds, potentially increasing stock market investment. This higher demand for stocks can lead to increased stock prices. Mishkin (2001) outlines that increased stock prices due to high demand enable companies to issue stocks, leading to an increased investment in plant and equipment, ultimately boosting output.

For monetary policy to be effective, it must be transmitted through effective channels. Modugu and Dampere (2022) found that decreasing interest rates through expansionary monetary policy stimulates economic growth by increasing bank lending.

2.5 Impact of monetary policy on economic performance

Makhetha-Kosi (2014) identifies monetary policy as a major driver of economic growth due to its impact on variables such as interest rates, exchange rates, and equities. However, they found that changes in the repurchase rate in South Africa have an insignificant impact on economic growth. The interest rate used to price lending products by banks is largely determined by monetary policy, influencing investment levels. Lower interest rates typically lead to higher investment levels, due to lower borrowing costs (Mehar, 2022). Modugu and Dempere (2022) found that lowering interest rates, also known as expansionary monetary policy, increases the money supply and stimulates economic activity in developing countries through increased bank lending.

Ahiabor (2013) examined the impact of monetary policy on inflation in Ghana and found a negative long-term relationship between interest rate and inflation. However, they recommend using additional policy instruments such as fiscal policy to control inflation. Conversely, Twinoburyo and Odhiambo (2017) reveal no long-term impact of monetary policy on economic growth, suggesting that while monetary policy is important for growth, it may not be sufficient for long term economic growth. Tan et al., (2020) found that monetary policy significantly affects economic growth in Malaysia and Singapore but not in Thailand, where fiscal policy is more effective.

2.6 The relationship between interest rates and the stock market

Fama (1981) found that macroeconomic factors, including interest rates, exchange rates, money supply and capital expenditures influence stock price movements. Bernanke and Kuttner (2005)

use a vector autoregressive model (VAR) to determine the connection between interest rate (monetary policy) and stock market movements and found that an unexpected twenty-five basis point cut in the interest rate leads to a 1% increase in stock market prices. Gurkaynak et al., (2005) also found that unexpected monetary policy shocks significantly impact stock market returns. Alam and Uddin (2009) state that an increase in interest rates paid to depositors by banks leads people to move their funds from the stock market to the bank, reinforcing the theory of an inverse relationship between interest rates and stock market performance. However, AL-Naif (2017) argues that literature is inconclusive on the nature of this relationship, corroborating Rahman et al., (2009) that there is a positive correlation between interest rate and the long-term stock market performance in Malaysia. Hamrita and Trifi (2011) note that numerous studies conflicting with the universal theory on the inverse nexus between interest rates and stock market performance.

Kganyago and Gumbo (2015) investigated the nexus between money market interest rate and stock market returns in Zimbabwe from 2009 to 2013 and found that a strong inverse long-term relationship. They attribute this to the Reserve of Bank of Zimbabwe's lack of control over interest rate through monetary policy. Central banks' actions are vital for managing economic stability.

2.7 Impact of the COVID-19 pandemic on monetary policy

Prabheesh et al., (2021) studied monetary policy responses during COVID-19 related uncertainty and argue that monetary policy transmission is interrupted during economic uncertainty. Wei and Han (2021) used an event-study to examine the impact COVID-19 on monetary policy transmission to financial markets and found that monetary policy's ability to stabilize prices is weakened in emerging markets. Fischer (2021) states that central banks cut interest rates to counter economic crises or recessions as seen during the global financial crisis. Wei and Han (2021) use event-study methodology to estimate the impact of the COVID-19 pandemic on monetary policy transmission to financial markets. Wei and Han (2021) found results similar to Prabheesh et al., (2021) that the pandemic significantly weakened monetary policy transmission to financial markets.

Thorbecke (2023) used a multi-factor model and news about monetary policy by the US Federal Reserve to investigate the impact on financial markets since the pandemic began and found that perceptions of monetary policy changes lead to uncertainty and stock market volatility of the stock market. Iyke and Maheepala (2022) estimated the impact of conventional monetary policy (CMP)

on stock market returns during the COVID-19 pandemic and found that CMP did mitigate the pandemics impact on the stock market returns.

According to the IMF, central banks adopt unconventional monetary policies (UMP) to restore and stabilise financial markets and provide accommodation at the zero lower bound. Wang et al., (2024) using vector autoregressive model with functional shocks to evaluate the effects of CMP and UMP on the Real Estate Investment Trusts (REITs) market in the United States and found that CMP conforms to economic theory while UMP does not always conform. Iyke and Maheepala (2022) concluded that to restore stock market performance to pre-pandemic levels, unconventional monetary policies such as forward guidance and quantitative easing are necessary.

2.8 Summary of gaps in literature

While there is extensive literature on the relationship between monetary policy and stock market returns, there is scope for further research to better understand the impact monetary policy before, during and after the COVID-19 pandemic. Existing literature on emerging countries often focuses on single-country analysis. There is a limited comparative literature on various emerging markets particularly regarding regional differences.

Based on existing literature, the paper derives the following hypothesis:

Hypothesis 1: Monetary policy implemented during the COVID-19 pandemic has no significant impact on the stock market performance across emerging economies.

2.9 Chapter Summary

This chapter provided a review of the existing literature on the relationship between monetary policy and stock market performance. The chapter looked at the monetary policy transmission channels, with a focus on interest rate and its impact on stock market performance.

There are varying conclusions on the empirical studies, some studies state that monetary policy has a significant impact on stock market performance. Other studies find that the impact is inconclusive. The COVID-19 pandemic altered conventional monetary responses thus leading to unconventional policies. The following chapter focuses on the research methodology used to test the influence of monetary on stock market performance.

Chapter 3: Research Methodology

3.1 Introduction

Chapter 3 outlines the methodology used to test the influence of monetary policy on stock market performance before, during and after the COVID-29 pandemic. This chapter details the data, data sources, variable selection and econometric techniques used to analyse the influence of monetary on stock performance. Section 3.2 outlines the data sources, and the dataset which is secondary. Section 3.3 outlines the econometric models used to analyse the relationship between stock performance and other economic variables. Section 34. Defines the variables used in this paper. Section 3.5 presents the models that will be used for diagnostic test for robustness. Section 3.6 concludes the chapter.

