

BISHOP STUART UNIVERSITY



**EVALUATING THE EFFECTIVENESS OF MONETARY POLICY TRANSMISSION
MECHANISMS IN CONTROLLING INFLATION IN UGANDA (2010–2024)**

BYAMAZIMA INNOCENT

23/BSU/MEPP/4330

**A RESEARCH DISSERTATION SUBMITTED TO THE DIRECTORATE OF GRADUATE
STUDIES, RESEARCH AND INNOVATIONS IN PARTIAL FULFILLMENT
FOR THE AWARD OF MASTER OF ARTS IN ECONOMIC POLICY
AND PLANNING OF BISHOP STUART UNIVERSITY**

SEPTEMBER, 2025

DECLARATION

I, **BYAMAZIMA INNOCENT**, declare that this dissertation is my original work and has never been submitted to any institution of higher learning for any award.

Signed.....



Date.....

26/09/25

BYAMAZIMA INNOCENT

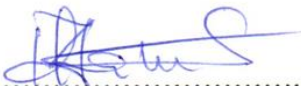
APPROVAL

This research report has been done under our supervision and guidance and is now ready to be submitted to Research Ethics Committee for further approval.

Sign. 

Date 26/9/2025

Dr. NUWABIMPA MILTON RWIITA

Sign. 

Date 26/9/2025

Mr. KAMBERE ERIAH

DEDICATION

This work is dedicated to my dearest wife, Ms. Tuhairwe Doreen, with whom I have shared every step of this journey, and to our beloved children Nina, Elissa, Norma, and Erica. I also devote the study to my parents Mr Kamanzi Joseph, Karugaba Angellica and Kyotungire Winnie whose love and encouragement have always been my greatest source of strength in life and in a special way my first Teacher Kansiime Justine.

ACKNOWLEDGEMENT

It has been all because of God's Grace, upmost therefore I thank the Almighty God for His unfailing grace and strength that carried me through this journey. I am deeply grateful and wish to specially acknowledge Dr. Nuwabimpa Milton Rwiita and Mr. Kambere Eriah for their invaluable mentorship in the entire process of undertaking this study. My special gratitude also goes to the Management, lecturers and all staff of Bishop Stuart University for providing me the opportunity as well as an overwhelmingly appealing environment in the entire process of the course. My heart felt appreciation goes to my fellow course mates too. The peer to peer support was a special inspiration.

LIST OF ACRONYMS AND ABBREVIATIONS

BoU	Bank of Uganda
CBR	Central Bank Rate
CPI	Consumer Price Index
ECM	Error Correction Model
GDP	Gross Domestic Product
IMF	International Monetary Fund
MPC	Monetary Policy Committee
PPI	Producer Price Index
UBOS	Uganda Bureau of Statistics
VAR	Vector Auto Regression
VECM	Vector Error Correction Model
WB	World Bank

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ABSTRACT

This study examined the effectiveness of monetary policy transmission mechanisms in controlling inflation in Uganda between 2010 and 2024. The main objective was to evaluate how well monetary policy tools influenced inflation outcomes over this period. Specifically, the study sought to (i) evaluate the effectiveness of the interest rate channel, (ii) assess the impact of money supply (monetary aggregates), and (iii) examine the role of the exchange rate channel in influencing inflation in Uganda. The study was motivated by persistent inflation volatility despite the Bank of Uganda's adoption of the Inflation Targeting Lite (ITL) framework in 2011, which raised concerns about the strength of Uganda's monetary policy transmission. Under research Methods, the study adopted a longitudinal quantitative research design using secondary time-series data covering the years 2010–2024. Data were sourced from the Bank of Uganda, Uganda Bureau of Statistics, the World Bank, and the International Monetary Fund. Econometric analysis was performed using the Autoregressive Distributed Lag (ARDL) model, supported by Augmented Dickey-Fuller (ADF) and Phillips-Perron unit root tests for stationarity, cointegration tests for long-run relationships, and diagnostic checks for model robustness. Additional techniques, including correlation analysis, Variance Inflation Factor (VIF) tests, and error correction modeling, were employed to ensure the validity of results. For the results, the findings from the ARDL model revealed mixed results across the transmission run ($\beta = -2.3396$, $p = 0.267$) and short run ($\beta = -0.0123$ to -0.0463 , $p > 0.05$), but the effects were not statistically significant. The money supply channel also showed negative coefficients in both the long run ($\beta = -13.0492$, $p = 0.336$) and short run ($\beta = -0.1291$ to -5.3643 , $p > 0.1$), indicating that monetary aggregates did not significantly influence inflation during the study period. In contrast, the exchange rate channel was significant in the short run, with the one-period lag of the exchange rate positively and significantly affecting inflation ($\beta = 9.8078$, $p = 0.033$), suggesting that depreciation of the Ugandan shilling contributed to higher inflation through import costs. Diagnostic tests, including the Jarque-Bera normality test, serial correlation test, and heteroscedasticity test, confirmed that the model was stable and reliable, with well-behaved residuals and finally, the study concluded that monetary policy transmission mechanisms in Uganda are effective but exhibit varying degrees of influence. The interest rate and exchange rate channels remain strong determinants of inflation, while money supply growth continues to pose inflationary risks. It is recommended that the Bank of Uganda enhances policy credibility and responsiveness by strengthening forward guidance, improving coordination with fiscal policy to reduce domestic borrowing pressures, and maintaining a stable exchange rate through targeted interventions. Furthermore, enhancing financial sector development and broadening credit access could improve the transmission of interest rate adjustments to the wider economy, thereby making monetary policy more effective in sustaining low and stable inflation.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This Chapter presents the background to the study, the problem statement, the objectives, scope and significance of the study. Monetary policy is widely regarded as one of the most powerful tools available to governments and central banks in maintaining macroeconomic stability, particularly in the control of inflation. Mishkin (1996) observes, that the success of monetary policy ultimately depends on the channels through which policy actions are transmitted to the broader economy.” However, the effectiveness of these transmission mechanisms varies significantly due to differences in financial structures, institutional settings, and economic dynamics (Boivin, Kiley & Mishkin, 2010; Hülsewig, Mayer & Wollmershäuser, 2009). Despite extensive theoretical and empirical research, consensus on their relative importance remains elusive, as some studies find interest rate and credit channels to dominate (Bernanke & Gertler, 1995), while others highlight the growing role of exchange rates and asset prices, especially in open economies (Taylor, 1995; Mishra & Montiel, 2012). This study is inspired by the need to deepen the understanding of how these mechanisms operate in effectively influencing inflationary trends in Uganda. By evaluating their effectiveness, this study aimed at providing policy-relevant insights that can strengthen the credibility and reliability of monetary policy so as to enhance its role in promoting sustainable macroeconomic stability.

1.1 Background to the Study

Monetary policy plays a critical role in shaping economic stability, inflation control, and financial market stability worldwide. Central banks employ various monetary policy tools, such as interest rate adjustments, open market operations, and exchange rate interventions, to regulate inflation and stimulate economic growth (Mishkin, 2019). The effectiveness of these policies varies across regions, depending on factors such as macroeconomic structures, financial sector maturity, and external economic shocks. This study revolves around three interrelated macroeconomic concepts: monetary policy, inflation, and transmission mechanisms.

Monetary policy refers to the actions undertaken by a central bank such as the Bank of Uganda to control the money supply and interest rates to achieve macroeconomic objectives like price stability, full employment, and economic growth (Mishkin, 1996). Inflation is the sustained increase in the general price level of goods and services over time in an economy (Mankiw, 2020). It reduces the purchasing power of money, and in this study, inflation was measured using the Consumer Price Index (CPI) and Producer Price Index (PPI), which track price changes from the perspectives of consumers and producers, respectively (Blanchard & Johnson, 2017).

Transmission mechanisms describe the pathways through which monetary policy decisions affect aggregate demand, inflation, and output. These mechanisms operate through various transmission channels, each of which plays a unique role in how policy impacts the economy (Philip Arestis and Malcolm Sawyer 2006).

The interest rate channel is the most traditional and widely analyzed mechanism. When the central bank alters the policy rate (e.g., Uganda's Central Bank Rate or CBR), it influences market interest

rates. Higher interest rates increase the cost of borrowing and reduce both consumer spending and business investment. Lower rates do the opposite, thereby stimulating aggregate demand and influencing inflation (Taylor, 1995). In Uganda, this channel has become more prominent since the adoption of an Inflation Targeting Lite framework in 2011.

The credit channel complements the interest rate channel by emphasizing the availability of credit. Monetary tightening can lead to reduced bank lending due to weaker borrower balance sheets and stricter credit conditions (Bernanke & Gertler, 1995). In economies like Ugandan where access to formal credit remains limited for small enterprises and rural populations changes in credit conditions significantly influence consumption and investment patterns.

The exchange rate channel operates through capital flows and currency valuation. When interest rates rise, foreign investors may move capital into Uganda, leading to an appreciation of the Ugandan shilling. This makes imports cheaper, reducing imported inflation, but can hurt exports by making them less competitive abroad (Obstfeld & Rogoff, 1996). Given Uganda's openness to trade and reliance on imported goods, this channel plays a vital role in monetary policy effectiveness.

The monetary aggregates channel focuses on the relationship between money supply growth and price stability. According to monetarist theory, inflation results when the money supply grows faster than output (Friedman, 1968). By controlling monetary aggregates such as M2 or reserve money, central banks can manage inflationary pressures. The IS-LM framework offers a foundational macroeconomic model for analyzing the relationship between monetary policy and inflation. Within this framework, the IS curve captures equilibrium in the goods market, while the LM curve represents equilibrium in the money market. When central banks implement monetary

policy such as altering the money supply, it directly affects the LM curve. An expansionary monetary policy shifts the LM curve to the right, lowering interest rates and stimulating investment and output, which can increase aggregate demand and potentially fuel inflation if the economy is near or at full capacity (Mankiw, 2019). Conversely, a contractionary policy can shift the LM curve leftward, raising interest rates, reducing demand, and easing inflationary pressures. Therefore, the IS-LM model serves as a theoretical foundation for evaluating how monetary tools impact inflation through aggregate demand dynamics.

Between 2010 and 2024, the Bank of Uganda employed various transmission channels to control inflation. The introduction of the Central Bank Rate (CBR) in 2011 signaled a shift toward an interest-rate-based approach, aligning with New Keynesian principles. However, the credit channel remains significant due to Uganda's evolving financial sector, and the exchange rate channel is particularly impactful given Uganda's trade dependency. In addition, the central bank continues to monitor monetary aggregates to assess liquidity conditions, while attempting to anchor inflation expectations through transparent policy communication. An in-depth evaluation of these channels enables this study to assess how effectively monetary policy has controlled inflation in Uganda over the study period.

Globally, inflation-targeting regimes have been widely adopted to ensure stable economic growth and price stability. Developed economies such as the United States, the Eurozone, and Japan rely on quantitative easing and interest rate adjustments to regulate inflation and economic activity (IMF, 2022). These economies benefit from well-developed financial systems, ensuring efficient monetary policy transmission where interest rate changes quickly influence inflation and GDP growth. Emerging economies, including Brazil, India, and South Africa, adopted inflation

targeting in 1999, 2016, and 2000, respectively, but still face challenges such as weak monetary transmission mechanisms and external shocks that limit domestic policy effectiveness (World Bank, 2022).

Developed countries have generally relied on a mix of interest rate adjustments, forward guidance, and quantitative easing to curb inflation, with central banks often targeting explicit inflation rates to anchor expectations. For example, the U.S. Federal Reserve and the European Central Bank have used rapid policy rate hikes to counter post-pandemic inflation surges, complemented by asset purchase reductions to tighten liquidity (Hersi, Aysan & Nagayev, 2025). Empirical evidence suggests that in advanced economies, “well-functioning financial markets and credible central bank communication strengthen the interest rate channel’s effect on aggregate demand and inflation” (Ouchchikh, Belghouat & Ait Bari, 2025). Moreover, policy credibility plays a pivotal role—countries like Canada and New Zealand maintain low and stable inflation partly because their monetary frameworks explicitly commit to inflation targeting, which “anchors expectations and enhances the speed and effectiveness of the transmission mechanism” (Gawshinde, Khurana & Kumar, 2024).

