



# Impact of Inflation on Stock Market Returns: An Evidence from Banking Stocks of Nairobi Securities Exchange, Kenya

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

Inflation significantly influences economic stability and investor confidence, potentially impacting stock market returns. Understanding this relationship is crucial for investors and policymakers, particularly in emerging markets like Kenya, where economic fluctuations are common. This study aimed to investigate the complex interplay between various inflation types and stock market performance within the Kenyan banking sector. Specifically, the study sought to determine the effects of imported inflation, demand-pull, cost-push, and inflation targeting on the stock market returns of commercial banks listed on the Nairobi Securities Exchange (NSE) from 2017 to 2022.

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The research was guided by the Fisher Hypothesis, Inflation Illusion Hypothesis, Proxy Hypothesis, and Interest Rate Parity Theory. A descriptive study design was employed, utilizing a census survey to collect data from all 11 banking sector firms listed on the NSE. Secondary data on stock market returns were sourced from the NSE and CBK, while inflation data was obtained from the KNBS. Quarterly data over five years were analyzed using SPSS version 21. Findings revealed that hyperinflation, imported, cost-push, and demand-pull inflations had significant positive effects on stock market returns, while inflation targeting had a moderating effect. The study concluded that demand-pull inflation could lead to higher corporate earnings, while cost-push inflation could increase interest rates as the CBK attempts to control inflation. Imported inflation raised costs for firms relying on imported inputs, reducing profitability. Hyperinflation led to rising stock prices as investors sought to protect their wealth. Successful inflation targeting by central banks resulted in lower interest rates, boosting stock returns. The study recommended that the CBK could use interest rate adjustments to control inflationary pressures. Companies listed on the NSE could implement cost-control measures to mitigate cost-push inflation, while the government could impose tariffs to limit imported inflation. Additionally, diversification was suggested as a strategy for managing hyperinflation's impact on stock returns. The CBK was advised to use monetary policy tools such as interest rates and reserve requirements to regulate inflation and enhance financial stability.

*Keywords: Cost-push; demand-pull; financial stability; hyperinflation; imported inflation; inflation targeting; inflation.*

## 1. INTRODUCTION

Over the past decade, Kenya has experienced a significant increase in public borrowing, both domestically and internationally, leading to economic slowdown and declining stock prices. Some economists argue that excessive monetary injections in a liquidity trap are ineffective, likened to "pushing on a string." Inflation rates are influenced by factors such as fluctuations in demand, supply variations, and changes in money velocity. However, the prevailing view is that prolonged inflation results from money supply expanding faster than economic growth (Bernanke, 2018).

Stock markets play a crucial role in fostering investment and savings by providing a platform for portfolio diversification. These markets aggregate savings from various sources, making them accessible for productive use, thereby driving economic growth. Equity markets enable businesses to secure investment funds by issuing shares, helping them achieve their investment goals. Investors benefit from diversified financial instruments aligned with their risk tolerance and liquidity preferences (Olweny and Kimani, 2011). The liquidity of stock markets also allows for easy exchange of securities ownership, facilitating capital gains realization.

Macroeconomic policy worldwide prioritizes stable economic growth and low inflation, goals widely supported by economists (Sergii, 2019). Omollo (2012) emphasizes that sustained growth

boosts labor demand, increasing employment opportunities. Additionally, higher growth generates more tax revenue, allowing governments to fund essential infrastructure and public projects. This enhances public welfare, labor efficiency, and overall economic productivity (Amanja and Morrissey, 2013). High and unpredictable inflation negatively impacts investment returns, leading to conservative investment strategies that hinder growth (Gokal and Hanif, 2018). It also distorts borrowing and lending decisions, forcing firms to allocate additional resources to counter inflation's effects. For instance, businesses must monitor competitors' prices to distinguish between industry-specific price changes and inflation-driven fluctuations (Chiu and Meh, 2007).

Inflation refers to the sustained rise in the general price level of goods and services within an economy over time. It is measured using the percentage change in a price index relative to a base year (Romer, 2019). Inflation negatively impacts economic activities by reducing the purchasing power of money, increasing the cost of living, and affecting public finances. Stock market returns help mitigate inflation, lower the real costs of disinflation, and stabilize long-term inflation expectations (Vega & Winkelried, 2019; Bernanke et al., 2019). The Human Development Index (HDI), introduced by UNDP in 1990, serves as a measure of human development, incorporating health, life expectancy, and living standards (Salles, 2018). Economists often attribute high inflation to excessive money supply

growth, while low to moderate inflation rates result from fluctuations in demand and supply or changes in money velocity. A prolonged inflationary period typically arises when money supply growth exceeds economic growth (Bernanke, 2015). Economic growth in Africa has been uneven, with countries like Mauritius and Botswana experiencing high real per capita GDP growth rates, while others like Sierra Leone and Burundi have faced stagnant or negative growth. Some nations, including Senegal and Madagascar, have recorded negative real per capita GDP growth rates.