3.2 Data and data sources

The study uses quarterly time series data between 2017 and 2023 from secondary data source, Datastream. The advantage of using secondary data, is that there is no further analysis of the data required, one of the limitations is that one cannot control for data collection errors. The data collected is for the following emerging markets namely Brazil, China, India, Mexico, South Africa, and Turkey. Duttagupta and Pazarbasioglu (2021) state that there is no formal definition of emerging markets. They then identify attributes such as global economic relevance, sustained market access and middle-income levels. The International Monetary Fund (IMF) classifies countries with these characteristics as emerging markets: a high potential for growth and a lower middle income per capita. This classification would therefore include the BRICS nations, namely, Brazil, Russia, India, China and South Africa. Other countries that would qualify under this classification would be Mexico, Iran, and Saudi Arabia to mention a few. The data for the variables all-share indices, GDP, interest rate inflation and is from *Datastream.* The variables are defined as follows: all-share index is the measure of performance of all listed shares. GDP is the measure of economic performance. Inflation is the general increase in price of goods and services over a period. Interest rate is the cost of borrowing or the return on savings.

There are a few reasons for choosing the above-mentioned countries for the research, firstly they are in various geographical locations and economic blocs which may have experienced the impact of the COVID-19 pandemic differently. Secondly, these countries are significant contributors to emerging markets with developed equity markets

The research looks at the implementation of monetary policy in the above-mentioned countries pre-covid (2017-2019) during the pandemic (2020-2021), and post covid (2022-2024) and the performance of the all-share index of their stock exchanges.

3.3 Research Design

Wang et al., (2024) employed a vector autoregression regression (VAR) model to analyse the effect of monetary policy shock. Similarly, AL-Naif (2017) utilised VAR and time series models, including Augmented Dicky Fuller test to investigate the relationship between interest rates and stock market return in Malaysia. Marozva (2020) and Iyke and Maheepala (2022) applied Ordinary least squares (OLS) regression analysis to explore the connection between monetary policy and stock market performance.

This study aims to investigate the impact of monetary policy and stock market returns before, during and after COVID-19, adopting a similar empirical approach. Specifically, the relationship between monetary policy variables, GDP, and stock market return volatility, following Marozva (2020), will be tested using OLS regression.

The rationale for selecting the three time periods around the pandemic is to understand the unprecedented policy measure taken by governments and central banks during the pandemic, which may have potentially altered the relationship between monetary policy and stock markets. Studying the period before and after puts into context government and central bank policy in what are normal periods. The model is specified as follows:

$$All - Share_t = \mu + \alpha INT_t + \beta INFLATION_t + \delta GDP_t + \varepsilon_t \qquad (1)$$

Where $All - Share$ is the stock market return (all share index data), INT_t is the interest rate (repo rate), $INFLATION_t$ is the prevailing inflation rate at the time, GDP_t is the gross domestic product of each country, and ε_t is the error term.

3.4 Definition and measurement of variables

Table 1: presents the definitions of the variables, how they are measured and their expected signs.

Variable Name	Variable in the model	Measurement	Expected sign
All-share	$All - Share_t$	Stock market index tracking the performance of all listed equities. Market capitalization-weighted index	Positive/Negative
Interest Rate	INT_t	Monetary policy rate/ repurchase rate	Negative
GDP	GDP_t	Total monetary value of all goods and services produced within a country	Positive
Inflation rate	$INFLATION_t$	Measure of the general price level of goods and services. Average change in prices (consumer price index)	Negative

3.5 Robustness Test

To test the regression model to ensure that the OLS regression is Kganyago and Gumbo (2015) ran the Breusch-Pagan-Godfrey test to check for Heteroskedasticity. This study follows Kganyago and Gumbo (2015) to test for the robustness of the model, equation (2).

3.6 Chapter Summary

This chapter outlines the research methods by detailing the data sources, variable selection, econometric techniques and statistical tests used. The next chapter presents the research results.

Chapter 4: Research Findings

4.1 Introduction

This chapter presents and analyses the results of the study on the influence of monetary policy on stock market performance in emerging economies before, during and after the COVID-19 pandemic. The chapter is structured as follows: Section 4.2 presents the descriptive statistics for each country. Section 4.3 outlines the stationarity test results and the model transformation. Section 4.4 details the regression results. Section 4.5 conducts a regression model robustness test using the Breusch-Pagan-Godfrey Test. Section 4.5 concludes the chapter.

4.2 Descriptive Statistics

Table 2 presents the aggregated descriptive statistics of all the countries included in this analysis. The mean GDP is 86 634 097, while the mean values for interest rate, all-share and the inflation rate are 7.45%, 11 986.03 and 8.13% respectively. Notably, the standard deviation of all variables, except for interest rates, exceed their respective means indicating significant variability in the data. Tables (3) to (8) show each country's variable characteristics.

Table 2: Characteristics of the variables

	Mean	Median	Std Dev.	Skewness	Kurtosis	Max.	Min
			N= 162				
GDP (currency)	86634097	3315632.	1.81E+08	1.854804	4.596517	6.05E+08	27323.06
Interest rate %)	7.45	6.00	5.96	2.90	14.93	45.04	2.00
All Share (index points)	11986.03	569.41	23662.73	1.85	4.65	79770.19	82.79
Inflation rate (%)	8.13	4.57	14.45	3.55	15.49	81.09	-0.44

Table 3: Characteristics of the variables-Brazil

	Mean	Median	Std Dev.	Skewness	Kurtosis	Max.	Min
			N= 27				
GDP(local currency)	2149400.	2059455.	395009.8	0.344355	1.595793	2831340.	1648635.
Interest rate %)	7.851852	6.500000	4.018742	0.208845	1.752521	13.75000	2.000000
All Share (index points)	205.4212	214.1790	32.35939	-0.460091	2.273201	258.8768	138.9969
Inflation rate (%)	0.436667	0.410000	0.356931	-0.129628	3.005446	1.060000	0.440000

Table 4: Characteristics of the variables-China

	Mean	Median	Std Dev.	Skewness	Kurtosis	Max.	Min
			N= 27				
GDP (local currency)	263501.7	264753.8	32164.76	0.123529	2.406523	331984.0	206835.5
Interest rate %)	2.993333	2.950000	0.263978	-0.329334	1.986964	3.300000	2.500000
All Share (index points)	4796.002	4739.191	637.0083	0.050625	2.046562	5918.594	3706.818
Inflation rate (%)	1.707407	1.800000	1.289880	0.451915	3.260391	5.000000	0.300000