African economies rely on monetary policy as a primary tool to stabilize the often-volatile macroeconomic environments (Iyoha, 2018). However, African central banks face significant challenges, including high inflation rates, exchange rate instability, and limited financial inclusion (AfDB, 2021). Several African countries have adopted Inflation Targeting (IT) policies with varying levels of success. South Africa, which adopted inflation targeting in 2000, has maintained relative inflation stability, with a current rate of 6.0%. Ghana followed with full-fledged inflation

targeting in 2007, while Kenya pursued an inflation objective under a managed float regime since the late 1990s (Alper et al., 2016).

1.1.2 Historical Background

Monetary policy in Uganda has undergone significant evolution since the country's independence in 1962 (Kasekende & Atingi-Ego, 2003). The Bank of Uganda (BoU) was established in 1966 under the Bank of Uganda Act, which gave it the mandate to regulate the country's monetary policy and ensure the stability of the financial system (Musinguzi & Katarikawe, 2000). At the time, Uganda's economy faced considerable challenges, largely due to political instability, which hindered economic growth and development. Early monetary frameworks were focused on financing government activities and managing exchange rates, often at the expense of controlling inflation (Mugume, 2011). This lack of effective monetary policy led to inflationary pressures that escalated to double and triple digits during the 1970s and 1980s (Nyorekwa & Odhiambo, 2014).

During the 1970s and 1980s, Uganda faced severe political instability and economic disruptions (Kasekende & Atingi-Ego, 2003). The country's monetary policy was largely ineffective during this period, with fiscal policy being the primary tool used for economic stabilization (Kumo, 2015). In the mid-1970s, Uganda, like many other developing countries, attempted to target monetary aggregates, such as the money supply, as a means to control inflation. However, persistent failures to meet the targets led to the eventual abandonment of this approach in the 1980s (IMF, 2003).

Economic reforms, particularly under the guidance of the IMF and World Bank, were initiated in the late 1980s. These reforms were part of the Economic Structural Adjustment Program (ESAP), aimed at liberalizing the economy, controlling inflation, and improving financial sector

competition (Mugume, 2011). Despite these reforms, Uganda's economy remained volatile, and inflation continued to fluctuate due to external shocks such as global oil price increases and the volatility of the Ugandan shilling (Nyorekwa & Odhiambo, 2014).

The early 1990s saw Uganda begin to stabilize its economy, largely as a result of the Economic Structural Adjustment Program (ESAP). The government adopted measures that focused on achieving macroeconomic stability, improving fiscal discipline, and reducing inflation (Mugume, 2011). It was during this time that the Bank of Uganda (BoU) formally adopted money growth targeting as its monetary policy framework, based on the assumption that there is a predictable relationship between the money supply and inflation (BoU & Mugume, 2011). This policy was designed to control inflation by regulating the amount of money circulating in the economy.

However, as Uganda's financial sector began to grow rapidly in the 1990s, the monetary targeting framework proved ineffective. The country faced challenges such as increased electronic transactions and volatility in money demand, which rendered the traditional approach to controlling inflation inadequate (BoU & Mugume, 2011). As a result, Uganda began considering alternatives, particularly the adoption of Inflation Targeting (IT) as a more flexible and effective framework.

In 2000, Uganda embarked on significant economic reforms to improve monetary policy frameworks. Despite the adoption of money growth targeting in the early 1990s, the country faced external shocks such as fluctuating global food and fuel prices, which continued to affect inflation dynamics (Tumusiime-Mutebile, 2012). The Bank of Uganda, recognizing the limitations of the money growth targeting approach, began to move towards Inflation Targeting Lite (ITL) in 2011. This framework was seen as a more effective way to control inflation by targeting core inflation,

typically aimed at maintaining a rate of around 5% over the medium term (Tumusiime-Mutebile, 2012).

Inflation Targeting Lite (ITL) in Uganda focuses on using the Central Bank Rate (CBR), the rate at which the Bank of Uganda lends to commercial banks, to influence interest rates and control inflation. The CBR serves as a tool for managing liquidity in the economy and signals the BoU's stance on monetary policy. However, challenges persist, particularly due to external shocks, such as fluctuations in global commodity prices and the instability of the exchange rate (BoU, 2014).

Despite Uganda's shift to ITL, the country continues to face challenges in stabilizing inflation. High Interest rates, external price shocks, and fluctuations in the exchange rate remain significant obstacles to achieving long-term price stability (Tumusiime-Mutebile, 2012). The Bank of Uganda has been working to strengthen its monetary policy tools, with a focus on better managing exchange rates and the money supply to achieve inflation control. However, the persistence of global economic uncertainty and local structural issues means that inflation Uganda's inflation history has been characterized by significant volatility, particularly in the 1990s and early 2000s. During the late 1980s, the country experienced episodes of hyperinflation, with rates reaching 196.1% in 1988 and 61.4% in 1989. These extreme values were primarily driven by excessive money supply growth, fiscal imbalances, supply-side constraints, and external shocks such as rising global oil prices.

The early 2000s were marked by erratic inflation behavior. In 2002, Uganda experienced slight deflation at -0.29%, only to see inflation rise again to 8.68% in 2003. These fluctuations reflected vulnerabilities in the agricultural sector, exchange rate pressures, and the impact of global economic shifts on food and fuel prices.

In response to persistent inflationary challenges, the Bank of Uganda adopted an Inflation Targeting Lite (ITL) framework in 2011. This shift was motivated by a spike in inflation to 16.6% that year, driven by rising food prices and a depreciating Ugandan shilling (International Monetary Fund [IMF], 2013). Following the adoption of ITL, inflation moderated significantly. By November 2012, annual inflation had declined to 4.9% from a peak of 30.5% recorded in October 2011 (IMF, 2013).

Since adopting ITL, Uganda has generally maintained inflation within the 3–7% range, closer to the central bank's target of 5%. For instance, inflation stood at 4.91% in 2013 and 3.08% in 2014, indicating improved price stability. However, global commodity price shifts and weather-related disruptions have occasionally triggered renewed inflationary pressures. In 2016, inflation rose to 5.71%, driven by food shortages and exchange rate depreciation.

The COVID-19 pandemic further impacted inflation dynamics. Lower consumer demand and global supply chain disruptions contributed to subdued inflation, with rates at 3.31% in 2020 and 2.20% in 2021. However, global fuel price increases and currency fluctuations led to a rise in inflation to 7.20% in 2022, before moderating to 5.35% in 2023.

Despite improvements in policy frameworks, Uganda remains susceptible to external shocks, including global food and energy price volatility. These factors continue to pose challenges to achieving sustained inflation stability; its management remains a critical policy challenge (BoU, 2014).

1.1.3 Theoretical background

The theoretical background of monetary policy is deeply rooted in macroeconomic theories that explain the relationship between money supply, interest rates, inflation, and overall economic stability. Key theories include the Classical Theory, Keynesian Theory, Monetarism, and the New Keynesian perspective, each of which offers distinct insights into how monetary policy can be used to control inflation and stabilize the economy.

The Classical theory of monetary policy

The Classical theory of monetary policy is grounded in the foundational works of economists such as Adam Smith (1776) and David Ricardo in the early 19th century. This school of thought states that markets are inherently self-regulating and will naturally return to full employment in the long run without the need for government intervention. A key assumption of the Classical theory is the long-run neutrality of money, where changes in the money supply affect only nominal variables, such as the price level, but not real variables like output and employment (Friedman, 1968). Inflation, therefore, is viewed primarily as a monetary phenomenon occurring when the growth of money supply outpaces the production of goods and services.

In the context of this study, the Classical theory provides a baseline for assessing the relationship between money supply growth and inflation in Uganda from 2010 to 2024. It is particularly relevant in evaluating the effectiveness of monetary aggregates as a channel of monetary policy transmission. If inflation trends during this period correspond closely with changes in money supply, the Classical framework would support the effectiveness of monetary policy through quantity-based interventions.

Keynesian Theory of Monetary Policy

The Keynesian theory was developed by John Maynard Keynes in *The General Theory of Employment, Interest and Money* (1936), during the Great Depression. This framework challenges the Classical assumption of self-correcting markets, asserting instead that aggregate demand is the primary driver of economic activity and that economies can experience prolonged periods of unemployment. The theory highlights the importance of monetary and fiscal policies in stabilizing output and employment. Specifically, it argues that lowering interest rates can stimulate investment and consumption, thus raising aggregate demand and mitigating economic downturns.

Unlike the Classical view, Keynesian economics does not regard inflation as a purely monetary issue. It acknowledges that demand-pull and cost-push factors also contribute to inflationary pressures (Keynes, 1936). Within this study, the Keynesian perspective is instrumental in evaluating how interest rate changes and credit conditions in Uganda have influenced inflation. It supports an examination of the interest rate transmission mechanism and the broader role of monetary policy in managing demand-side inflation.

Monetarist Theory of Monetary Policy

The Monetarist theory, developed by Milton Friedman in the mid-20th century, builds upon Classical principles but places a stronger emphasis on the empirical relationship between money supply and inflation. According to Friedman (1968), “inflation is always and everywhere a monetary phenomenon,” emphasizing the need for stable and predictable growth in the money supply to achieve price stability. Monetarists argue that discretionary policy often leads to economic instability due to long and variable lags in the transmission of monetary effects.

In this research, the Monetarist theory is valuable in analyzing whether inflation in Uganda during 2010–2024 has aligned with changes in monetary aggregates such as M2 or reserve money. It contributes to assessing the effectiveness of a rules-based monetary approach and whether such a strategy has yielded consistent inflation control in Uganda’s economic context.

In conclusion, the Classical, Keynesian, and Monetarist theories of monetary policy each offer valuable insights that enhance the understanding and evaluation of Uganda’s monetary policy transmission mechanisms in controlling inflation between 2010 and 2024. The Classical theory emphasizes the long-term neutrality of money and the central role of money supply in determining price levels. This perspective is particularly useful for analyzing whether Uganda’s inflation patterns are consistent with excess money supply and whether the economy has demonstrated self-correcting tendencies over the study period.

The Keynesian theory contributes a more dynamic view by highlighting the role of interest rates and aggregate demand in influencing inflation and output. This is especially relevant in assessing how effectively the Bank of Uganda has used interest rate adjustments and credit conditions to manage inflation and support economic activity, particularly during periods of economic shocks or downturns. It allows the research to consider demand-side factors and the responsiveness of inflation to monetary interventions through interest rate channels.

Monetarist theory, with its focus on steady money supply growth and inflation control, is highly relevant to Uganda’s ongoing implementation of inflation targeting-lite frameworks. It provides a foundation for evaluating the credibility, consistency, and effectiveness of the central bank’s money supply management and its impact on anchoring inflation expectations.

Together, these theories offer a comprehensive framework for assessing the effectiveness of various monetary policy transmission mechanisms in Uganda. They enable the research to systematically analyze how changes in money supply, interest rates, and credit conditions have influenced inflation outcomes and whether monetary policy actions have aligned with theoretical expectations. By integrating these perspectives, the study is well-positioned to draw informed conclusions on the effectiveness and limitations of Uganda's monetary policy in achieving price stability over the specified period.

The integration of Classical, Keynesian, and Monetarist theories in this study is justified by their complementary perspectives on the relationship between monetary policy and inflation. The Classical theory provides a long-run view of money supply's influence on price levels, offering a baseline for examining whether Uganda's inflation trends align with quantity-based monetary interventions. The Keynesian framework adds a short- to medium-term focus on interest rates, aggregate demand, and economic stability, enabling assessment of demand-side influences on inflation. The Monetarist perspective reinforces the importance of stable money supply growth for price stability, aligning closely with Uganda's inflation-targeting objectives. Together, these theories provide a more comprehensive and balanced analytical framework for evaluating the effectiveness of Uganda's monetary policy transmission mechanisms between 2010 and 2024.