Stock market indicators play a crucial role in predicting economic growth or downturns. Mun, et al (2018) suggest that declining stock prices often signal economic slowdowns, while rising prices indicate expansion. For instance, uncertainties surrounding the 2019 recession led to a sharp decline in stock prices (Fuentes, 2020). The stock market is vital for economic growth, providing institutions with a cost-effective means of raising capital by issuing shares. Additionally, it facilitates the mobilization of resources by directing savings into productive investments, fostering overall economic development. From a governmental perspective, the stock market serves two key functions: raising funds for long-term infrastructure projects through bond issuance and acting as an economic gauge by tracking stock indices and share prices to guide fiscal and monetary policies (Munga, 2019).

In Kenya, the Nairobi Securities Exchange (NSE) is the primary stock market. Initially established in 1954 as an overseas exchange under the London Stock Exchange, it lacked formal regulations and operated informally until 1993, when economic reforms led to privatization and eased restrictions on foreign investors (Smith et al., 2022). The NSE ranks among Africa's top five stock exchanges by market capitalization. Trading transitioned to the Electronic Trading System (ETS) in 2016, eliminating the need for brokers on the trading floor. In 2021, the NSE restructured into three segments: the Fixed Income Securities Market Segment (FISMS) for bonds, the Alternative Investment Markets Segment (AIMS) for SMEs, and the Main Investments Market Segment (MIMS) for primary quotations. These developments enhance market efficiency and accessibility, supporting Kenya's economic growth.

Inflation targeting is widely preferred in the global economy, as maintaining a modest and stable

inflation rate helps mitigate economic downturns. A zero percent inflation target is impractical, and most economists consider a moderate rate of around two percent optimal, with up to five percent still acceptable. Double-digit inflation, however, is seen as undesirable. Central banks typically control inflation through monetary policy tools such as open market operations, reserve requirements, and interest rate adjustments. Historically, hyperinflation affected several African nations in the 1990s, with the Democratic Republic of Congo and Angola experiencing extreme inflation rates of approximately 716% and 476%, respectively. Other countries, including Zambia, Uganda, Sudan, and Ghana, saw rates of up to 30%. Conversely, nations like Tunisia, Niger, and Morocco maintained lower inflation levels, around 4%. Across Africa, inflation averaged 12.4% in the 1970s, surged to 114.5% in the 1990s due to hyperinflation, and later declined to 10.5% in the 2000s and 6.8% between 2010-2013. The average inflation rate from 1970 to 2013 was 35.2%. Differences in inflation levels stem from monetary policy regimes, with countries in the CFA zone maintaining a fixed exchange rate, while others, such as Nigeria, South Africa, and Ghana, follow inflation-targeting regimes.

### 1.1 Research Problem

The relationship between inflation and stock market returns remains a subject of debate, with researchers presenting conflicting findings. Some theories suggest inflation has no impact, while others argue for positive or negative effects. Despite these differences, most studies agree that low inflation is beneficial for long-term stock market performance. However, researchers remain uncertain whether inflation's adverse effects on economic growth make it a necessary evil in stock market dynamics.

To clarify this debate, scholars have explored non-linear relationships between inflation and stock returns, finding that low inflation levels may positively impact stock markets, whereas high inflation rates tend to have detrimental effects. Bruno and Easterly (2016) found that inflation rates between 20% and 30% did not necessarily harm stock markets, but beyond 40%, real economic performance declined. Similarly, Khan and Senhadji (2021) identified inflation thresholds at 11-12% for developing nations and 1-3% for developed economies.

Research on US and European markets largely contradicts the Fisherian hypothesis, showing a

negative relationship between inflation and real stock returns. Studies such as those by Modigliani and Cohn (2019) and Fama (2018) highlight the "stock return-inflation puzzle" without providing a clear explanation. In Ghana, Coleman and Tetey (2018) linked inflation to reduced stock market demand, as rising living costs diverted resources to consumables.

In Kenya, studies have also found a negative correlation between inflation and stock prices. Munene (2017) identified a direct negative link, while Nyamute (2018) found inflation, along with exchange rates, interest rates, and money supply, to negatively impact stock prices. Given these mixed findings, this study aims to investigate the effect of inflation on stock market returns, focusing on commercial banks listed on the Nairobi Securities Exchange (NSE).