Table 5: Characteristics of variables-India

	Mean	Median	Std Dev.	Skewness	Kurtosis	Max.	Min
			N= 27				
GDP (local currency)	37294.69	36724.38	4260.127	0.170246	3.180586	47237.84	27323.06
Interest rate %)	5.386667	5.950000	1.030273	-0.349233	1.432699	6.500000	4.000000
All Share (index points)	173.9185	157.6100	46.31331	0.331981	1.673965	264.5400	116.3800

Inflation rate (%)	5.175556	5.080000	1.403209	-0.425462	2.159577	7.280000	2.470000

Table 6: Characteristics of the variables- Mexico

	Mean	**Median**	**Std Dev.**	**Skewness**	**Kurtosis**	**Max.**	**Min**
			N= 27				
GDP (local currency)	26802926	2,6E+07	3317950.	0.400606	2.146125	3,3E+07	2,1E+07
Interest rate %)	5.493333	5.460000	1.750857	0.496002	2.276237	8.790000	3.050000
All Share (index points)	108.3779	110.9392	11.97236	-0.442074	2.347266	128.4644	82.78660
Inflation rate (%)	5.255926	4.820000	1.650171	0.390667	2.037684	8.520000	2.770000

Table 7: Characteristics of the variables-South Africa

	Mean	**Median**	**Std Dev.**	**Skewness**	**Kurtosis**	**Max.**	**Min**
			N= 27				
GDP (local currency)	4530216.	4575603.	161565.9	-3.641389	16.82616	4636619.	3799924.
Interest rate %)	5.907407	6.500000	1.695793	-0.266660	1.725983	8.250000	3.500000
All Share (index points)	63917.25	59821.49	8969.972	0.276682	1.682792	79770.19	50152.05
Inflation rate (%)	4.899031	4.836634	1.304857	0.316189	2.782419	7.653605	2.402949

Table 8: Characteristics of the variables-Turkey

	Mean	Median	Std Dev.	Skewness	Kurtosis	Max.	Min
			N= 27				
GDP(local currency)	4.86E+08	4.71E+08	6,2E+07	0.246454	2.272270	6.05E+08	3.85E+08
Interest rate %)	17.06741	14.04000	8.289587	1.780405	6.418237	45.04000	8.310000
All Share (index points)	2715.187	1464.570	2706.094	1.736341	4.829889	10519.77	874.2700
Inflation rate (%)	31.28852	19.26200	24.38247	0.898933	2.198991	81.08700	10.28000

Normality Test: Jarque-Bera

Table 9: Jarque-Bera probabilities

Country	GDP	Interest Rate	All-Share	Inflation Rate
Brazil	0.252601	0.377758	0.461431	0.962882
China	0.792586	0.439861	0.596245	0.607958
India	0.919838	0.190870	0.290237	0.447272
Mexico	0.462453	0.428186	0.506934	0.421346
South Africa	0.000000	0.341982	0.317207	0.777575
Turkey	0.647550	0.000001	0.000172	0.113144

Table (9) shows the Jarque-Bera test, the probabilities are all more than 5% p-value. So that data is normally distributed. Turkey's interest rate, all-share and inflation rate have probabilities below 5% therefore these variables are not normally distributed. South Africa's GDP variable is not normally distributed. To solve for variables that are not normally distributed, natural logs of the variables usually solves it.

Figure 1: All-share indices growth rates

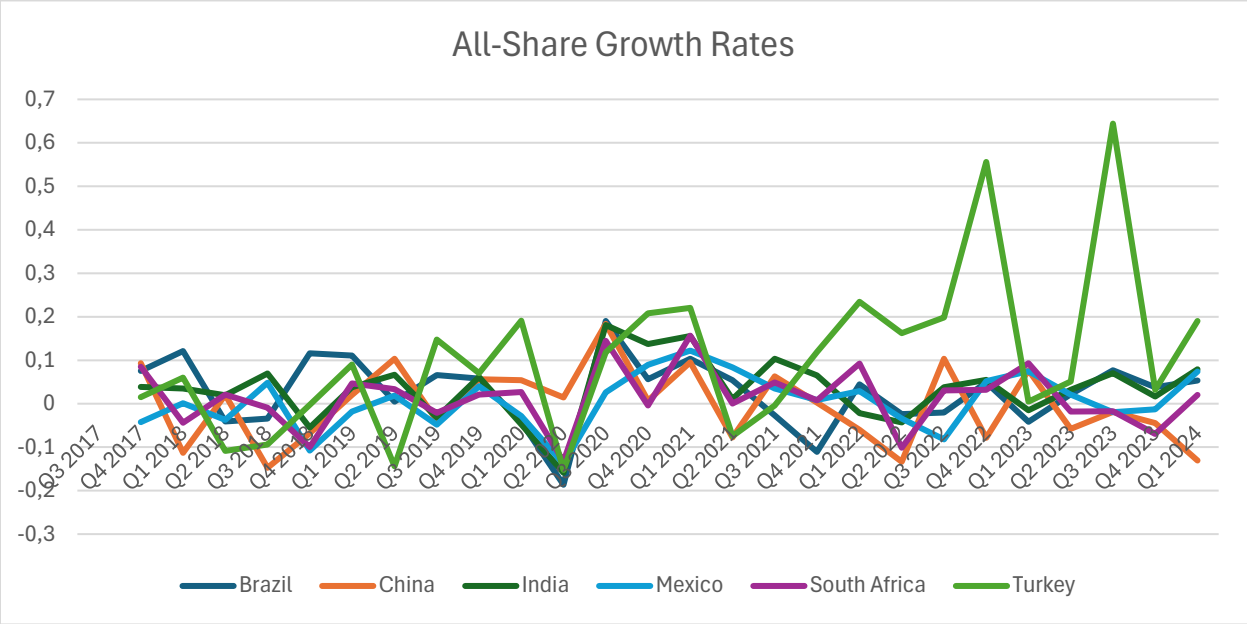
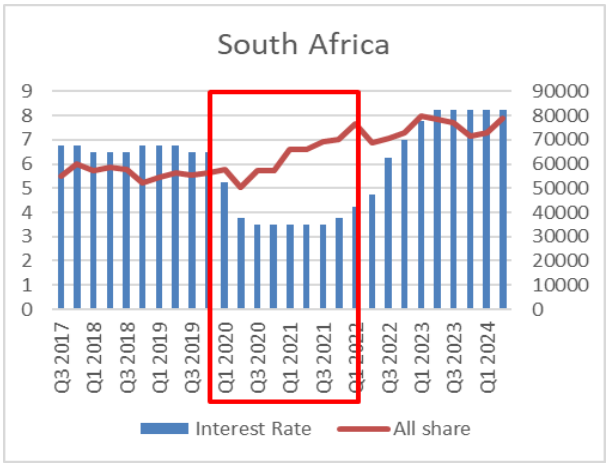
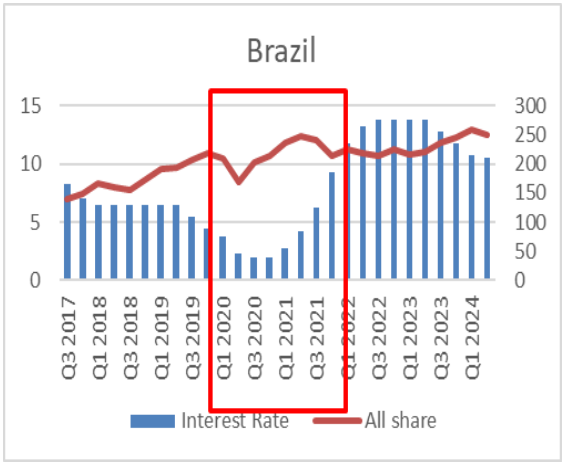