1.1.4 Conceptual Background

Monetary policy is an essential tool used by central banks to regulate economic activity and ensure macroeconomic stability (Mishkin, 2019). It focuses on managing the money supply, controlling inflation, influencing interest rates, and stabilizing the currency to promote sustainable economic growth (Blanchard & Johnson, 2017). The core objective of monetary policy is to achieve price

stability by controlling inflation while ensuring the stability of the financial system (Friedman, 1968). A conceptual understanding of monetary policy and inflation control incorporates several key concepts, including inflation, the mechanisms of monetary policy, monetary policy frameworks, and the transmission channels through which these policies affect the economy (Mankiw, 2020).

The measurement of inflation is typically done using price indices such as the **Consumer Price Index (CPI)**, which tracks changes in the prices of a basket of goods and services typically consumed by households. The **Producer Price Index (PPI)**, which measures the average change in prices received by domestic producers for their output, is another important tool for monitoring inflation.

In conclusion, monetary policy serves as a fundamental instrument for maintaining economic stability, particularly through its influence on inflation, interest rates, money supply, and exchange rates. The historical evolution of Uganda's monetary policy from government-controlled systems to market-based frameworks and eventually to Inflation Targeting Lite (ITL) reflects broader global trends and the need to adapt to changing macroeconomic environments. Conceptually, the effectiveness of monetary policy depends on robust financial infrastructure, sound institutional frameworks, and well-functioning transmission mechanisms. However, in developing economies like Uganda, the presence of external shocks, exchange rate volatility, and high Interest rates continues to challenge the attainment of price stability. Therefore, this study is timely and relevant as it seeks to assess how key monetary policy instruments affect inflation in Uganda, offering insights that could guide more effective policy implementation to promote economic growth and financial sector development.

Table 1.1: Inflation Rates (2010-2024)

Year	Inflation Rate (%)
2010	3.1
2011	2.7
2012	5.2
2013	6.7
2014	1.8
2015	6.4
2016	5.6
2017	3
2018	2.3
2019	2.4
2020	3.3
2021	2.2
2022	7.2
2023	5.35
2024	3.32

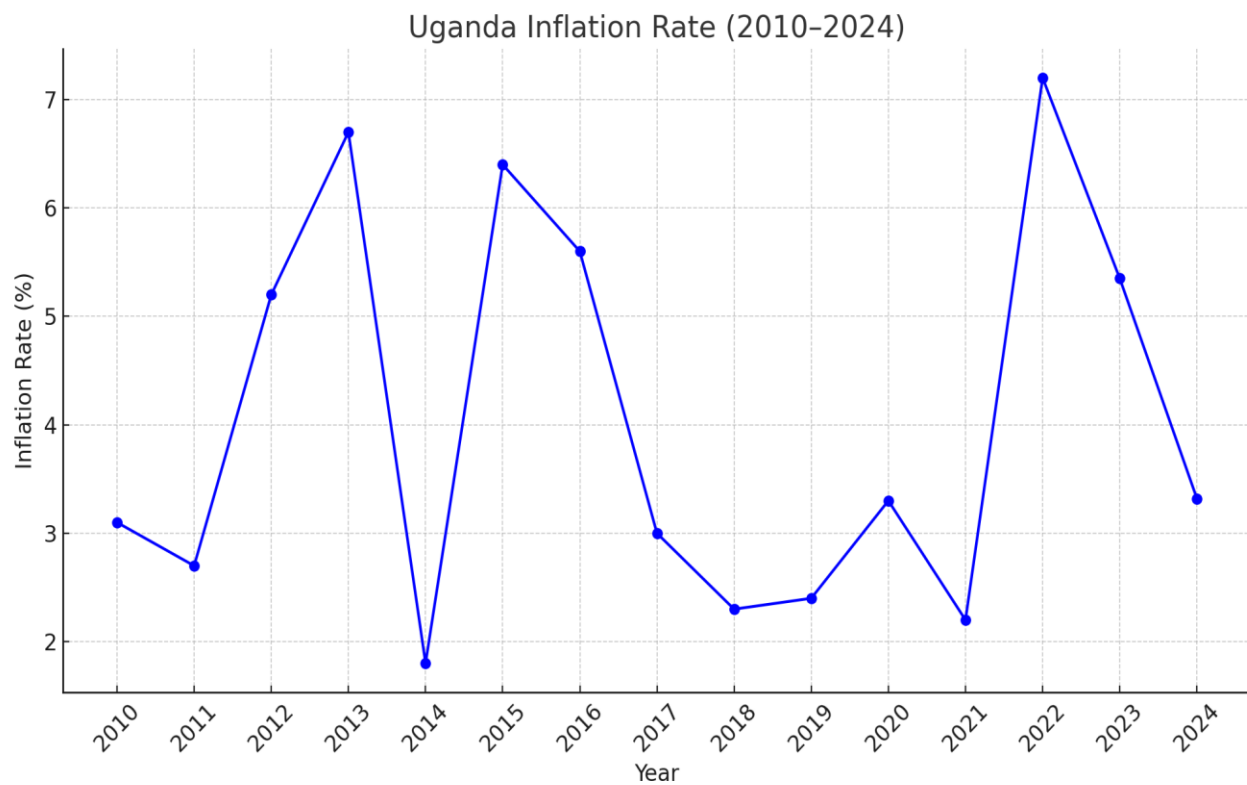


Figure 1.1: Uganda Inflation rate (2010-2024)

An analysis of Uganda’s inflation trends from 2010 to 2024 revealed several periods of concern, with the most notable spike occurring in 2011 when inflation surged to 27%, largely driven by external shocks, currency depreciation, and rising food and fuel prices. However, recent years particularly 2021 to 2024 present a more relevant focus for this study. Between 2021 and 2024, Uganda experienced a pronounced shift in inflation dynamics, moving from a low and stable annual rate of 2.2% in 2021 to a volatile peak of 7.2% in 2022 %, a rate well above the central bank’s target, before gradually declining to an estimated 3.32% in 2024. This surge and subsequent fluctuations were driven by a combination of global commodity price shocks, exchange rate depreciation, domestic food supply disruptions, residual effects of monetary accommodation during the COVID-19 recovery, compounded by the Russia–Ukraine conflict which disrupted

global supply chains and caused fuel and food prices to rise. These fluctuations highlight the vulnerabilities of Uganda's economy to both external shocks and internal policy limitations. While moderate inflation can be consistent with economic growth, the volatility observed during this period creates significant macroeconomic challenges. Friedman (1977) stressed that inflation volatility, rather than inflation rate, adversely affects economic growth. The trends therefore underscore the critical need to assess how effectively monetary policy tools such as interest rate adjustments and money supply controls are being transmitted through the economy to control inflation. The recent volatility suggests that while some policy measures have had a reduction effect, there is still room to improve the efficiency and responsiveness of Uganda's monetary policy transmission mechanisms

1.2 Problem statement

A moderate amount of inflation is generally considered to be a sign of a healthy economy. According to Katusiime, L. (2018), Moderate and stable inflation may exert positive effects on the economy by minimizing fluctuations and uncertainties in an economy. On a study in South Asia, Malik and Chowdhury (2001) also found a long-run positive relationship between GDP growth rate and inflation for four South Asian countries. This study suggested that moderate inflation is helpful to growth and faster economic growth feeds back into inflation. Thus the authors recommend moderate inflation for growth of the economies

Uganda has pursued a range of monetary and fiscal policies to stabilize prices and keep inflation within a sustainable range. Since July 2011, the Bank of Uganda (BoU) has operated under an *inflation-targeting lite* framework, with a clear medium-term target of 5 percent core inflation (Bank of Uganda, 2011). Under this framework, the Central Bank Rate (CBR) is set every two months and serves as the main policy instrument for guiding short-term interest rates and anchoring inflation expectations. As the BoU explains, the policy stance is adjusted to ensure that “core inflation converges to 5 percent over the medium term” (Bank of Uganda, 2011).

The prudent macroeconomic management resulted in a consistent record of impressive performance and has maintained the inflation levels in a single digit inflation. However, according to Alani, J (2021), the transmission of monetary policy in Uganda remains structurally weak. Also, although interbank rates respond relatively well to shifts in the CBR, commercial banks' Interest rates exhibit notable rigidity, often delaying the pass-through effects to private sector credit and consumption (BoU, 2022; IMF, 2020). This sluggish adjustment undermines the potency of monetary policy in influencing inflation dynamics, as it lengthens the lag between policy action and macroeconomic response. Additionally, fiscal operations, particularly the government's reliance on domestic borrowing, aggravates the liquidity situation further complicating inflation management (International Monetary Fund, 2020; BoU, 2022) and weakening the actual impact of monetary tightening (World Bank, 2023).

Uganda thus continued to experience inflation volatility, with rates sometimes surpassing the BoU's 5% target notable ones being a rise from 2.2% in 2021 to 7.2% in 2022, 5.35% in 2023 and then 3.3% in 2024. According to Ahir, Bloom & Furceri (2020), the levels of economic policy uncertainty were at extremely elevation levels in comparison to the near past. Studies have found a strong negative correlation between inflation volatility and economic growth. In a 2012 study, it was found that while the level of inflation was not significantly related to growth, inflation volatility did have a significant impact (Emara-2012). Aisen and Veiga (2007), further stress that high inflation volatility may be more disruptive to the economy than high inflation levels with Moreno (2004) adding that it was a well known fact, inflation and its volatility are costly to the economy.

Existing research has largely focused on general inflation trends rather than the mechanisms through which monetary policy influences inflation. This study, therefore, sought to analyze the effectiveness of Uganda's monetary policy in controlling inflation and its broader implications for economic stability, aligning with national and international development goals and best practices.

1.3 Purpose of the study

The study aimed at examining the effect of monetary policy transmission mechanism on inflation in Uganda.

1.4 General objective

The general objective was to evaluate the effectiveness of monetary policy transmission mechanisms in controlling inflation in Uganda during the period 2010–2024.

1.4.1 Objectives of the Study

- i. To evaluate the effectiveness of the interest rate channel in controlling inflation in Uganda.
- ii. To assess the impact of money supply (monetary aggregates) as a transmission mechanism on inflation in Uganda.
- iii. To examine the role of the exchange rate channel in influencing inflation in Uganda.

The study's objectives were derived directly from the theoretical foundations of monetary policy. The interest rate channel reflects Keynesian insights on how changes in borrowing costs influence aggregate demand and inflation. The focus on money supply as a transmission mechanism is rooted in Classical and Monetarist views linking monetary aggregates to price levels, while the exchange rate channel draws from both Keynesian and Monetarist perspectives on how currency fluctuations affect import prices and inflation.

1.5 Research Hypotheses

H₀₁: The interest rate channel has significant effect on controlling inflation in Uganda.

H₀₂: The money supply (monetary aggregates) as a transmission mechanism has significant effect on inflation in Uganda.

H₀₃: The exchange rate channel has significant effect on inflation in Uganda.

1.6 Scope of the Study

1.6.1 Time Scope

The study covered the period from between 2010 and 2024. This scope was justified by the availability of consistent and reliable data across the years, which enables a comprehensive analysis of trends and developments relevant to the study. Additionally, this period captures recent historical developments and policy changes that are critical for an informed evaluation.

1.6.2 Geographical Scope

The study's geographical scope was Uganda.

1.7 Justification of the study

The justification for this study stems from the persistent challenges in Uganda's monetary policy transmission mechanisms, which have led to inflation volatility despite the adoption of the Inflation Targeting Lite (ITL) framework in 2011. For instance, inflation surged to 7.2% in 2022, significantly exceeding the Bank of Uganda's 5% target, driven by external shocks like global commodity price fluctuations and exchange rate instability (BoU, 2022; IMF, 2023). Existing research has largely focused on general inflation trends without thoroughly examining the effectiveness of specific transmission channels, such as interest rates, money supply, and exchange rates, in Uganda's context (Alani, 2021). Without this study, policymakers may lack empirical evidence to refine monetary tools, potentially exacerbating inflation volatility and undermining economic stability, private sector investment, and progress toward SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequality). By evaluating these mechanisms, the study

aimed to bridge critical knowledge gaps and inform strategies for achieving sustained price stability.