## 1.2 Research Objective

This study was guided by the following general objective to: determine the effect of inflation on the stock market returns of commercial banks listed at the NSE, Kenya.

Specific Objectives were to; establish effect of demand-pull inflation on the stock market returns at NSE, Kenya, to find out effect of cost-push inflation on the stock market returns at NSE, Kenya, to determine effect of imported inflation on the stock market returns at NSE, Kenya, to assess effect of hyper-inflation on the stock market returns at NSE, Kenya and to examine the moderating effect of inflation targeting on the stock market returns at NSE, Kenya.

## 1.3 Research Hypothesis

This study was guided by the following Research Hypothesis.

**H<sub>01</sub>:** Demand-pull inflation has a positive effect on the stock market returns at NSE, Kenya.

**H<sub>02</sub>:** Cost-push inflation positively affect the stock market returns at NSE, Kenya.

**H<sub>03</sub>:** Imported inflation positively affect the stock market returns at NSE, Kenya?

**H<sub>04</sub>:** Inflation targeting has appositive moderating effect on the stock market returns at NSE, Kenya.

## 1.4 Justification of the Study

This research is significant as it aids investment firms in formulating effective policies for wealth

maximization and enhancing firm value. The findings offer policy implications for both firms and government authorities, guiding strategies that consider inflation, exchange, and interest rates to promote stock market investment. Additionally, it enriches existing knowledge, providing a foundation for future research and deeper investigations in this field.

## 1.5 Study Limitations

This research faced challenges in establishing the causal link between inflation and stock market returns due to external factors influencing both variables. Data availability and quality issues, including gaps in historical records, posed limitations. Generalizability was also a concern, as Kenya's economic and banking dynamics differ from other regions. Additionally, changes in banking regulations, monetary policies, and macroeconomic factors could impact stock market returns of commercial banks.

## 2. LITERATURE REVIEW

### 2.1 The Relationship Between Inflation and Stock Market Returns in the Banking Sector

The conceptual framework used in this study examines how inflation influences stock market returns. Various theories explain the relationship between inflation and stock market performance, including the Inflation Illusion Hypothesis, Fisher Hypothesis, Proxy Hypothesis, and Purchasing Power Parity Theory.

### 2.2 Inflation Illusion Hypothesis

Modigliani and Cohn (1979) proposed the Inflation Illusion Hypothesis, which suggests that investors experience money illusion due to significant correlations between inflation rates and stock market returns. They argued that higher inflation leads investors to perceive stocks as undervalued, while lower inflation results in overvaluation. This theory implies that investor biases contribute to valuation errors in the stock market (Wilcox, 2017).

Supporting this hypothesis, Ritter and Warr (2016) linked stock undervaluation to errors in calculating real capitalization and nominal rates, which ultimately fueled the 1982 bull market. Similarly, Campbell and Vuolteenaho (2016) conducted a study covering the period from 1927

to 2016 and found evidence of inflation-induced mispricing. While this hypothesis explains stock mispricing, it does not fully account for mispricing volatility (Lung and Wang, 2017). The theory also suggests that inflation affects investor risk attitudes, which can negatively influence stock prices.

### 2.3 Fisher Hypothesis

The Fisher Hypothesis, formulated by Fisher (1930), argues that nominal asset returns adjust to expected inflation, meaning that real factors determine stock returns regardless of inflation fluctuations. According to this theory, stocks should exhibit a positive relationship with expected inflation to offset rising prices.

Empirical studies by Boudoukh and Richardson (1993) supported the Fisher Hypothesis through an analysis of stock market returns in the US and the UK from 1802 to 1990. However, several researchers, including Schwert and Fama (2017) and Mandelker and Jaffe (2016), documented a negative correlation between stock prices and inflation. Mishra and Singh (2017) attributed this inverse relationship to the increase in inflation, which raises the discount rate in stock valuation models, ultimately lowering stock returns.

The Fisher Hypothesis implies that in a well-functioning market where present and anticipated inflation are factored into prices, an increase in expected inflation should result in higher nominal returns. This systematic relationship underscores the interconnection between inflation and stock returns, suggesting that assets should maintain their real value against inflationary pressures.

### 2.4 The Proxy Hypothesis

Fama (1981) introduced the Proxy Hypothesis to explain the inverse relationship between inflation and stock market prices, emphasizing their indirect connection with economic activity. The theory asserts that stock market returns and anticipated economic growth are positively correlated. However, as inflation rises, real economic growth slows, increasing volatility and leading investors to demand higher risk premiums (Olusifayo, 2017).