Figure (1) shows the growth rates of the stock market performance of the chosen countries moved in the same direction from the beginning of the COVID-19 pandemic in the first quarter of 2020 and have growth by similar rates over time. Turkey has seen a spike in the growth rates of it stock market, this was largely because of domestic influences such as aggressive monetary policy implementation.

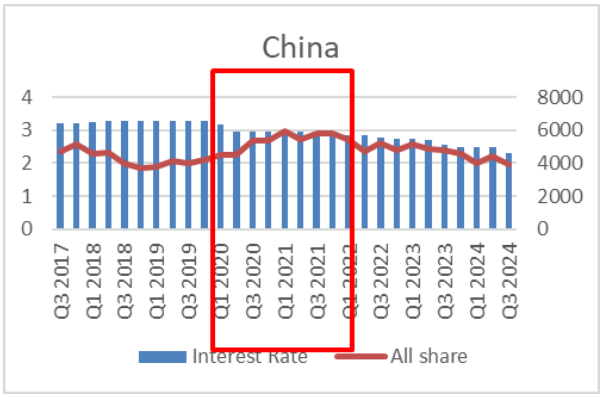
Figure 2: Behaviour of variable overtime-Interest Rate and Stock Market Performance



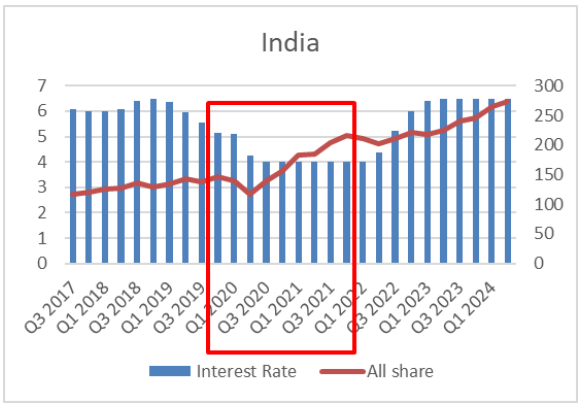
(a)



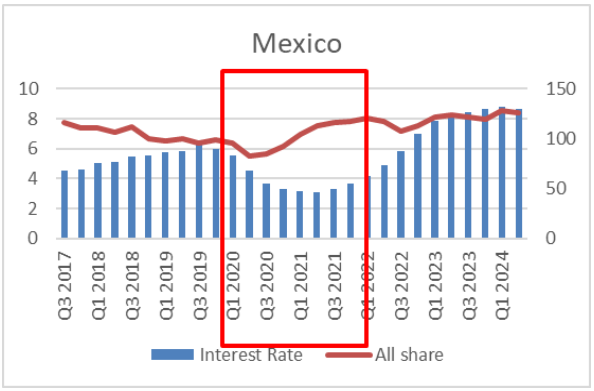
(b)



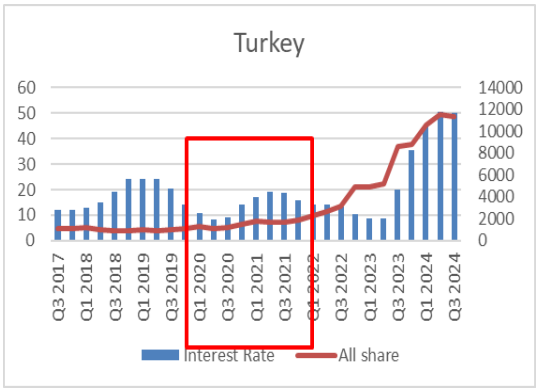
(c)



(d)



(e)



(f)

Figure 2 (a) shows that Between 2020 and 2021, during the peak of the COVID-19 pandemic, South Africa's all-share index followed an upward trajectory while the interest rates had declined and eventually stabilised. This inverse relationship suggests that investors may have been seeking alternative investment vehicles in response to lower interest rates.

Figure 2(b) shows that the trend of interest rate and all-share index performance in Brazil mirrors that of South Africa. The decline in interest rates alongside rising stock market performance aligns with the general theoretical relationship between interest rate and stock market performance.

In China, where the interest rates were already low, further rate reductions were implemented and maintained during the height of the pandemic. During this period, the stock market performance initially exhibited a positive trend before declining even as interest rates remained low. India has experienced a consistent increase in stock market performance since the pandemic. Even after interest rates increased post-pandemic, the stock market continues to perform well. In Mexico, stock market performance has been on an upward trajectory since the second quarter of 2020, continuing its growth even as interest rates began to rise post-pandemic. Overall, both interest rates and stock market performance have generally followed an upward trend. Despite hyperinflation leading to significantly higher interest rates from the fourth quarter of 2023, the stock market has continued to show positive growth.