1.8 Significance of the Study

i. The study's findings on the interest rate channel provide critical evidence on whether policy rate adjustments effectively influence inflation dynamics in Uganda. The study thus is significant in strengthening the credibility of monetary policy and guiding the Bank of Uganda in designing more effective interest rate strategies for price stability.

ii. By analysing the role of monetary aggregates, the study clarifies whether fluctuations in money supply translate into noticeable changes in consumer prices. This is significant for testing the continued relevance of Monetarist approaches in Uganda's context and provides insights for policymakers on the appropriateness of monetary targeting as a tool for inflation control.

iii. The examination of the exchange rate channel generates evidence on how exchange rate movements shape domestic inflation, a crucial finding for Uganda as a developing economy. This is significant in informing the effect of exchange rate and inflation thus aiding policy makers in enhancing policies that proactively respond to currency fluctuations.

1.9 Econometric model

Monetary policy influences inflation through key instruments such as interest rates, exchange rates, and money supply, which determine credit availability and aggregate demand. Money supply (MS) affects liquidity in the economy, where an increase can drive inflation by boosting demand, while a contractionary approach curtails excess liquidity to control price levels. Interest rates (IR), particularly the Central Bank Rate (CBR), impact borrowing and investment; higher rates restrict credit access and reduce inflationary pressures, whereas lower rates encourage borrowing and spending, potentially driving inflation. The exchange rate (EXR) is crucial in inflation dynamics,

especially in import-dependent economies like Uganda, where depreciation raises import costs and fuels inflation, while a stable exchange rate helps maintain price stability.

The model allowed to measure the direct effects of each monetary variable on inflation, following; (Charles, Ronnie, Camelia, José-Luis, & Andrea, 2019), the effect of monetary policy on inflation in Uganda can be modeled by specifying inflation as a function of key monetary policy indicators:

$$\mathbf{INF} = \beta_0 + \beta_1 \mathbf{IR} + \beta_2 \mathbf{EXR} + \beta_3 \mathbf{MS} + \mu \dots \text{Where:}$$

INF = Inflation (dependent variable)

IR = Interest Rate (Central Bank Rate, Lending Rate)

EXR = Exchange Rate (UGX/USD)

MS = Money Supply

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents and discusses the literature of the study. The chapter begins with theoretical underpinnings for the study and then later discusses the empirical deductions.

Monetary policy encompasses the strategies employed by a nation's central bank to manage the money supply, interest rates, and credit availability, aiming to achieve overarching economic goals (Mugume, 2011). Key instruments of monetary policy include the Central Bank Rate, Money Supply, Cash Reserve Ratio, and Open Market Operations, among others. The roots of contemporary monetary theory can be traced back to John Maynard Keynes. According to Keynesian theory, monetary policy influences the economy through interest rates and investment; specifically, an expansionary monetary policy lowers interest rates, which in turn affects commercial banks in various ways (Mishkin, 2013).

One effect is indirect, operating through the real economy. In this context, a tightening of monetary policy can lead to higher Interest rates, which diminishes credit demand and economic growth, increases default rates, and compels banks to bolster their loan loss provisions in anticipation of potential losses (Borio, Gambacorta, & Hofmann, 2015). The second effect arises from the banks' endogenous responses to changes in policy rates. For example, through the interest rate channel, the central bank establishes short-term rates, such as the central bank rate and the 7-day interbank rate, which subsequently influence longer-term rates, including the Treasury bill rate and the yield curve, ultimately affecting borrowers' credit affordability (English, 2002).

Empirical research sheds light on the relationship between monetary policy and commercial banks. Mishkin (2007) notes that banks, as financial intermediaries, are particularly responsive to interest rate changes, especially in economies with less developed capital markets. Research conducted in Sub-Saharan Africa, including work by Kasekende and Brownbridge (2011), indicates that monetary policy impacts bank profitability mainly through its effects on the net interest margin (NIM) and loan performance.

In Uganda, Mugume (2011) discovered that fluctuations in the Central Bank Rate significantly affect Interest rates among commercial banks. However, the extent of this responsiveness varies based on each bank's market share, funding structure, and asset quality. Additionally, reports from the Bank of Uganda (BoU) reveal that during periods of contractionary policy, banks typically experience a drop in loan volumes, an increase in loan default rates, and a rise in non-performing loans (NPLs), all of which adversely affect their profitability.

Moreover, Akelof and Shiller (2010) contend that irrational behavior and psychological factors also influence the transmission of monetary policy, indicating that behavioral economics is increasingly relevant in understanding how banks and borrowers react to policy changes.

Monetary policy refers to the measures taken by a central bank to regulate the money supply, manage interest rates, and control credit availability, with the aim of achieving macroeconomic stability, particularly in terms of controlling inflation, maintaining price stability, and promoting economic growth (Mugume, 2011). In Uganda, the Bank of Uganda (BoU) employs various monetary policy tools, including the Central Bank Rate (CBR), Cash Reserve Ratio (CRR), management of Money Supply, and Open Market Operations (OMO).

The basis of modern monetary policy can be linked to Keynesian economics, especially the IS-LM model, which illustrates how monetary policy affects interest rates and investment. Keynes posited that monetary policy influences aggregate demand mainly through interest rate adjustments: expansionary policy lowers interest rates, stimulating borrowing and investment, while contractionary policy has the opposite effect (Mishkin, 2013). This transmission mechanism is crucial for commercial banks, as it affects their lending practices and profitability. A significant theoretical extension of the Keynesian framework is the Monetary Transmission Mechanism, which elucidates how changes in nominal money supply or interest rates impact real variables such as output and employment. Within this framework, two primary channels are particularly relevant to the Theoretical review.

2.1 Empirical Literature

2.1.1 The Effect of Interest Rates on Inflation

Interest rates serve as a key tool of monetary policy, employed by central banks to control the money supply, influence overall demand, and stabilize inflation. According to Keynesian theory, higher interest rates raise borrowing costs, discourage investment and consumption, and thus help ease inflationary pressures (Keynes, 1936/2018). On the other hand, lowering interest rates encourages borrowing and spending, which can increase inflation if aggregate demand surpasses supply (Mankiw, 2021).

In developing countries, the effect of interest rate changes on inflation has been inconsistent due to structural constraints and underdeveloped financial systems. In Uganda, research by Charles et al. (2019) indicates that hikes in policy interest rates significantly slow economic activity, reducing inflation by limiting private sector credit demand. Similarly, Mugume (2011) observed that

Uganda's "Inflation Targeting Lite" approach relies heavily on the central bank rate (CBR), and that tightening monetary policy through higher interest rates can effectively moderate price levels over the medium term.

Tanzania presents comparable evidence, Aikaeli, Mugizi, and Ndanshau (2011) demonstrated that while interest rate adjustments influenced inflation, their impact was weakened by fiscal dominance, as government borrowing often counteracted monetary tightening. This suggests that in economies with underdeveloped financial markets, the effectiveness of interest rates as an anti-inflationary tool may depend on complementary fiscal discipline.

The role of interest rates in inflation management is more pronounced in emerging markets with stronger monetary institutions. For example, Muhammad et al. (2020) showed that in Pakistan, higher interest rates effectively suppressed inflation by constraining demand. In contrast, Cochrane (2020) argued that in several Latin American economies, monetary policy transmission through interest rates was weaker due to persistent structural inflation drivers, such as supply shocks and indexation practices.

In advanced economies, where capital markets are more efficient, interest rates strongly anchor inflation expectations. Studies in the United States and Europe have shown that timely interest rate adjustments are effective in managing both headline and core inflation (Taylor, 1993; Woodford, 2019). However, debates persist over the lag in policy transmission and the potential trade-off with output stabilization.

For Uganda and similar Sub-Saharan African economies, interest rates remain a vital but imperfect tool for inflation management. The effectiveness of monetary tightening is often constrained by

high levels of informality, shallow financial intermediation, and external shocks such as commodity price fluctuations (Alagidede & Panagiotidis, 2012). Nonetheless, research consistently indicates that tighter interest rate policy reduces inflation by lowering credit growth and aggregate demand (Kasekende, 2016).

The empirical consensus is that interest rates play a critical role in influencing inflation, but their effectiveness depends on the structural and institutional context of the economy. In Uganda, evidence suggests that interest rate hikes reduce inflation, though the impact may be moderated by fiscal policies and external shocks.

2.1.2 The Effect of Money Supply on Inflation

The connection between money supply and inflation has been a fundamental topic in macroeconomic theory. The Quantity Theory of Money (QTM), initially proposed by Fisher (1911) and later refined by Friedman (1968), asserts that inflation is primarily driven by monetary factors. According to the QTM, an increase in the money supply, with all other factors held constant, results in a proportional rise in the price level. Empirical evidence largely supports this perspective, particularly in high-inflation economies where growth in the money supply is closely linked to rising inflation rates.

However, the relationship between money supply and inflation is more complex than traditional theories suggest. While monetarist views (Friedman, 1968) emphasize a direct and proportional connection, Keynesian and structuralist perspectives argue that inflation is also affected by demand-side and supply-side elements, including wage dynamics, production limitations, and institutional inefficiencies (Blanchard & Johnson, 2012; Taylor, 2000). For example, studies in stable economies indicate that this relationship may not always be linear and can be influenced by

factors such as fiscal policy, exchange rate fluctuations, and inflation expectations (Borio & Filardo, 2007; Woodford, 2003).

In high-inflation countries, particularly in Sub-Saharan Africa, the correlation between money supply growth and inflation is generally stronger. Nonetheless, even in these regions, the relationship is shaped by the broader economic context, including fiscal imbalances, exchange rate pass-through effects, and external shocks like commodity price changes (Mwase, 2006; IMF, 2012; Barnichon & Peiris, 2008). Therefore, the effectiveness of monetary policy in controlling inflation depends not only on managing the money supply but also on addressing structural economic issues and ensuring macroeconomic stability through interest rate policies, inflation targeting, and exchange rate management (Mishkin, 2007; Batini & Laxton, 2007).

The relationship between money supply and inflation has been a longstanding focus of macroeconomic theory and policy discussions. The classical quantity theory of money, represented by the equation $MV = PY$, suggests that an increase in the money supply results in a proportional rise in the price level, assuming that velocity (V) and output (Y) remain unchanged (Friedman, 1968; Snowdon & Vane, 2005). However, recent empirical research indicates a more intricate interaction influenced by institutional factors, monetary transmission mechanisms, and evolving inflation expectations (Sargent & Surico, 2011; Bernanke, 2007).

The impact of money supply on inflation is shaped by various elements, including the economic structure, expectations, and policy responses. While classical and monetarist theories emphasize a direct relationship between money supply and inflation (Friedman, 1968; Snowdon & Vane, 2005), Keynesian and structuralist views contend that inflation is also influenced by fluctuations in aggregate demand, production constraints, and institutional rigidities (Blanchard & Johnson, 2012;

Taylor, 2000). Empirical studies confirm a strong correlation between money supply growth and inflation in high-inflation economies, particularly in developing regions like Sub-Saharan Africa (Barnichon & Peiris, 2008; Mwase, 2006). However, in more stable economies, this relationship is often more nuanced and affected by factors such as inflation expectations, fiscal policy, and exchange rate regimes (Borio & Filardo, 2007; Woodford, 2003). Consequently, effective monetary policy, when paired with fiscal discipline, is crucial for managing inflationary pressures and ensuring macroeconomic stability (Batini & Laxton, 2007; Mishkin, 2007).