Cozier and Rahman (1988) employed Granger's (1969) causality technique to examine the relationship between inflation and stock market returns in Canada, finding results that aligned with the Proxy Hypothesis. Lee (1992) used

Vector Autoregression (VAR) residuals to analyze the dynamic interactions of inflation and stock returns in the US, providing further evidence in support of the hypothesis. However, McQueen and Roley (1993) criticized the theory, arguing that stock prices and real economic activities exhibit a negative relationship only under certain conditions. They posited that while stock prices rise when economic activity strengthens in weaker economies, they decline when the same information emerges in already thriving economies.

### 2.5 Purchasing Power Parity Theory

Keynes (1923) developed the Purchasing Power Parity (PPP) Theory, which explains the relationship between inflation, interest rates, and exchange rates. The theory suggests that interest rate differentials between two countries reflect disparities in exchange rates over time. This concept is particularly relevant in foreign exchange markets, where interest rate fluctuations influence currency values and exchange rate movements (Alexius, 2021).

PPP theory asserts that a country with higher interest rates attracts foreign capital, strengthening its currency. However, if inflation is high, the positive effects of increased interest rates diminish. The theory further explains that interest rate differentials between two currencies are reflected in forward, futures, and spot exchange rates. In an efficient market, absent of transaction costs or taxes, the difference in interest rates should approximately equal the forward exchange rate differential.

Chinn and Meredith (2018) observed that Euro currency markets apply interest rate differentials when determining forward interest rates using a no-arbitrage condition. This principle establishes a crucial link between spot exchange rates and foreign exchange markets, ensuring equilibrium between domestic and foreign investments. The theory suggests that expected exchange rate changes and foreign interest rates should align with domestic interest rates. However, one of its limitations is its reliance on two assumptions: perfect capital mobility and the substitutability of foreign and domestic assets. Despite these constraints, the theory remains relevant in understanding the relationship between interest rates, inflation, and stock market performance. The theoretical review highlights four key perspectives on the relationship between inflation and stock market returns. The Inflation Illusion

Hypothesis suggests that investor biases and money illusion distort stock valuations. The Fisher Hypothesis posits that nominal stock returns adjust to inflation, though empirical evidence is mixed. The Proxy Hypothesis links inflation to real economic activity, emphasizing that rising inflation reduces economic growth and increases risk premiums. Lastly, the Purchasing Power Parity Theory connects inflation to interest rates and exchange rates, illustrating how financial markets adjust to macroeconomic changes. These theories collectively provide a robust framework for examining how inflation impacts stock market returns.

## 2.6 Empirical Review

Demand-pull inflation and stock market returns have been extensively studied in different contexts to understand their relationship. Munene (2017) explored the connection between stock prices and inflation at the Nairobi Securities Exchange (NSE) using monthly data from six firms between 2002 and 2016. The study employed the Ordinary Least Squares (OLS) estimation method with explanatory variables such as information dummy, expected inflation, and actual inflation. The findings indicated a negative correlation between expected inflation and stock returns, whereas actual inflation and stock prices had a positive relationship. Similarly, Mutai (2021) investigated macroeconomic attributes influencing stock prices on the NSE, testing their relationship with inflation, money supply, exchange rates, GDP, current account balance, Treasury bill rates, and budget deficit using a Vector Autoregression (VAR) model. The study found that stock prices evolved in tandem with these macroeconomic variables over time, highlighting the broader economic impact on stock market performance.

Omondi and Olweny (2018) focused on stock return volatility and its connection to macroeconomic factors at the NSE. Using time-series data from 2010 to 2021 and employing EGARCH and TGARCH models, they identified significant impacts of inflation, interest rates, and foreign exchange rate fluctuations on stock return volatility. The study also found evidence of symmetry in stock returns, which exhibited leptokurtic properties rather than a normal distribution. In a similar line of research, Ngigi (2017) examined the effects of monetary and fiscal policy actions on stock market performance in Kenya. The study used cointegration techniques to analyze the impact of anticipated

and unanticipated monetary and fiscal policies on the NSE. The findings suggested that unanticipated fiscal and anticipated monetary policy actions negatively impacted the stock market, while unanticipated monetary policy adjustments had a positive effect. Anticipated fiscal policy actions, however, did not have a significant influence.