4.3 Stationarity Test

Table 10 presents the stationarity or unit root test, which is important in time series analysis as it determines whether a variable is stationary. If a variable is non-stationary, it indicates the presence of a unit root, suggesting that the data may follow random walk. This can result in unreliable regression analysis, leading to spurious regressions (Granger and Newbold, 1974). The hypotheses for the unit root test are as follows:

- The null hypothesis (H_0): The data series/variables have a unit root (non-stationary).
- Alternative hypothesis (H_1): The data series/variables do not have a unit root (stationary).

Table 10:Results of the Augmented dicky Fuller Test per country

Country	Variable	Level			1st Difference			Decision
		Intercept	Trend and Intercept	None	Intercept	Trend and Intercept	None	
South Africa	All-share	0.66	0.34	0.85	0.00	0.00	0.00	1st difference
	GDP	0.02	0.05	0.71	0.00	0.00	0.00	1st difference
	Interest Rate	0.40	0.73	0.59	0.22	0.39	0.03	2nd difference/log
	Inflation Rate	0.53	0.64	0.59	0.0002	0.0015	0.0000	1st difference
Brazil	All-share	0.45	0.26	0.94	0.0007	0.0045	0.0001	1st difference
	GDP	0.91	0.44	0.99	0.0005	0.0030	0.0002	1st difference
	Interest Rate	0.04	0.16	0.27	0.5322	0.9055	0.1274	2nd difference/log
	Inflation Rate	0.01	0.04	0.37	0.0000	0.0001	0.0000	1st difference
China	All-share	0.55	0.93	0.48	0.0001	0.0004	0.0000	1st difference
	GDP	0.94	0.31	1.00	0.0000	0.0000	0.1063	1st difference
	Interest Rate	0.99	0.15	0.03	0.9905	0.1507	0.0329	2nd difference/log
	Inflation Rate	0.47	0.12	0.20	0.1306	0.0113	0.0140	2nd difference/log
India	All-share	0.98	0.67	0.10	0.0024	0.0087	0.0010	1st difference
	GDP	0.99	0.97	0.10	0.0000	0.0000	0.0428	1st difference
	Interest Rate	0.39	0.77	0.62	0.1977	0.3942	0.0244	2nd difference/log
	Inflation Rate	0.18	0.49	0.61	0.0004	0.0025	0.0000	1st difference
Mexico	All-share	0.77	0.57	0.76	0.0062	0.0177	0.0003	1st difference
	GDP	0.88	0.41	0.97	0.0000	0.0000	0.0000	1st difference
	Interest Rate	0.35	0.51	0.68	0.3651	0.6420	0.0760	2nd difference/log
	Inflation Rate	0.13	0.31	0.61	0.1339	0.3244	0.0134	1st difference
Turkey	All-share	1.00	1.00	0.98	0.9998	0.9982	0.9990	2nd difference/log
	GDP	0.99	0.37	1.00	0.0000	0.0000	0.2992	1st difference
	Interest Rate	0.00	0.05	0.66	0.0390	0.0999	0.0030	1st difference
	Inflation Rate	0.49	0.12	0.74	0.0138	0.0548	0.0011	1st difference
Critical Values		(2.98)	(3.60)	(1.95)	(2.98)	(3.60)	(1.95)	

Table 10 presents the results of the ADF unit root test. The p-values indicate that the variables at level exceed significance of 5%, meaning the null hypothesis that states that there exists a unit root holds, thus the data is non-stationary and cannot be rejected. Since the p-values are greater than 0.05 at level, then there the series is non-stationary, therefore fail to reject H_0.

To address the issue of non-stationarity, a second test was conducted using first differences. the results show that all variables, except for the interest rate of South Africa, Brazil, China, India and Mexico became stationary. In addition, to these interest rates, Turkey's share price variable inflation rate remains non-stationary. To further resolve non-stationarity in these variables, the data will be transformed using natural logs as follows:

$$\ln(AllShare_t) = \mu + \alpha ln(INT_t) + \beta \ln(INFLATION_t) + \delta \ln(GDP_t) + \varepsilon_t \qquad (2)$$

The OLS regression is conducted using Equation 2 to assess the impact of monetary policy on stock market performance.

4.4 Regression Results

Table 11: Performance of Stock Markets in relation to Monetary Policy Before COVID 19

Variable	Coefficient	Standard Error	T-statistic	P-value*
		Panel 1: Brazil		
Interest rate	-0.394821	0.409805	-0.963437	0.3725
Inflation	-0.001834	0.050185	-0.036549	0.9720
GDP growth	1.504296	1.307252	1.150731	0.2936
Constant	-15.75973	19.46201	-0.809769	0.4490
		Panel 2: China		
Interest rate	-6.692885	2.466922	-2.713051	0.0350
Inflation	0.002275	0.050187	0.045322	0.9653
GDP growth	-0.172723	0.473895	-0.364476	0.7280
Constant	18.43251	6.250265	2.949077	0.0256
		Panel 3: India		
Interest rate	-0.296400	0.342714	-0.864861	0.4203
Inflation	0.012167	0.082596	0.147313	0.8877
GDP growth	1.138741	0.423578	2.688387	0.0361
Constant	-6.511569	4.745113	-1.372268	0.2191
		Panel 4: Mexico		
Interest rate	-0.289660	0.517520	-0.559708	0.5959
Inflation	0.026784	0.117901	0.227178	0.8278
GDP growth	-0.575760	1.416666	-0.406419	0.6985
Constant	14.88754	23.37657	0.636857	0.5477
		Panel 5: South Africa		
Interest rate	-1.152908	0.706961	-1.630795	0.1541
Inflation	0.068986	0.141808	0.486474	0.6439
GDP growth	-2.709055	1.563767	-1.732391	0.1339
Constant	54.55338	24.36887	2.238650	0.0665
		Panel 6: Turkey		
Interest rate	-0.093697	0.133702	-0.700791	0.5097
Inflation	-0.168784	0.159328	-1.059345	0.3302
GDP growth	-0.335936	0.360317	-0.932334	0.3871
Constant	14.33359	7.127828	2.010934	0.0910

*Is the p-value at 5% level of significance

Table (11) shows the OLS regression results before the COVID-19 pandemic, the relationship between interest rates (monetary policy) and stock market performance is inverse, as theory suggests. The influence of monetary policy in Brazil, India, Mexico, South African and Turkey is statistically significant, the respective p-values these countries is above 5%.