Ultimately, while monetary policy is a key instrument for managing inflation, its effectiveness in developing economies like Uganda relies on a combination of well-structured policy frameworks, strong institutional capacity, necessary structural reforms, and careful management of external shocks (IMF, 2012; Kasekende & Brownbridge, 2011). Future research should investigate the dynamic interactions between monetary policy and other macroeconomic variables, such as fiscal policy, exchange rate regimes, and capital flows, as well as the contextual and regional factors that influence inflation dynamics. Such studies provide valuable insights into aligning monetary policy with the goals of sustainable price stability and long-term economic growth (Bernanke, 2007; Sargent & Surico, 2011).

2.1.3 The role of the exchange rate channel in influencing inflation in Uganda

The exchange rate, defined as the value of one currency in terms of another, is a critical determinant of price levels in open economies. In Uganda, where imports constitute a significant portion of consumption, exchange rate fluctuations directly influence inflation through import prices, expectations, and capital flows. This transmission mechanism, commonly referred to as the

exchange rate channel, forms a vital part of Uganda's monetary policy transmission framework (Bank of Uganda [BoU], 2019).

Uganda adopted an inflation-targeting lite (ITL) framework in 2011, wherein the central bank uses the policy interest rate to guide inflation expectations while maintaining a flexible exchange rate regime. In this context, the exchange rate channel operates by affecting the cost of imports and shaping expectations about future inflation (International Monetary Fund [IMF], 2016). For example, episodes of shilling depreciation, such as in 2015, translated into higher import prices and fueled domestic inflationary pressures (IMF, 2016).

Empirical studies show that exchange rate pass-through (ERPT) to prices in Uganda is incomplete but economically significant. Bwire, Anguyo, and Opolot (2013) employed a Structural Vector Autoregressive (SVAR) model and found that nominal exchange rate shocks transmit to consumer prices, though the magnitude varies depending on the inflation regime. More recent work highlights that ERPT is asymmetric, depreciations generate stronger inflationary effects than appreciations. Kemoe, Mbohou, Mighri, and Quayyum (2024) estimated that across Sub-Saharan Africa, including Uganda, a 1% nominal depreciation increases consumer price inflation by about 0.22 percentage points after one year, with pass-through being eight times stronger during depreciation episodes.

In Uganda's case, the impact of exchange rate fluctuations is moderated by monetary policy credibility and inflation expectations. Research indicates that as inflation expectations became better anchored under the ITL framework, pass-through has declined compared to the pre-2011 period (Jašová, Moessner, & Takáts, 2016). Nevertheless, the BoU continues to use sterilized

foreign exchange interventions to mitigate short-term volatility and protect price stability (BoU, 2019).

Recent reports confirm the importance of exchange rate stability in sustaining low inflation. The World Bank (2025) notes that in FY2023/24, Uganda's inflation dropped to 3.2%—below the 5% policy target—due in part to relative exchange rate stability and prudent monetary policy. These findings reaffirm that exchange rate management remains central to controlling inflation in Uganda.

The literature suggests that the exchange rate channel is a significant driver of inflation in Uganda, with depreciations exerting stronger and more persistent effects than appreciations. The effectiveness of this channel depends on inflation expectations, credibility of monetary policy, and the structure of Uganda's imports. Strengthening policy credibility and containing exchange rate volatility are therefore essential for maintaining price stability.

2.1.4 The Effect of Monetary Policy on Inflation

Monetary policy is essential for managing inflation through various mechanisms, such as interest rates, money supply, and exchange rates. Central banks utilize these tools to affect aggregate demand, stabilize economic output, and control inflation levels. Friedman (2006) asserts that the money supply is a significant factor in determining inflation, with excessive growth leading to inflationary pressures. Fontana (2007) and Papademos (2003) emphasize that a well-designed monetary policy can help maintain price stability, while poor implementation, particularly through excessive money supply growth, can disrupt economic stability, misallocate resources, and impede long-term growth (Berg, 2013).

Research examining the link between monetary policy and inflation presents varied findings. Some studies, such as those by Levine (1992) and McCandless (1995), indicate that expansionary monetary policies can lead to inflationary pressures, while others, like Mankiw (2010), suggest that stable monetary policies may not significantly hinder economic growth. The conflicting results from earlier research, including Bullock (1989), who found that changes in the money supply often lag behind inflation, highlight the complexity of the relationship between monetary policy and inflation, which can be affected by numerous external and internal factors. Further studies by Tallman & Chandra (1996, 1997) and Blundell-Wignall (1992) reveal that financial sector reforms in the 1980s have altered the predictive capacity of monetary aggregates, complicating this relationship even more.

In my opinion, the mixed empirical findings regarding the connection between monetary policy and inflation reflect the intricate nature of macroeconomic dynamics. While it is reasonable to link expansionary monetary policies with inflationary pressures, as noted by Levine (1992) and McCandless (1995), this relationship is not always straightforward or immediate. Mankiw's (2010) assertion that stable monetary policies may not necessarily obstruct economic growth highlights the significance of context, including the economy's structure, institutional capacity, and external shocks. Consequently, the effectiveness of monetary policy in controlling inflation is heavily reliant on the central bank's credibility, the level of financial development, and the responsiveness of market participants. The findings of Bullock (1989), Tallman & Chandra (1996, 1997), and Blundell-Wignall (1992) support this view by illustrating how structural changes, particularly in the financial sector, can alter traditional relationships between monetary aggregates and inflation.

Thus, while monetary policy is a vital instrument for managing inflation, its effects should be evaluated within a broader macro-financial framework. Policymakers ought to adopt a flexible, evidence-based strategy that considers both historical insights and changing economic conditions.

In developing countries, the influence of monetary policy on inflation is even more significant. Researchers such as Ramlogan (2007), Mishra (2010), and Montiel et al. (2012) stress the importance of monetary stability in these settings, where central bank actions have a considerable impact on price levels. Mishra (2010) found that monetary tightening, often achieved through increased interest rates, can reduce inflationary pressures but typically leads to slower economic growth. Montiel et al. (2012) pointed out that the effectiveness of monetary policy in developing economies is often limited by structural challenges, such as underdeveloped financial markets and external shocks.

The limitations of traditional monetary policy tools in controlling inflation are also a topic of ongoing discussion. Ndikumana (2010) argues that policy rates may be ineffective when supply-side constraints are present. Similarly, the International Monetary Fund (2013) noted that restrictive monetary policies, while effective in controlling inflation, often result in significant output gaps, especially in developing economies. Empirical research, such as that by Mwankemwa & Bonaventura (2022), indicates that the impact of monetary policy on inflation can be relatively modest. Their analysis of the Tanzanian economy showed that a 2.5% increase in the policy rate led to only a slight reduction in inflation. Likewise, studies in other contexts (Loupias et al., 2011) reveal varying outcomes, suggesting that the effectiveness of monetary policy is contingent on broader macroeconomic conditions.

Bank of Uganda has strengthened its monetary policy toolkit, inflation outcomes continue to exhibit sensitivity to external shocks and domestic structural weaknesses. For example, Twinomuhwezi and Musiita (2025) argue that macro-financial imbalances, including power supply inefficiencies and fiscal pressures, undermine the inflation control efforts of monetary authorities. Similarly, Kakuyo (2024) finds that public investment dynamics in Uganda significantly affect inflation outcomes by influencing supply-side capacity and energy costs, which remain critical drivers of inflation volatility. These findings suggest that the monetary policy framework, while more credible than in past decades, still operates under constraints that limit its full effectiveness.

In summary, while monetary policy is crucial for managing inflation, its effectiveness is shaped by various factors, including exchange rate stability, external economic shocks, and the structural characteristics of the economy. Future research should delve deeper into the interactions between monetary policy, inflation, and other macroeconomic variables, particularly in developing nations like Uganda.

2.3 Conclusion

A thorough examination of the current theoretical and empirical literature reveals significant gaps that warrant further exploration. Classical and monetarist theories primarily focus on a direct and proportional link between money supply and inflation (Friedman, 1968; Snowdon & Vane, 2005). However, these theories often overlook the contextual complexities present in developing economies like Uganda, where monetary transmission mechanisms are frequently obstructed by structural weaknesses, high levels of informality, and fiscal imbalances. As a result, the relevance of these models in such contexts is questionable.

While Keynesian and structuralist viewpoints acknowledge the impact of demand and supply constraints on inflation (Blanchard & Johnson, 2012; Taylor, 2000), there is a scarcity of empirical

evidence supporting these relationships specifically within Sub-Saharan African contexts. Much of the existing literature focuses on high-inflation economies and offers generalized conclusions that may not be applicable to relatively stable yet structurally vulnerable economies like Uganda.

Current empirical research often isolates particular monetary policy tools, such as money supply or interest rates, without adequately examining the interactive effects of other macroeconomic variables, including fiscal policy, exchange rate regimes, inflation expectations, and external shocks. Consequently, the understanding of how these variables collectively impact inflation remains insufficiently developed.

Moreover, there is a lack of country-specific and regionally disaggregated studies that investigate how external factors, such as global commodity price volatility and exchange rate fluctuations, influence the effectiveness of monetary policy in managing inflation. This absence of contextual analysis hinders the development of targeted and effective monetary policy frameworks in developing economies.

These gaps underscore the necessity for a comprehensive and context-specific study that investigates the dynamic interactions between monetary policy, inflation, and macroeconomic conditions in Uganda. Such research would provide valuable insights into optimizing monetary policy to achieve price stability and foster long-term economic growth in structurally constrained economies.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the methodology used to meet the objectives and hypothesis of the study. The chapter is divided into three sections namely, Research design and sources of data, Variables and their measurement, Specification of the Model and estimation technique.

3.1 Research Design

The study adopted a longitudinal research design using a quantitative approach. Longitudinal research is a strategy of inquiry in which data are collected for the same subjects repeatedly over a period of time to study changes and developments (Creswell (2014).

This design is appropriate for evaluating the effectiveness of monetary policy transmission mechanisms over the 2010–2024 period, as it allows for the observation of temporal trends, patterns, and causal relationships between monetary policy tools and inflation levels. Quantitative approach was used in the test of hypotheses and the estimation of the strength and direction of relationships among the study variables, thereby ensuring the robust achievement of the study objectives.

This study adopted a quantitative research approach because the effectiveness of monetary policy transmission mechanisms is best assessed through the measurement and statistical analysis of macroeconomic and financial indicators. Quantitative methods enable the establishment of causal relationships, testing of hypotheses, and evaluation of the relative strength of different channels in influencing inflation (Creswell & Creswell, 2018). Given that monetary policy and inflation

variables are already systematically compiled by credible institutions such as the central banks, the International Monetary Fund (IMF), and World Bank, Secondary data becomes not only a reliable but also cost-effective, and time-efficient basis for empirical investigation (Johnston, 2017).

3.2 Data Types and Sources

The study employed secondary data that was collected from Bank of Uganda and World Bank data base. Secondary data enhances the robustness of findings, as the datasets are often large, longitudinal, and produced using standardized methodologies, thereby ensuring comparability and generalizability of results across contexts. Time series data was used because the study focusses on a single phenomenon over a given period of time. In order to get a good result from the regressed time series econometric model, the number of observations matters a lot. The higher the number of observations the better the result obtained.

The period 2010–2024 offers a balanced combination of data richness, policy significance, and econometric adequacy for achieving the study’s objectives. Monthly data for the key macroeconomic indicators are consistently available and well-documented for this period in both Bank of Uganda and World Bank records. The selected period also captures a decade of monetary policy developments in Uganda, including significant policy reforms, inflation-targeting frameworks, and external shocks such as COVID-19 and global commodity price fluctuations. This provides a rich context to evaluate the effectiveness of monetary policy transmission mechanisms.

3.3 Specification of the Model

Following (Charles *et al.*, 2019; Emenike, 2017), the effect of monetary policy on inflation in Uganda can be modeled as follows;

$$INF=f (IR, EXR, MS) \dots \dots \dots (1)$$

To test the above relationship, the following estimation model was used.

$$INF = \beta_0 + \beta_1 IR + \beta_2 EXR + \beta_3 MS + \mu \dots \dots \dots (2)$$

Where; INF = Inflation, IR = Interest rate, EXR = exchange rate, MS = money supply, β_0 is a constant ie inflation when the IVs are zero, β_1, β_2 and β_3 are coefficients and μ is error term.