Muriithi (2020) analyzed how financial crises influenced NSE performance, covering the period from 1991 to 2010. The study utilized the NSE 20 Share Index as a performance indicator and found that stock market performance declined in the aftermath of financial crises but generally recovered over time. Although the impact of crises was not severe enough to trigger panic, the research indicated that financial instability negatively affected the NSE. Additionally, Aroni (2021) investigated factors affecting stock prices of NSE-listed firms between 2010 and 2018, considering macroeconomic variables such as exchange rates, inflation, interest rates, and money supply. A multiple regression analysis revealed that inflation, interest rates, and exchange rates significantly influenced stock prices, while money supply had an insignificant impact. The study recommended that investors should continuously analyze economic conditions to develop strategic investment approaches in response to market fluctuations.

Cost-push inflation and stock market returns have also been examined in different studies. Chen and Jin (2018) analyzed factors affecting stock returns, utilizing panel data analysis with a random effect generalized least squares (GLS) approach. The study highlighted the distinction between developed and developing economies, where economic variables exert different influences on stock returns. Similarly, Abugri (2016) investigated macroeconomic indicators such as money supply, industrial production, interest rates, and exchange rates in four Latin American countries, concluding that global factors played a significant role in determining stock returns, while country-specific macroeconomic attributes had varying levels of influence.

Robert (2018) explored the relationship between stock market returns and macroeconomic variables in emerging economies, including India, China, Russia, and Brazil. The study found no significant connections between past and present market returns and macroeconomic indicators, indicating weak market efficiency. Additionally, it reported no notable relationships between stock

market index prices, oil prices, and exchange rates in these countries. In Ghana, Coleman and Tettey (2018) investigated the effect of macroeconomic variables on the Ghana Stock Exchange using quarterly data from 1991 to 2019. Their study concluded that lending rates negatively impacted stock market performance, while inflation and stock market returns were inversely related, demonstrating the delayed impact of inflation due to lag periods.

Bai and Green (2018) used data from 13 emerging stock markets (ESMs) between 1984 and 2018 to analyze stock return variations. Their findings revealed a negative relationship between exchange rate changes and country effects, as well as a positive correlation between inflation and stock returns. The study also found that increased financial intermediary activities reduced stock returns, whereas active stock market participation positively influenced returns. Koubi (2018) examined the role of financial development determinants across 49 countries between 1980 and 1999, reporting that transaction costs, exchange rate volatility, capital controls, and economic openness significantly influenced stock returns. Wang et al. (2010) assessed stock return determinants during the 1987 and 2018 U.S. stock market crashes using multivariate regression analysis. The study found that bankruptcy risk and technical insolvency risk were major contributors to stock returns, with greater return volatility and higher betas leading to more significant losses. The market-to-book ratio played a crucial role in the 2018 crash but not in 1987, while stock illiquidity was a key factor in 1987 but not in 2018. In Namibia, Eita (2011) examined stock market price determinants using quarterly data from 1998 to 2019, identifying economic activity, money supply, exchange rates, inflation, and interest rates as key influences. The study reported positive relationships between economic activity, stock market prices, and money supply, whereas inflation and interest rates exhibited negative associations with stock prices.

Imported inflation and stock market returns have also been extensively studied. Tursoy, et al (2018) tested the Arbitrage Pricing Theory (APT) model's validity within the Istanbul Stock Exchange (ISE) using monthly data from 2021 to 2019. Their findings suggested that stock returns were not significantly influenced by 13 macroeconomic attributes, including interest rates, money supply, GDP, imports, exports, crude oil prices, and consumer price index.

Similarly, Lucey, et al (2018) examined imported inflation and stock exchange returns in developed countries between 1999 and 2007. Their GARCH model analysis showed that unexpected macroeconomic news significantly influenced stock market returns in the UK, Singapore, Italy, Hong Kong, Germany, France, and Canada.

Karam and Mittal (2011) investigated the long-term relationship between imported inflation and ISE returns, employing an Ordinary Least Squares (OLS) model on quarterly data spanning from 1995 to 2018. Their results indicated a long-term connection between inflation, GDP, exchange rates, and stock returns. Hsing (2012) applied the exponential GARCH model to analyze how imported inflation affected the Argentine stock market index. The study found that the Argentine stock market index was positively associated with the U.S. stock market index, real GDP, and exchange rate movements. However, government spending, inflation as a percentage of GDP, and money market rates negatively impacted the index.

Laichena and Obwogi (2015) examined the effect of imported inflation on stock returns in East Africa, analyzing GDP, exchange rates, inflation, interest rates, and stock returns in three East African countries between 2009 and 2014. Using a random effects model, their study found that interest and exchange rates had significant negative relationships with stock returns, while GDP and inflation positively influenced stock returns. Hyper-inflation and stock market returns have also been analyzed in different contexts. Ball and Sheridan (2019) compared economic improvements in 7 OECD inflation-targeting nations with 13 non-targeting countries, concluding that inflation targeting policies led to improved economic stability. Similarly, Vega and Winkelried (2019) found that inflation rates decreased among 109 inflation-targeting countries, including 23 developing ones. This finding was consistent with prior research by Corboi et al. (2010), Neumann and von Hagen (2012), and Petursson (2018), all of whom observed reductions in inflation following the adoption of inflation-targeting policies. Goncalves and Salles (2018) also reported lower inflation levels among developing nations that adopted inflation targeting.