Table 12: Performance of Stock Markets in relation to Monetary Policy during COVID 19

Variable	Coefficient	Standard Error	T-statistic	P-value*
		Panel 1: Brazil		
Interest rate	-0.160166	0.093175	-1.718981	0.1841
Inflation	-0.176977	0.099342	-1.781490	0.1729
GDP growth	2.381040	1.003541	2.372637	0.0983
Constant	-29.15456	14.55528	-2.003024	0.1389
		Panel 2: China		
Interest rate	1.205578	2.213004	0.544770	0.6149
Inflation	-0.052188	0.030306	-1.722042	0.1602
GDP growth	0.347651	0.384992	0.903006	0.4176
Constant	3.015837	6.434773	0.468678	0.6637
		Panel 3: India		
Interest rate	-0.539395	0.535220	-1.007801	0.3706
Inflation	-0.860914	0.376502	-2.286610	0.0842
GDP growth	0.675875	0.399588	1.691429	0.1660
Constant	0.309508	4.334317	0.071409	0.9465
		Panel 4: Mexico		
Interest rate	0.032702	0.157136	0.208114	0.8453
Inflation	0.287376	0.140834	2.040536	0.1109
GDP growth	0.520096	0.495725	1.049162	0.3533
Constant	-4.724715	8.324292	-0.567582	0.6007
		Panel 5: South Africa		
Interest rate	-0.369543	0.165713	-2.230020	0.0896
Inflation	0.235218	0.119147	1.974188	0.1196
GDP growth	0.719514	0.565840	1.271586	0.2724
Constant	0.195609	8.544919	0.022892	0.9828
		Panel 6: Turkey		
Interest rate	0.252068	0.086773	2.904926	0.0439
Inflation	0.339260	0.031124	10.90038	0.0004
GDP growth	-0.384032	0.253793	-1.513173	0.2048
Constant	13.42082	5.096397	2.633394	0.0580

*Is the p-value at 5% level of significance

Table (12) shows the OLS regression results during the COVID-19 pandemic, the relationship between interest rates (monetary policy) and stock market performance is positive in the following countries, namely China, Mexico and Turkey which is contrary to what theory suggests. Brazil, India and South Africa still have a negative relationship between monetary policy and stock market performance. The influence of monetary policy in Mexico is statistically significant, with 85% impact. Monetary policy did not have a significant influence on the stock market performance in Turkey.

Table 13: Performance of Stock Markets in relation to Monetary Policy after COVID 19

Variable	Coefficient	Standard Error	T-statistic	P-value*
		Panel 1: Brazil		
Interest rate	-0.572485	0.069598	-8.225561	0.0012
Inflation	-0.003198	0.019873	-0.160911	0.8800
GDP growth	0.501899	0.180030	2.787863	0.0494
Constant	-0.530074	2.693296	-0.196812	0.8536
		Panel 2: China		
Interest rate	2.020563	1.030709	1.960363	0.1072
Inflation	-0.029125	0.040998	-0.710394	0.5092
GDP growth	0.271101	0.431952	0.627617	0.5578
Constant	3.103956	6.098234	0.508993	0.6324
		Panel 3: India		
Interest rate	0.134757	0.122480	1.100237	0.3214
Inflation	-0.055964	0.160986	-0.347632	0.7423
GDP growth	0.767191	0.348041	2.204315	0.0787
Constant	-2.874575	3.783649	-0.759736	0.4817
		Panel 4: Mexico		
Interest rate	0.209236	0.245842	0.851098	0.4336
Inflation	-0.290433	0.156813	-1.852100	0.1232
GDP growth	-1.883865	1.882466	-1.000743	0.3629
Constant	37.39470	32.26110	1.159127	0.2987
		Panel 5: South Africa		
Interest rate	0.043175	0.102212	0.422400	0.6903
Inflation	-0.039724	0.146620	-0.270930	0.7973
GDP growth	1.244888	4.368132	0.284993	0.7871
Constant	-7.897304	66.97162	-0.117920	0.9107
		Panel 6: Turkey		
Interest rate	0.435613	0.259218	1.680489	0.1210
Inflation	0.659982	0.190498	3.464506	0.0053
GDP growth	1.230795	1.436808	0.856618	0.4099
Constant	-20.22584	28.44341	-0.711090	0.4918

*Is the p-value at 5% level of significance

Table (13) shows the regression results after the COVID-19 pandemic, 2022 to 2024, the relationship between interest rates (monetary policy) and stock market performance is positive in the all the countries, except Brazil. However, the influence of monetary policy on stock market performance in Brazil is statistically insignificant. Monetary policy had a significant influence on the stock market performance in South Africa, more than the other two periods.

4.5 Regression Model Robust Test

To test for a constant variance, the study uses a heteroskedasticity test, using Breusch-Pagan-Godfrey test.

*Table 14: Breusch-Pagan-Godfrey Test**

Country	Pre-Covid: 2017-2019	Covid Pandemic: 2020-2021	Post Covid: 2022-2024
China	0.1938	0.3708	0.1423
Mexico	0.5893	0.8982	0.0912
India	0.3963	0.3216	0.4676
South Africa	0.0933	0.1044	0.8986
Turkey	0.2338	0.3950	0.1410

*The values in Table (6) are the Obs*R-squared p-value

- Null hypothesis (H_0): the regression residuals have constant variance (homoskedasticity)
- Alternative hypothesis (H_1): The residual variance depends on the independent variables (heteroskedasticity exist)

The decision rule is: If the p-value < 0.05, reject the null hypothesis. If the p-value >0.05, fail to reject the null hypothesis. The p-values in Table (6) are great the 5%, therefore accept the null. The data is homoscedastic. No need for corrective measures, the OLS regression can be used for estimation.

4.6 Chapter Summary

To avoid spurious regression, a stationarity test was done using Augmented Dickey-Fuller (ADF) test at level and first difference. To correct for non-stationarity in some variables, natural log of the variables we used, equation (2). The OLS regression model of equation (2) passed the Breusch-Pagan-Godfrey test, a robustness test for an efficient model, therefore can be used to estimate. Monetary policy appears to be a useful tool to influence stock market performance, since it had a significant influence on the performance of the stock market. The next chapter discusses the above findings.