This equation was estimated as an ARDL model and results presented in table 4.4.

3.4 Estimation Techniques

3.4.1 Unit Root Test

It is important to test the order of integration of each variable in a model, to establish whether it is non-stationary and how many times the variable needs to be differenced to derive stationary series. Stationarity of each individual data series would be estimated based on the assumption that the variables were either I (0) or I (1) series. The study would then employ Augmented Dickey Fuller (ADF) test and Phillips Perron test (1988). The ADF test is used in determining the order of integration of each variable in the model because it assumes the errors are statistically independent and have a constant variance and a unit root null hypothesis would be tested against a stationary alternative. The stationarity test in the study was to use regressions of a time series data analyzed against a constant. These regressions would be expressed as follows;

$$Y_t = \alpha + \beta.t + \epsilon_t \dots \dots \dots (1)$$

$$dY_t = a + \beta_t + \sum_{i=1}^n \lambda dY_{t-i} + \delta Y_{t-i} + \varepsilon_t \dots \dots \dots (2)$$

After the stationarity of residuals (ε_t), Lag length (p) of ADF (dY_{t-i}) and Phillips Perron equations was selected using Schwarz Information Criterion (SIC) and Bartlett Kernel respectively.

3.4.2 Co-integration Test

The study applied the bounds testing approach to cointegration within the ARDL framework to determine whether a long-run equilibrium relationship exists between monetary policy variables and inflation in Uganda. This method was chosen because it is well-suited for small sample sizes and can be used when variables are a mix of $I(0)$ and $I(1)$, avoiding the limitations of traditional cointegration techniques that require all series to be integrated of the same order. The bounds test was used to compare the calculated F-statistic against critical value bounds as a statistical basis for analysing the changes in interest rates, money supply, and exchange rates and their sustained long-term effects on inflation in Uganda.

3.4.3 Autoregressive Distributed Lag (ARDL) model

The study employed the Autoregressive Distributed Lag (ARDL) model to analyze the dynamic relationship between monetary policy variables and inflation in Uganda over the 2010–2024 period. The ARDL approach was selected due to its flexibility in handling variables with mixed orders of integration, accommodating both stationary [$I(0)$] and non-stationary [$I(1)$] series without requiring them to be integrated of the same order. This makes it particularly suitable for macroeconomic time series data, which often exhibit different integration properties. The model also allows for simultaneous estimation of both short-run and long-run effects, enabling the study to capture immediate impacts of monetary policy actions as well as their sustained influence on

inflation. By applying the ARDL bounds testing procedure, the study was able to assess the existence of long-run equilibrium relationships among variables while accounting for short-run dynamics, providing a comprehensive and robust framework for evaluating the effectiveness of monetary policy transmission mechanisms in Uganda.

3.5 Research Procedure

The research procedure for this study involved a longitudinal quantitative approach using secondary data from the Bank of Uganda and the World Bank covering the period 2010-2024. The study employed time-series econometric techniques, beginning with unit root tests (Augmented Dickey-Fuller and Phillips-Perron) to assess stationarity, followed by the Johansen cointegration test to identify long-run relationships among variables. A Vector Error Correction Model (VECM) was then applied to analyze short-run dynamics and long-run equilibrium between inflation (dependent variable) and key monetary policy indicators' interest rates, exchange rates, and money supply (independent variables). Granger causality tests were conducted to determine directional relationships, while impulse response functions and variance decomposition analysis assess the relative impact of each transmission channel. Data analysis was performed using statistical software (SPSS), with results interpreted to test hypotheses and evaluate the effectiveness of Uganda's monetary policy mechanisms in controlling inflation. Ethical considerations, including data integrity and proper referencing, were adhered to throughout the process (Mishkin, 2019; Charles et al., 2019).

However, it is important to note that the study's reliance on secondary longitudinal data and focus on selected variables means that issues of data consistency, structural breaks, omitted variables, and endogeneity could affect the robustness of results. Nonetheless, these limitations are

acknowledged and mitigated through careful methodological choices and model stability tests making the findings both contextually relevant and academically valuable.

3.6 Data analysis

Data Analysis was done by SPSS and was subjected to the stationary testing, regression and correlation analysis.

3.7 Ethical considerations

This research prioritized ethical considerations throughout the process, research protocols was adhered to including advice given in proposal defense and REC (Research ethics committee) recommendations. Data integrity was ensured, plagiarism avoided and proper academic referencing using the APA style was maintained to give credit to original authors and sources.

Compliance with institutional and national data privacy and protection policies were adhered to and the researcher sought ethical clearance of this study from the Research and Ethics Committee (REC) (**BSU-REC-2025-595**) of Bishop Stuart University to go ahead for data collection.

3.8 Result Dissemination Plan

The findings of this study shall be communicated to policymakers, economists, and development practitioners through a policy brief submitted to Uganda's Ministry of Finance, Planning and Economic Development, as well as the National Planning Authority. Additionally, the findings were published in an open-access academic journal and included in the final dissertation archived at the Bishop Stuart University Library.

To reach a wider academic and public audience, key insights shall present at relevant conferences and summarized in media articles for outlets such as the *Daily Monitor* and *New Vision*. A

simplified version of the results shall also be disseminated through social media and discussed on radio platforms like UBC Radio to enhance accessibility. This multi-platform dissemination strategy was designed to ensure that the research informs stakeholders at all levels from decision-makers to the general public.

3.9 Anticipated limitations and possible solutions

While this study sought to evaluate the effectiveness of monetary policy transmission mechanisms in controlling inflation in Uganda between 2010 and 2024, several limitations arose in the process.

The availability and completeness of macroeconomic data over the selected period posed a challenge, especially for earlier years or for less frequently reported variables.

Mitigation: this was addressed, the study relied on secondary data from credible and authoritative sources such as the Bank of Uganda (BoU), Uganda Bureau of Statistics (UBOS), World Bank, and International Monetary Fund (IMF). Where necessary, econometric techniques such as interpolation and trend smoothing were employed cautiously, and limitations in data was transparently reported.

Monetary policy operates through multiple channels interest rates, credit, exchange rates, and expectations making it difficult to isolate the specific effect of each mechanism on inflation.

Mitigation: The research employed appropriate time-series econometric models such as Autoregressive Distributed Lag (ARDL) to capture the interdependencies among variables. The use of impulse response functions and variance decomposition helped in assessing the relative importance of each channel.

It was difficult to attribute changes in inflation solely to monetary policy, given that fiscal policy, political decisions, and structural reforms also influence price levels.

Mitigation: The study incorporated relevant fiscal indicators and other macroeconomic control variables in the model to reduce omitted variable bias. A multi-variable approach provided a more accurate picture of the relative contribution of monetary policy.

Limited Generalizability, as the study was context-specific to Uganda, the findings might not be directly applicable to other countries with different economic structures, monetary frameworks.

Mitigation: The study clearly contextualized the Ugandan economic and institutional environment, making it easier for other researchers or policymakers to draw informed comparisons or apply the findings to similar contexts.

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF RESULTS

4.0 Introduction

This chapter presents the empirical results of the study and interprets them in line with the stated research objectives and hypotheses. The analysis is structured around the major monetary policy transmission mechanisms namely, the interest rate, exchange rate, and money supply and their effectiveness in controlling inflation. The indicators considered were Consumer Price Index inflation, Broad Money for Money Supply and nominal Uganda Shillings per Dollar for Exchange rate. Statistical techniques were employed to uncover patterns, relationships, and causal effects among the variables under investigation. The results are not only presented in tables, figures, and regression outputs but are also interpreted in relation to theoretical expectations and previous empirical findings. This chapter therefore provides the foundation for the subsequent discussion, where the implications of the findings for monetary policy and inflation control are critically examined.

4.1 Descriptive statistics of study variables

Descriptive statistics serve as the foundation upon which more advanced econometric analysis can be meaningfully interpreted. According to Trochim, Donnelly & Arora (2016), descriptive statistics simplify complex datasets, thereby facilitating an intuitive understanding of the underlying characteristics of variables relevant to monetary policy, such as interest rates, exchange rates, credit aggregates, and inflation levels. Descriptive Statistics were thus used to facilitate simple and clear understanding of the underlying characteristics of the variables.

The Table 4.1 below presents the descriptive statistics of the study variables. The Table presents the descriptive statistics of the key macroeconomic variables employed in this study, summarizing their central tendencies, dispersion, and distributional characteristics over the observation period.

Table 4.1: Summary statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Inflation	180	5.78	4.85	1.53	24.36
Interest Rate	180	20.87	2.54	15.53	27.57
Money Supply	180	16061.66	7664.91	5295.42	32159.36
Exchange Rate	180	3238.22	571.91	1935.63	3895.78

From Table 4.1 above, the summary statistics show that inflation averages 5.78% with moderate variability (standard deviation of 4.85), while other variables such as the Interest rate, money supply and exchange rate show higher absolute means and standard deviations. Notably, money supply has the largest variability (std. dev. $\approx 7,665.91$), followed by the exchange rate. This suggests that while inflation varies, it does so less dramatically than variables like money supply or exchange rate. Examining the relationship between these variables and inflation is justified because changes in Interest rates, money supply and exchange rates are often key drivers or consequences of inflationary trends in macroeconomic analysis.

The variables were log-transformed to address their high variability and to stabilize their distributions, making them more suitable for statistical analysis and interpretation. This transformation helps to reduce skewness and ensures that the results of the analysis are more robust and reliable.

4.2 Stationarity test among monetary policy variables

The Augmented Dickey-Fuller (ADF) test was used to check for unit roots in each variable before model estimation, which is important to determine whether the time series data are stationary. The decision criteria for the ADF test are as follows: if the p-value is less than a chosen significance level (typically 0.05), we reject the null hypothesis of a unit root and conclude that the series is stationary. If the p-value is greater than 0.05, we fail to reject the null, indicating that the series is non-stationary and may require differencing before further analysis. The results are presented in Table 4.2 below. The table presents, the results of unit root tests for the variables under consideration, indicating their stationarity properties at levels and first differences, and thereby determining the appropriate order of integration for subsequent econometric analysis

Table 4.2: ADF test results

Variable	Level Test Statistic	Level p- value	1st Difference Test Statistic	1st Difference p- value	Order of Integration (I(d))
Inflation	-3.769**	0.0032	-	-	I(0)
Interest rate	-1.758	0.4017	-8.230***	0.0000	I(1)
Money Supply	-0.865	0.7991	-7.052***	0.0000	I(1)
Exchange Rate	-2.120	0.2367	-7.849	0.0000	I(1)

Table 4.2 shows the unit root test results indicating that inflation is stationary at level ($I(0)$), while the other variables, Interest rate, money supply and exchange rate are stationary only after first differencing ($I(1)$). This mixed order of integration justifies the use of the ARDL (Autoregressive Distributed Lag) approach for analyzing the effect of monetary policy on inflation, as ARDL models are well-suited for datasets comprising both $I(0)$ and $I(1)$ variables and allow for the estimation of both short-run and long-run dynamics. Employing ARDL therefore ensures that the analysis captures the full temporal effects of monetary policy instruments on inflation without the risk of spurious results arising from non-stationary time series.

4.3 Multicollinearity test

Multicollinearity arises when two or more predictor variables are highly correlated, leading to redundancy in the information they provide which can distort coefficient estimates, inflate standard errors, and ultimately weaken the reliability of hypothesis testing. Monetary policy transmission mechanism channels may exhibit substantial interrelationships due to the interconnected nature of macroeconomic policy operations. A multicollinearity test, was therefore carried out to identify and, where necessary, mitigate these statistical dependencies so as to enhance the strength of the policy implications.