### 3. METHODOLOGY

The research design for this study follows a descriptive approach, which involves

systematically gathering and evaluating data to identify factors associated with specific events or outcomes. This method enables an in-depth examination of the study phenomenon in its natural context, allowing for a comprehensive analysis of relationships and conditions relevant to the research. The target population consists of all eleven banking sector companies listed on the Nairobi Securities Exchange (NSE), with data spanning from January 2017 to December 2022. A population refers to the set of cases or units under study, and the target population includes all entities from which the researcher aims to generalize findings. Since the total population is below 100, a census survey was conducted, eliminating the need for sampling.

The study employed secondary data collection methods, acquiring information from external records such as the Central Bank of Kenya (CBK), the NSE for stock market returns, and the Kenya Bureau of Statistics (KBS) for inflation data. Data was gathered using a structured data collection sheet, covering a five-year period and evaluated on a quarterly basis to assess the relationship between inflation and stock market returns. Data analysis was performed using SPSS version 21, with the Least Squares Method and a multivariate analysis model, specifically multiple regression analysis, to examine the connection between inflation rates and stock market returns. The analysis was conducted in two stages: an initial evaluation to gain a general understanding of the data, followed by regression analysis to determine the extent of the relationship between stock market returns and inflation. Descriptive statistics, including mean and standard deviation, were applied to assess demand-pull, cost-push, and imported inflation values. The comprehensive approach ensured the study provided accurate insights into how inflation influences stock market performance.

## **4. RESULTS AND DISCUSSION**

### **4.1 Descriptive Statistics**

#### **4.1.1 Demand-pull Inflation**

The study examined how demand-pull inflation, measured by the consumer price index (CPI) and interest rates, affects stock market returns (SMR) at the NSE, Kenya. The results indicate that the CPI had a mean of 4.512 and a standard deviation of 0.8451, with a minimum of 0.254 and a maximum of 0.894. Lower CPI values suggest

low inflation, which positively impacts stock returns by boosting consumer spending and corporate profits. This aligns with Munene (2017), who found a positive relationship between stock prices and inflation. Interest rates had a mean of 4.574 and a standard deviation of 0.7150, with values ranging from 7.645 to 15.990. Higher interest rates increase borrowing costs, potentially lowering stock prices, but also signal economic strength, boosting investor confidence. Mutai (2021) and Mungiria & Jagongo (2022) further support these findings, showing that inflation and interest rates significantly influence stock prices and market volatility.

#### **4.1.2 Cost-push inflation**

The study examined the impact of cost-push inflation on stock market returns at the Nairobi Securities Exchange (NSE), focusing on government taxation and exchange rates. Results showed that government taxation had a mean of 4.091 and a standard deviation of 0.241, with values ranging from 0.654 to 0.992. High taxation was linked to reduced corporate earnings and lower stock prices, while lower taxes boosted profits and stock values. Capital gains tax also influenced investor behavior, affecting trading activity and stock market performance. These findings align with Abugri (2016), who highlighted the role of global and national macroeconomic factors in market returns. Exchange rates had a mean of 4.122 and a standard deviation of 0.362, with values between 0.557 and 0.784, indicating a positive correlation with stock market returns. This contradicts Robert (2018), who found no significant relationship between exchange rates and stock market returns in emerging economies.

#### **4.1.3 Imported inflation**

The study examined the impact of imported inflation on stock market returns at the NSE, Kenya, focusing on import and export taxes. Results showed that the import tax had a mean of 4.089 and an SD of 0.612, with a minimum value of 0.5740 and a maximum of 1.254, indicating low import tax levels. Lower import taxes can enhance company profitability, boosting stock prices, aligning with Lucey et al. (2018), who found macroeconomic variables influenced stock returns. The export tax had a mean of 4.364 and an SD of 0.409, with a minimum of 0.4091 and a maximum of 0.853,

suggesting high export tax levels. High export taxes impact export-driven sectors, influencing investor sentiment and market performance. This aligns with Karam & Mittal (2011), who found a long-term relationship between imported inflation and ISE returns. Understanding these tax policies is crucial for investors navigating the stock market.