Chapter 5: Discussion and Conclusion

5.1 Introduction

This chapter discusses the key findings of the study, highlighting the influence of monetary policy on stock market performance. The results confirm that there is a traditional negative relationship between monetary policy and stock market performance in the period before the COVID pandemic. During and after the pandemic period, the relationship between the aforementioned variables is positive in almost all the sampled countries, this suggests that a crisis can change or interrupt normal dynamics. The chapter also looks at limitations and suggestions for future research. Section 5.2 discusses the results from chapter 4. Section 5.3 concludes the results discussion. Section 5.4 explores implications of the study and makes suggestions for future research. Section 5.5 highlights the limitations of the study.

5.2 Discussion

There exists a negative relationship between the interest rate and stock market performance in the period prior to the pandemic for all the countries. This result is as theory suggests that the nexus between interest rate and the all-share index. The influence of monetary policy on the stock market's performance is more statistically significant in China in the period 2017 to 2019 than in the rest of the selected countries, namely Brazil, India, Mexico, South Africa and Turkey.

The absolute value interest rate t-statistic for China, is 2.7 which is greater than 2. This means an expansionary monetary policy in China would have a significant influence on the performance of the stock market. To give an example, a 1% increase in the interest rate would lead to a 6.69 unit decrease in the stock market. South Africa's absolute value of the t-statistic is 1.63, which signals a moderate statistical influence of the interest rate on the performance of the stock market. A contractionary monetary policy during the period 2017 to 2019 would have led to a moderate increase in stock market. Gurkaynak et al., (2005) finds that monetary policy shocks significantly impact stock market returns.

The COVID-19 pandemic was unprecedented and necessitated that convention be done away with in many instances, this also applies in the application of monetary policy, some policies were unconventional, investors also acted differently considering it was uncharted waters. This is reflected in the results from the regression. The relationship between interest rate and all-share index during the period 2020 and 2021 no longer holds as per the theory. Theory states that there

is an inverse relationship between interest rate and stock market performance. Prabheesh et al., (2021) argue that monetary policy transmission was interrupted during COVID-19.

China, Mexico and Turkey all exhibit a positive relationship between interest rates and all-share index, this is similar to the findings by Rahman et al., (2009) that there is a positive relationship between interest rate and the long run stock market performance in Malaysia. Whereas Brazil, India and South Africa exhibit an inverse relationship between the interest rates and stock market performance. Turkey's interest rate t-statistic is 2.9, which is statistically significant. Therefore, the implementation of monetary policy will have a significant influence on the stock market performance. Turkey started to increase their interest rates during the peak period of the pandemic, they may have been responding to the impact of the lockdown during that time. This action may have led to the break in the conventional relationship between interest rate and stock market performance.

South Africa's interest rate t-statistic is 2.23, which is statistically significant meaning that monetary policy implemented had a level of influence on the performance of the stock market, this can be seen in figure 1, where a small change in the rate was accompanied by a large jump in the stock market performance. Post the COVID-19 pandemic the nexus between interest rate and the stock market performance in the countries in this study got turned upside down. As highlighted in the literature review section, AL-Naif (2017) argues that the relationship between monetary policy and stock market performance is inconclusive. Only in Brazil does the nexus between interest rate and the stock market performance follow theory. An inverse relationship exists. Monetary policy's influence on the stock market performance in Brazil is statistically significant, the t-statistic is 8.22 which greater 2. Monetary policy in the remaining countries is not statistically significant in the influence of stock market performance.

5.3 Conclusion

This study provides a view of how monetary policy impacted stock market performance before, during and after COVID-19 in emerging economies. The findings show that there is some influence from monetary policy on how investors or economic players act when faced with uncertainty, thus impacting stock market performance. The findings further highlight that policy adaptability during the time of crises can lower the negative impact of an event if well managed.

5.4 Implications of the study and further research

As the pandemic progressed, some central banks were adaptive and flexible enough with their policy response. An important consideration to make by policy makers is the balancing between fiscal and monetary policy to avoid creating inflationary pressures that have a potential of negatively impacting real wages, thus lowering disposable income and less demand for equities, which on aggregate will negatively impact stock markets. To reverse the aggressive monetary policy stance during the pandemic, policy makers must now have a gradual policy approach to post pandemic environment. This will ensure stability and confidence in the market.

From a portfolio risk management perspective, investors in emerging markets should further integrate models that consider aggressive monetary policy, to better navigate uncertain times.

For future research, more emerging market countries. In addition to the sample size, future research should also consider other factors that impact the stock market such as sentiment, political risk, and global economic index exchange rate to mention a few factors. A comparison between emerging and developed markets may help determine whether monetary policy has various impacts on stock market predominance that are unique to emerging markets.

5.5 Limitations of the study

The study focused on six emerging market countries, this could limit the scope to learn further and wider on the influence of monetary policy in these types of economies.

6. References

Ahiabor, G. (2013). The Effects of Monetary Policy on Inflation in Ghana. *Developing Country Studies, 3(12),82-90.*

Alam, M. M., & Uddin, G. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries (SSRN Scholarly Paper 2941281). https://papers.ssrn.com/abstract=2941281

Alfaro, L., & Mendoza, E. (2020). Current Policy Challenges Facing Emerging Markets. *IMF Economic Review*, *68*(3), 453–455. https://doi.org/10.1057/s41308-020-00119-z

Almansour, A., Aslam, A., Bluedorn, J., & Duttagupta, R. (2015). How vulnerable are emerging markets to external shocks? *Journal of Policy Modeling*, *37*(3), 460–483. https://doi.org/10.1016/j.jpolmod.2015.03.009

AL-Naif, K. L. (2017). The Relationship Between Interest Rate and Stock Market Index: Empirical Evidence from Arabian Countries. *Research Journal of Finance and Accounting*, 8(4), 181-191

Bernanke, B. S., & Blinder, A. S. (1992). The Federal Funds Rate and the Channels of Monetary Transmission. *The American Economic Review*, *82*(4), 901–921.

Bernanke, B. S., & Kuttner, K. N. (2005). What Explains the Stock Market's Reaction to Federal Reserve Policy? *The Journal of Finance*, *60*(3), 1221–1257. https://doi.org/10.1111/j.1540-6261.2005.00760.x

Comincioli, B. (1996). The Stock Market As A Leading Indicator: An Application Of Granger Causality. *The University Avenue Undergraduate Journal of Economics*, 1(1)

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, *25*(2), 383–417. https://doi.org/10.2307/2325486

Fama, E. F. (1981). Stock Returns, Real Activity, Inflation, and Money. *The American Economic Review*, *71*(4), 545–565.