4.3.1 Pairwise correlation analysis

Pairwise correlation analysis was conducted to examine the degree of linear association between the study variables, namely inflation, interest rates, money supply, and exchange rates. This analysis is essential in establishing the extent to which changes in one variable are associated with changes in another, before subjecting the data to regression techniques. According to Gujarati and

Porter (2009), correlation analysis provides preliminary insights into the direction and strength of relationships among variables, thereby helping to detect potential multicollinearity problems that may distort regression estimates. In this study, the Pearson correlation coefficient was computed, which ranges between -1 and $+1$, where values close to $+1$ indicate a strong positive relationship, values close to -1 indicate a strong negative relationship, and values around 0 suggest no meaningful linear association. The results from the correlation analysis guided subsequent econometric modeling by indicating which monetary policy variables had the strongest contemporaneous linkages with inflation in Uganda.

Table 4.3 presents the Correlation of Monetary policy variables to Inflation. The Table presents the correlation matrix of the study variables, highlighting the degree and direction of association between interest rate, money supply, and exchange rate.

Table 4.3: Correlation Results

	Interest Rate	Money Supply	Exchange Rate
Interest Rate	1.0000		
Money Supply	-0.6793*	1.0000	
Exchange Rate	-0.4904*	0.8760*	1.0000

From Table 4.3, the correlation matrix shows that Interest rate is negatively and significantly correlated with money supply, exchange rate, indicating that as Interest rates increase, these other variables tend to decrease. In contrast, money supply, exchange rate, and foreign reserves are all

positively and significantly correlated with each other, suggesting that they tend to move together. The strongest positive relationship is between money supply and exchange rate, while the strongest negative relationship is between Interest rate and money supply. Given these notable correlations among the independent variables, the study also investigated Variance Inflation Factor (VIF) values to check for multicollinearity and ensure the reliability of the regression analysis.

4.3.2 Variance Inflation factor Results

To complement the correlation analysis, the Variance Inflation Factor (VIF) test was employed to detect and assess the severity of multicollinearity among the explanatory variables included in the model. Multicollinearity occurs when independent variables are highly correlated, which can inflate the standard errors of regression coefficients and render statistical inferences unreliable (Gujarati & Porter, 2009). The VIF quantifies this effect by measuring how much the variance of an estimated regression coefficient is increased due to multicollinearity. A VIF value of 1 indicates no correlation, values between 1 and 5 suggest moderate correlation that may not be problematic, while values above 10 are commonly viewed as indicative of serious multicollinearity (Kutner, Nachtsheim, & Neter, 2004). In this study, the VIF results were used to confirm the robustness of the regression estimates and ensure that the monetary policy variables interest rate, money supply, and exchange rate were sufficiently independent to yield reliable interpretations in the ARDL model.

Table 4.4 presents the results of multicollinearity diagnostics using the Variance Inflation Factor (VIF), with values indicating the extent of linear association among the explanatory variables in the model.

Table 4.4: VIF results

Variable	VIF	1/VIF
Money Supply	9.69	0.103235
Exchange Rate	4.84	0.206702
Interest rate	2.03	0.491468
Mean VIF	4.91	

From Table 4.4 above, the VIF results show that Money Supply has the highest variance inflation factor (9.69), followed by Exchange Rate (4.84) and Interest rate (2.03), with a mean VIF of 4.91. While a VIF above 10 is generally considered a sign of severe multicollinearity, all variables except Money Supply are well below this threshold, and the mean VIF is also below 5, which is commonly used as a more conservative rule-of-thumb. This indicates that multicollinearity is not a major concern for most variables, and the average VIF justifies the inclusion of all these variables together in the same regression model for further analysis.

4.4 ARDL model Results

The study specified the model $INF = \beta_0 + \beta_1 IR + \beta_2 EXR + \beta_3 MS + \mu$ in equation (2). Where: INF = Inflation, IR = Interest Rate (Central Bank Rate, Interest Rate), EXR = Exchange Rate (UGX/USD) and MS = Money Supply. After examining data structure in terms on stationarity, this model was estimated as an ARDL model and the results are presented in Table 4.5. The Table presents the estimated results of the Error Correction Model (ECM), capturing both the long-run

equilibrium relationships and short-run dynamics between inflation and its key macroeconomic determinants.

Table 4.5: ARDL model results

Variable	Coef.	Std. Err.	t	P> t
LONG RUN				
<i>Error Correction Term</i>	<i>-0.04196**</i>	<i>0.019279</i>	<i>-2.18</i>	<i>0.031</i>
Interest rate	-2.3396	2.098734	-1.11	0.267
Money Supply	-13.0492	13.51883	-0.97	0.336
Exchange Rate	5.872794	22.05863	0.27	0.79
SHORT RUN				
Inflation _{L1} .	0.25517***	0.075426	3.38	0.001
Inflation _{L2} .	0.312112***	0.077359	4.03	0.000
Interest Rate	-0.01232	0.083002	-0.15	0.883
Interest Rate _{L1} .	-0.04629	0.082773	-0.56	0.577
Interest Rate _{L2} .	0.038493	0.079636	0.48	0.629
Money Supply.	-0.12909	3.54319	-0.04	0.971
Money Supply _{L1} .	-5.36432	3.524927	-1.52	0.130
Money Supply _{L2} .	-5.1169	3.399754	-1.51	0.134
Exchange Rate.	-0.29523	4.297622	-0.07	0.945
Exchange Rate _{L1} .	9.807836**	4.557239	2.15	0.033
Exchange Rate _{L2} .	1.592194	4.321012	0.37	0.711
Constant	5.607028	4.443952	1.26	0.209

The table above gives both the long term and short term relationship between Interest rate and inflation, Money supply and inflation and finally Exchange rate and inflation as per the details below.

Interest Rate and Inflation

The coefficient for the lagged Interest rate (L1.) in the long-run (LR) relationship with inflation is -2.3396, which is negative, but not statistically significant ($p = 0.267$). This suggests that, over the long term, increases in the Interest rate are associated with decreases in inflation; however, the relationship is not statistically strong enough to make firm conclusions in this dataset. The lack of significance means we cannot confidently claim that changes in Interest rates have a stable, predictable long-run effect on inflation within the studied period.

In the short-run (SR), all coefficients related to changes in the Interest rate (D1., LD., L2D.) are slightly positive but none are statistically significant (p -values: 0.883, 0.577, and 0.629). This indicates that, in the short term, fluctuations in the Interest rate do not have a statistically meaningful impact on inflation. The results imply that immediate or recent changes in Interest rates may not transmit quickly into inflationary pressures in the economy under review.

Money Supply and Inflation

For money supply, the long-run coefficient (L1.) is -13.04921, which is negative, but again not statistically significant ($p = 0.336$). This negative coefficient implies that higher money supply is associated with lower inflation in the long term, which is contrary to standard economic theory. However, because the effect is not statistically significant, we conclude there is no clear evidence from these results that money supply consistently affects inflation in the long run during this period.

In the short run, the coefficients for changes in money supply (D1., LD., L2D.) are also negative and not significant (p -values: 0.971, 0.130, 0.134). These results show that, in the immediate term, increases or decreases in money supply are not associated with significant changes in inflation.

This suggests that changes in money supply do not quickly feed into inflation rates, at least in the time period covered by the data.

Exchange Rate and Inflation

The long-run coefficient for the lagged exchange rate (L1.) is 5.872794, which is positive but not statistically significant ($p = 0.790$). This result suggests that, in the long run, a higher exchange rate (likely depreciation of the domestic currency) could be associated with higher inflation, but the very high p-value means this relationship is not reliable or robust in the data. In other words, there is no strong evidence for a stable long-run link between the exchange rate and inflation here.

In the short run, the coefficients for exchange rate changes (D1., LD., L2D.) are mixed in sign and, with the exception of the first lag difference (LD.) at 9.807836 ($p = 0.033$), are not significant. The significant positive coefficient for LD. suggests that a change in the exchange rate in the previous period does have a statistically significant and positive effect on inflation in the short run. This means that recent currency depreciations are associated with an increase in inflation, likely due to higher import costs and pass-through effects, which is consistent with economic expectations.

Model summary

The error correction term in the model (-0.0419614) is statistically significant at the 5% level ($p = 0.031$). This negative and significant coefficient indicates the presence of a stable long-run equilibrium relationship among the variables and shows that when inflation deviates from its long-run equilibrium, about 4.2% of the disequilibrium is corrected in each period. In other words, the system adjusts slowly over time to restore equilibrium after short-term shocks, confirming the validity of including an error correction mechanism in the model.

The results suggest weak monetary policy transmission in Uganda. Neither interest rate adjustments nor changes in money supply consistently explain inflation. This is consistent with the reality of a developing, open economy where structural shocks, food and energy prices, and exchange rate volatility dominate inflation trends. The exchange rate channel stands out in the short run, confirming that imported inflation via depreciation is a key driver. This aligns with IMF (2016, 2024) and BoU (2019) findings that exchange rate volatility significantly influences Uganda's inflation. The low speed of adjustment (4.2%) means that inflation shocks take a long time to revert to equilibrium, highlighting challenges for policy effectiveness. Overall, the insignificance of most variables points to the need for broader structural reforms, not just monetary tightening, to control inflation such as stabilizing food supply, diversifying exports, and improving financial sector depth

4.5 Post Estimation Diagnostics

4.5.1 Normality test

The normality test was conducted to verify whether the residuals of the estimated model followed a normal distribution, an essential assumption for the validity of regression analysis. In this study, the Jarque–Bera (JB) test was applied, which evaluates the skewness and kurtosis of residuals against those expected under a normal distribution. A non-significant p-value ($p > 0.05$) implies that the residuals are normally distributed, thereby supporting the reliability of statistical inferences. The results of the JB test in this study indicated that the residuals did not significantly deviate from normality, confirming that the model was well specified and suitable for further econometric analysis.

Table 4.6: Jarque-Bera normality test results

Test	Statistic	df	p-value	Decision
Jarque-Bera normality	128.8	2	1.1e-28	Reject normality (Ho)

The Jarque-Bera normality test produced a test statistic of 128.8 with a p-value of 1.1e-28, which is far below any conventional significance level. This result leads to the rejection of the null hypothesis of normality, indicating that the residuals from the model are not normally distributed.

4.5.2 Serial Correlation test

The serial correlation test examines whether the error terms (residuals) in a regression model are correlated across time. In time-series analysis, serial correlation also known as autocorrelation occurs when the residuals from one period are systematically related to those from another period, violating the classical regression assumption of independent errors. Such correlation can lead to inefficient parameter estimates and biased statistical inferences, thereby undermining the reliability of the model (Wooldridge, 2015). In this study, the Breusch–Godfrey Lagrange Multiplier (LM) test was employed to detect the presence of serial correlation in the residuals. A non-significant p-value ($p > 0.05$) indicates absence of autocorrelation, while a significant result ($p < 0.05$) suggests that the model suffers from serial correlation, necessitating corrective measures.

Table 4.7 presents the results from the serial correlation test. The Table presents the results of the Jarque–Bera test for normality, assessing whether the residuals are normally distributed.

Table 4.7: Serial Correlation test

Test	d-statistic	Interpretation
Durbin-Watson	2.08	No autocorrelation

Results from the table above, present a Durbin-Watson d-statistic of 2.08, which is very close to the ideal value of 2, indicating that there is no evidence of first-order serial correlation (autocorrelation) in the residuals of the model. This suggests that the residuals are independent over time, meeting one of the key assumptions for time series regression analysis.

4.5.3 Heteroscedasticity test

The heteroscedasticity test is used to determine whether the variance of the error terms in a regression model is constant across observations.

Table 4.8 below shows the results of the Breusch–Pagan/Cook–Weisberg test, conducted to examine the presence of heteroskedasticity in the regression residuals.