#### 4.1.4 Hyper inflation

The study examined the impact of hyperinflation on stock market returns at the NSE, Kenya, focusing on currency depreciation and money supply expansion. The results showed that currency depreciation had a mean of 4.008 and an SD of 0.412, with values ranging from 0.411 to 0.850, indicating a significant decline in purchasing power. This depreciation leads to inflation and higher interest rates, affecting stock market performance. The findings align with Khan and Senhadji (2021), who identified a threshold beyond which inflation harms growth. Money supply expansion had a mean of 3.975 and an SD of 0.547, with values from 0.664 to 0.991, indicating lower expansion levels. Excessive money supply growth fuels hyperinflation by outpacing economic output, driving prices up. This supports Yabu and Kessy (2015), who found a non-linear relationship

between inflation and growth in East Africa, identifying an inflation threshold of 8.46% for Kenya, Tanzania, and Uganda.

#### 4.1.5 Inflation targeting

The study examined the moderating effect of inflation targeting, measured through monetary policy, on stock market returns at NSE. Results showed an inflation policy mean of 3.271 and a standard deviation of 0.7020, with currency depreciation values ranging from 0.274 to 0.703. The findings align with Beggs (2010), who found monetary policy compatible with financial stability. Understanding this correlation aids stakeholders in making informed investment decisions, emphasizing the importance of monetary policy tools in maintaining market stability.

#### 4.2 Model Summary

The regression results indicate that the adjusted R-squared value is 0.718, suggesting that hyperinflation, imported inflation, cost-push inflation, and demand-pull inflation collectively explain 71.8% of the variation in stock market returns at NSE. The remaining 28.2% is attributed to other inflation factors not examined in the study.

**Table 1. Demand-pull inflation**

Measure	Minimum	Maximum	Mean	Standard deviation
Consumer price index	0.254	0.894	4.512	0.8451
Interest rate	7.645	15.990	4.574	0.7150

Source: Survey Data (2024)

**Table 2. Cost-push inflation**

Measure	Minimum	Maximum	Mean	Standard deviation
Government taxation	0.654	0.992	4.091	0.241
Exchange rate	0.557	0.784	4.122	0.362

Source: Survey Data (2024)

**Table 3. Imported inflation**

Measure	Min	Max	Mean	SD
Import tax	0.5740	1.254	4.089	0.612
Export tax	0.4091	0.853	4.364	0.409

Source: Survey Data (2024)

**Table 4. Hyper-inflation**

Measure	Min	Max	Mean	SD
Currency depreciation	0.411	0.850	4.008	0.412
Money supply expansion	0.664	0.991	3.975	0.547

Source: Survey Data (2024)

**Table 5. Inflation targeting**

Measure	Min	Max	Mean	SD
Monetary policy	0.274	0.703	3.271	0.7020

Source: Survey Data (2024)

**Table 6. Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.857	.734	.718	0.056

Source: Survey Data (2024)

### 4.3 Anova

**Table 7. Analysis of variance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	112.005	4	28.001	41.473	.001
	Residual	4.051	6	0.675		
	Total	116.056	10			

Source: Survey Data (2024)

The results show that the statistical F value was 41.473 greater than the statistical mean value of 28.001. In addition, the significance value was at 0.001, this is less than the significance level at 0.05. Hence, the model was significant.

### 4.4 Coefficients

The results show that when hyperinflation, imported, cost-push and demand-pull inflations are held constant, the stock market returns would be at 0.667. The below regression equation is obtained; Stock market return = .667 + .803 (hyperinflation) + .776 (imported inflation) + .705 (cost-push inflation) + .851 (demand-pull inflation).

### 4.5 Hypotheses Testing

The study tested five hypotheses related to inflation and stock market returns at the Nairobi Securities Exchange (NSE). The first hypothesis (H01) examined the effect of demand-pull

inflation, revealing a positive and significant impact ( $\beta = 0.254$ ,  $p = 0.000$ ), leading to its rejection. The findings align with Mutai (2021), who explored macroeconomic factors influencing stock prices at NSE. The second hypothesis (H02) assessed cost-push inflation's effect on stock market returns, showing a notable positive influence ( $\beta = 0.346$ ,  $p = 0.001$ ), leading to rejection. These results support Koubi (2018), who analyzed stock returns and financial development determinants across multiple countries. The third hypothesis (H03) investigated the impact of imported inflation, demonstrating a significant positive effect ( $\beta = 0.118$ ,  $p = 0.002$ ), leading to its rejection. This aligns with Hsing (2012), who found a relationship between imported inflation and the Argentine stock market index. The fourth hypothesis (H04) tested hyperinflation's influence, showing a positive impact ( $\beta = 0.279$ ,  $p = 0.001$ ), leading to rejection. These findings agree with Yabu and Kessy (2015), who identified a threshold inflation level for economic