Granger, C. W. J., & Newbold, P. (1974). SPURIOUS REGRESSIONS IN ECONOMETRICS. *Journal of Econometrics* 2, 111-120

Gurkaynak, R. S., Sack, B., & Swanson, E. T. (2005). Do Actions Speak Louder Than Words? The Response of Asset Prices to Monetary Policy Actions and Statements. *International Journal of Central Banking*, 1(1), 55-93.

Hamrita, M. E., & Trifi, A. (2011). The Relationship between Interest Rate, Exchange Rate and Stock Price: A Wavelet Analysis. International Journal of Economics and Financial Issues, 1(4), 220-228.

Iyke, B. N., & Maheepala, M. M. J. D. (2022a). Conventional monetary policy, COVID-19, and stock markets in emerging economies. *Pacific-Basin Finance Journal*, *76*, 101883. https://doi.org/10.1016/j.pacfin.2022.101883

Jagannarayan, N., & Jayachitra, T. A. (2021). Is Stock Market the Barometer of any Economy? Indian Case Since the Outbreak of the COVID-19 Crisis (SSRN Scholarly Paper 4131394). https://papers.ssrn.com/abstract=4131394

Kganyago, T. & Gumbo, V. (2015*).* An Empirical Study of the Relationship between Money Market Interest Rates and Stock Market Performance: Evidence from Zimbabwe (2009-2013). *International Journal of Economics and Financial Issues,* 5(3), 638-646.

Kuttner, K. N., & Mosser, P. C. (2002). The monetary transmission mechanism in the United States: Some answers and further questions. 12.

Makhetha-Kosi. P. (2014). Impact of Monetary Policy on Economic Growth: A Case Study of South Africa. *Mediterranean Journal of Social Sciences,* 5(15).76-84. *https:// doi.org/10.5901/mjss.2014.v5n15p76*

Marozva, G. (2020). THE EFFECTS OF MONETARY POLICY ON STOCK MARKET RETURNS AND VOLATILITY: EVIDENCE FROM SOUTH AFRICA. 24(3), 1-11

Mehar, M. A. (2022). Role of monetary policy in economic growth and development: From theory to empirical evidence. *Asian Journal of Economics and Banking*, *7*(1), 99–120. https://doi.org/10.1108/AJEB-12-2021-0148

Duttagupta, R. and Pazarbasioglu, C. (2021). Miles to go: Emerging markets must balance overcoming the pandemic, returning to more normal policies, and rebuilding their economies.

International Monetary Fund-Finance & Development Retrieved July 6, 2024, from https://www.imf.org/external/pubs/ft/fandd/2021/06/the-future-of-emerging-markets-duttagupta-and-pazarbasioglu.htmMishkin, F. (2006). Monetary Policy Strategy: How Did We Get Here? (w12515; p. w12515). *National Bureau of Economic Research*. https://doi.org/10.3386/w12515

Mishkin, F. S. (1995). "Symposium on the Monetary Transmission Mechanism. *The Journal of Economic Perspectives*, *9*(4), 3–10.

Modugu, K. P., & Dempere, J. (2022). Monetary policies and bank lending in developing countries: Evidence from Sub-Sahara Africa. *Journal of Economics and Development*, *24*(3), 217–229. https://doi.org/10.1108/JED-09-2021-0144

Thomas King. (2023). Monetary Policy and the Stock Market in the Covid Era.—*Federal Reserve Bank of Chicago*. Retrieved April 13, 2024, from https://www.chicagofed.org/publications/economic-perspectives/2023/5

Prabheesh, K. P., Juhro, S. M., & Harun, C. A. (2022). COVID-19 UNCERTAINTY AND MONETARY POLICY RESPONSES: EVIDENCE FROM EMERGING MARKET ECONOMIES. *Buletin Ekonomi Moneter Dan Perbankan*, *24*(4), 489–516. https://doi.org/10.21098/bemp.v24i4.1692

Rangarajan, C. (1997). Role of Monetary Policy. *Economic and Political Weekly*, 32(52), 3325–3328.

Shan, Y., Chen, Y., & Xiao, Y. (2023). Monetary policy as market stabilizer in the COVID-19 pandemic. *Finance Research Letters*, *55* 1-8.. https://doi.org/10.1016/j.frl.2023.103960

Schrank J. (2024)*:* The impact of a crisis on monetary policy's influence on financial markets: Evidence from the COVID-19 pandemic. *Cogent Economic & Finance* 12(1) . Retrieved April 13, 2024, from https://www.tandfonline.com/doi/epdf/10.1080/23322039.2024.2322874?needAccess=true

Suhaibu, I., Harvey, S. K., & Amidu, M. (2017). The impact of monetary policy on stock market performance: Evidence from twelve (12) African countries. *Research in International Business and Finance*, *42*, 1372–1382. https://doi.org/10.1016/j.ribaf.2017.07.075

Taylor, J. B. (1995). The Monetary Transmission Mechanism: An Empirical Framework. *Journal of Economic Perspectives*, *9*(4), 11–26. https://doi.org/10.1257/jep.9.4.11

Qing He, J. L. (2020, August). SSRN. Retrieved from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3676045

Retrieved April 20, 2024, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3676045

Thorbecke, W. (2023). The Impact of Monetary Policy on the U.S. Stock Market since the COVID-19 Pandemic. *International Journal of Financial Studies*, *11*(4), Article 4. https://doi.org/10.3390/ijfs11040134

Twinoburyo, E. N., & Odhiambo, N. M. (2018). Can monetary policy drive economic growth? Empirical evidence from Tanzania. *CONTEMPORARY ECONOMICS*, *2*.

Unconventional Monetary Policies in Emerging Markets and Frontier Countries. (2021). *IMF Working Papers*, *2021*(014). https://doi.org/10.5089/9781513567211.001.A001

WDR 2022 Chapter 1. Introduction. (n.d.). World Bank. Retrieved July 6, 2024, from https://www.worldbank.org/en/publication/wdr2022/brief/chapter-1-introduction-the-economic-impacts-of-the-covid-19-crisis

Wei, X., & Han, L. (2021a). The impact of COVID-19 pandemic on transmission of monetary policy to financial markets. *International Review of Financial Analysis*, *74*, 101705. https://doi.org/10.1016/j.irfa.2021.101705

Yellen, J. L. (1996). Monetary Policy: Goals and Strategy. *Business Economics*, *31*(3), 40–44.