**Table 8. Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.667	.264		2.527	.001
	Demand-pull inflation	.851	.354	.254	2.404	.000
	Cost-push inflation	.705	.337	.346	2.092	.001
	Imported inflation	.776	.402	.118	1.930	.002
	Hyperinflation	.803	.365	.279	2.200	.001

Source: Survey Data (2024)

growth in East Africa. Lastly, the study tested the moderating effect of inflation targeting (H05) on stock market returns, using two regression models. The first model considered inflation targeting as a predictor, while the second incorporated its moderating role through interaction with inflation. These results highlight the importance of inflation dynamics in shaping stock market performance at NSE.

## 5. CONCLUSIONS

This study found that demand-pull inflation exhibited a complex relationship with NSE-listed firm returns. While initially boosting revenues through increased prices, the subsequent central bank interest rate hikes negatively impacted stock prices due to higher borrowing costs. Cost-push inflation, similarly, led to reduced stock returns as increased production costs and resulting higher interest rates constrained company profitability. Imported inflation's impact was directly correlated with import costs: high imported inflation decreased returns by negatively affecting profitability, while low imported inflation had the opposite effect. Hyperinflation demonstrated a dual effect, potentially driving speculative stock price increases to hedge against currency depreciation, but also creating economic instability that ultimately reduced returns. Finally, the study confirmed that effective central bank inflation management, leading to low interest rates, positively influenced NSE stock returns, whereas uncontrolled or high inflation significantly diminished returns by reducing corporate profitability and overall demand.

## 6. RECOMMENDATIONS

The study provides several recommendations to manage inflation and its impact on stock returns. It suggests that the Central Bank of Kenya (CBK) can increase interest rates to curb inflation by making borrowing expensive, thereby reducing consumer investment and spending. Additionally, selling government securities in the open market can reduce money supply, stabilizing stock returns by minimizing inflationary effects. Raising commercial banks' reserve requirements would also limit the money available for lending and spending, helping control inflation.

For companies listed on the Nairobi Securities Exchange (NSE), the study recommends adopting cost-control measures to mitigate cost-push inflation effects on profitability and stock

returns. These measures include negotiating better supplier contracts, implementing efficient production processes, and reducing operational costs. Government interventions, such as policies targeting cost-push inflation, can also influence stock returns. Investors can use hedging strategies, such as futures contracts and options, to protect their portfolios against inflationary risks, ensuring more stable and potentially positive returns despite inflationary pressures.

To manage imported inflation, the government can impose tariffs or import restrictions to limit the inflow of foreign goods, thereby stabilizing domestic prices and improving stock returns. Investors can also mitigate the impact of imported inflation by diversifying their portfolios across various asset classes and sectors, as different industries respond differently to inflationary pressures. Hedging strategies, including futures contracts and options, can further safeguard portfolios from inflation-related losses.

The study recommends diversification as a key strategy for managing hyperinflation's impact on market stock returns. By investing in various asset classes, industries, and sectors, investors can spread risk and minimize the negative effects of hyperinflation. Additionally, prioritizing investments in financially stable companies with a history of resilience during economic downturns can provide a buffer against hyperinflation's adverse effects. Such firms are more likely to sustain positive returns despite economic instability.

The CBK can leverage monetary policy tools, including interest rate adjustments and reserve requirements, to control inflation. The government can also use fiscal policy measures, such as government spending and taxation, to manage inflationary pressures. Exchange rate stability is crucial, as fluctuations in the Kenya shilling against other currencies can influence inflation and stock returns. A stable exchange rate fosters a favorable environment for stock market performance. Furthermore, supply-side economics improvements, such as infrastructure development, investment in technology, and fostering competition, can address inflation and enhance stock market returns. For future studies, the research suggests exploring the impact of inflation on market stock returns at NSE to bridge the conceptual gap. Additionally, similar studies can be conducted on companies

beyond those listed at NSE to provide broader insights into inflation's effects on stock returns.

### DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

### ETHICAL APPROVAL AND CONSENT

Ethical approval was obtained from Kenyatta University, Nairobi County offices, NACOSTI, and the NSE. Participants were informed of the study's purpose, potential benefits, voluntary participation, and their right to withdraw anytime. Data collection methods were transparently disclosed to ensure accuracy and prevent bias. Upon study completion, questionnaires were destroyed to maintain confidentiality and uphold ethical research standards.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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