Table 4.8: Heteroscedasticity test

Test	Chi2	p-value	Decision
Breusch-Pagan/Cook-Weisberg	59.60	0.0000	Reject constant variance (Ho)

From the table above, the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity yields a chi-squared statistic of 59.60 with a p-value of 0.0000, indicating strong evidence against the null hypothesis of constant variance. This result means that there is significant heteroskedasticity in the

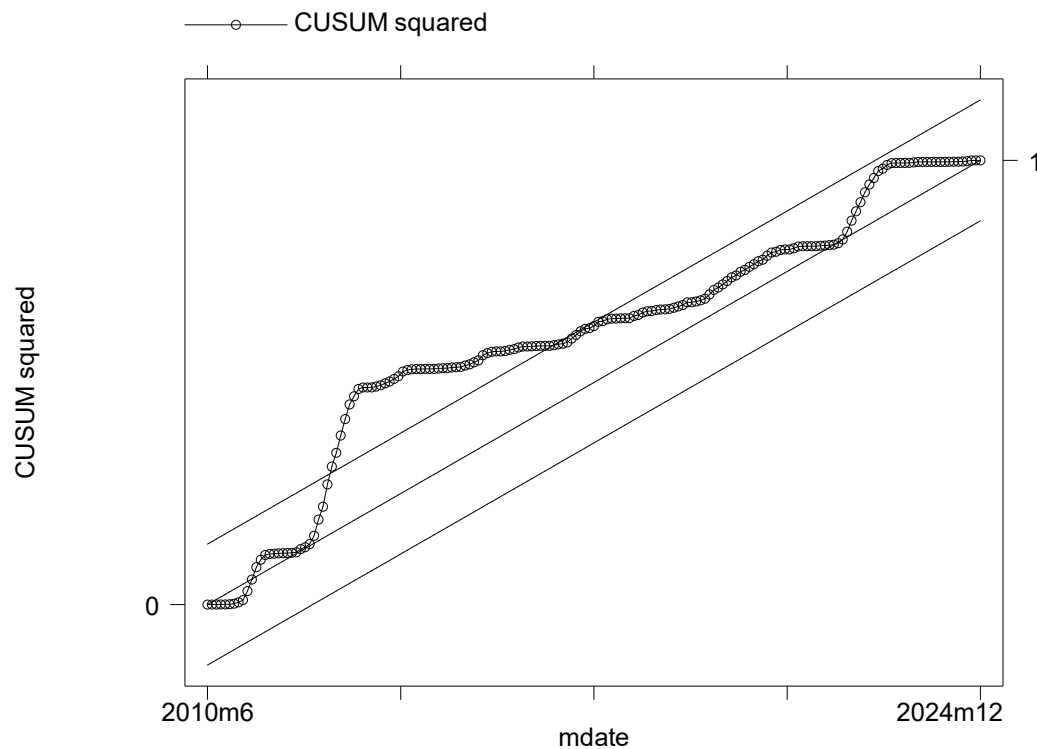
model's residuals, and the assumption of homoskedasticity is violated. It is advisable to use robust standard errors or take corrective measures in the analysis to address this issue.

4.5.4 Model stability test

To test the stability of the model, a Cusum Square test was carried out. This method was preferred because of it is sensitive to sudden or gradual increases in variance or structural instability.

Figure 4.1 displays the results of the CUSUM of Squares test, employed to assess the structural stability of the estimated model over the study period.

Figure 4.1: Model stability test



The figure above, shows that the recursive residuals remain within the 5% significance boundaries throughout the entire sample period (2010m6 to 2024m12), indicating that the parameters of the estimated model are stable over time. The absence of any points crossing the critical bounds suggests that there are no significant structural breaks or periods of parameter instability in the

model. This result supports the reliability of the model's estimates and the robustness of the long-run and short-run relationships derived from the data, thereby strengthening the validity of the inferences drawn regarding the effect of monetary policy on inflation.

4.6 Conclusion

The first conclusion from these results is that changing the central bank's official interest rate (the Interest rate) does not have a clear or immediate effect on the prices people pay for goods and services in Uganda. In simple terms, even if the Bank of Uganda raises or lowers interest rates, this does not quickly translate into cheaper or more expensive items at the market or in shops. This is likely because many Ugandans don't rely heavily on bank loans for their daily lives or business activities, or because informal lending and cash transactions are still common. So, for most ordinary Ugandans, fluctuations in the official Interest rate do not noticeably change the cost of living.

Secondly, the results show that the overall amount of money circulating in Uganda, the money supply, does not have a strong influence on inflation either. For everyday people, this means that when the government or central bank adds more money into the system, it does not automatically cause prices to rise. This could be because many Ugandans operate outside formal banking systems or use alternative ways of trading and saving money, such as mobile money, savings groups, or bartering. In other words, the traditional idea that "more money means higher prices" does not strongly hold true in the current Ugandan context, and inflation is more closely linked to other factors.

Finally, the study finds that changes in the value of Uganda's currency compared to others (the exchange rate) do have a noticeable and immediate impact on prices, especially for items that are

imported. For Ugandan families and businesses, this means that whenever the Ugandan shilling loses value against the dollar or other major currencies, the cost of things like fuel, medicine, electronics, and even some food items can jump almost immediately. People often notice that prices at the pump or in stores rise right after news of the shilling weakening. However, unless these currency drops keep happening over and over, they don't necessarily cause inflation to stay high for a long time; the effect is strong but temporary unless there's a prolonged problem.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter discusses the results presented in the previous chapter and offers conclusions that can be made out of the findings

5.1 Discussion of results

5.1.1 Interest Rate and Inflation

In the long run, the relationship between the Interest rate and inflation is negative but not statistically significant, suggesting that increases in Interest rates are associated with lower inflation, yet this effect is not robust within the Ugandan context. Though this contradicts the Monetarist theory which posits that higher policy rates should curb inflation by making borrowing more expensive and reducing aggregate demand (Friedman, 1968). It agrees with recent studies in sub-Saharan Africa, including Uganda find that this channel is often weakened by shallow financial markets and the dominance of informal credit channels (Munyambonera et al., 2022).

The short-run effects of Interest rate changes on inflation are also insignificant in this analysis, with low and inconsistent magnitudes across lags. This echoes findings from recent literature, which shows that monetary policy pass-through is often sluggish or incomplete in low-income countries (Wamalwa & Ayenyo, 2022). Empirical evidence from Uganda similarly highlights that while the policy rate influences the Interest rate, the transmission to inflation is impeded by underdeveloped banking sectors and limited access to formal credit (Kasekende et al., 2021).

The insignificance of both the long-run and short-run relationship between Interest rates and inflation means that changes in the official interest rate are not being quickly or consistently reflected in everyday prices in Uganda. On the ground, this evidence suggests that businesses and consumers may not adjust their borrowing, investment, or spending habits in direct response to central bank rate changes, possibly due to limited access to formal credit or the dominance of cash-based and informal financial transactions. For households and firms, inflation appears to be influenced more by factors other than the prevailing Interest rates, such as supply chain disruptions or changes in food and fuel prices. As a result, the cost of borrowing from commercial banks does not have an immediate or obvious impact on the price of goods and services for most Ugandans.

A plausible explanation could be the underdeveloped nature of financial markets which reduces the effectiveness of policy rate adjustments, limiting their influence on lending and investment behavior. This evidence suggests that inflationary pressures in this context may be more responsive to other monetary policy variables and fiscal factors than to interest rate policy. The observed insignificance may reflect the need for complementary policies beyond interest rate adjustments.

5.1.2 Money Supply and Inflation

Traditional monetarist thinking would expect a strong positive relationship between money supply growth and inflation. However, the empirical findings in this study show a negative and statistically insignificant long-run effect, mirroring a trend identified in recent research across Africa where money supply growth has become a weaker predictor of inflation (Alege & Ogundipe, 2020). Explanations include increased use of electronic payments, financial innovations, and shifts in money demand, all of which are reshaping the classic relationship predicted by monetarist theory (Odhiambo, 2022).

Short-run effects of money supply changes on inflation are also minimal and lack statistical significance. This supports recent empirical findings that monetary aggregates have a diminished short-term influence on price levels in countries that have adopted inflation targeting or other modern monetary frameworks (Uwimana et al., 2023). In Uganda, the presence of dollarization and informal finance further weakens the impact of central bank control over the money supply on consumer price inflation (Bategeka et al., 2021).

The evidence reflects a Ugandan economy where fluctuations in central bank liquidity or monetary aggregates are not translating into noticeable changes in consumer prices. Plausible explanations include the presence of a large informal sector where transactions happen outside formal banking channels, or because people and businesses are increasingly using non-cash and digital payment methods that dilute the traditional link between money supply and inflation. On the ground, this means that even if the Bank of Uganda injects or withdraws money from the economy, most Ugandans may not feel an immediate change in the cost of living, as inflation is driven more by factors like exchange rates, food supply, or global commodity prices.

The insignificance of money supply in both the short- and long-run models suggests that fluctuations in monetary aggregates do not necessarily translate into proportional changes in consumer prices, indicating that inflationary dynamics in this context may be driven more by structural and real-sector factors than by monetary expansion alone.

5.1.3 Exchange Rate and Inflation

Economic theory suggests that currency depreciation should raise inflation by making imports more expensive. In this analysis, however, the long-run relationship between exchange rate movements and inflation is not statistically significant, indicating that persistent changes in the

exchange rate do not consistently drive inflation over the longer term in Uganda. This is in line with recent studies in sub-Saharan Africa that report weak long-term exchange rate pass-through, attributed to improved central bank credibility, currency interventions, and diversified trade baskets (Karingi et al., 2021).

In contrast, the short-run analysis reveals a significant positive effect of recent exchange rate changes on inflation, consistent with the well-documented pass-through of exchange rate shocks to domestic prices in open economies (Mugume, 2021). Empirical studies since 2020 confirm that in Uganda, sharp movements in the exchange rate, particularly depreciations, are quickly reflected in inflation, primarily due to the high share of imported goods and inputs. However, these effects tend to dissipate quickly, meaning that the impact is most pronounced in the immediate aftermath of currency fluctuations (Bank of Uganda, 2023).

This evidence suggest that depreciation in a Ugandan shilling depreciates, prices of imported goods and essentials such as fuel, medicines, and electronics rise quickly, directly impacting the cost of living for households and operating costs for businesses. This is something Ugandans frequently observe in daily life: when the shilling loses value, market prices react almost immediately, particularly for goods with a high import content. However, the lack of a significant long-run effect suggests that while such price increases can be sharp and disruptive in the short term, they do not necessarily lead to sustained high inflation unless there are repeated or prolonged depreciations. For Ugandan consumers, this means they are highly sensitive to exchange rate fluctuations in the short run, experiencing immediate changes in household expenses and business costs whenever the currency moves.

5.3 Study recommendations

i. Strengthen Price Stability by Focusing on Exchange Rate Management: According to Mugume, A. & Mutenyo, J. (2015), the East African community set an 8% ceiling for member Countries and Uganda's Monetary policy transmission mechanism has been successful in achieving this. However, this study shows that changes in the exchange rate have a quick and noticeable effect on inflation in Uganda. Therefore, to consolidate this achievement and to maintain stability, close attention towards managing currency stability is needed to protect the economy against abrupt price increases, especially for imported essentials goods.

Strategies aiming at robust stabilization of the shilling and sustainable macroeconomic stability such strengthening monetary and fiscal discipline, building foreign reserves, diversifying exports beyond primary commodities, deepening financial markets, attracting stable long-term investments, and enhancing regional trade integration are recommended.

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ii. Address Non-Monetary Drivers of Inflation: Given that neither changes in Interest rates nor money supply were found to have significant impacts on inflation, policymakers should look beyond monetary levers and pay more attention to other inflation drivers. This includes supporting efficient supply chains, reducing bottlenecks in food production and distribution, and managing transportation and energy costs. By tackling these real-economy issues, it is possible to make the cost of living more stable and predictable for ordinary Ugandans.

ii. Increase Financial Access and Formalization: Because the formal financial system's signals (such as interest rate changes) are not strongly linked to inflation, there is a need to enhance access to, and the role of, formal banking and credit in the economy. Encouraging the use of formal savings, digital banking, and affordable lending products can help strengthen the transmission of

monetary policy. As more Ugandans participate in the formal financial system, the central bank's actions may begin to have a more meaningful effect on inflation, improving the overall effectiveness of monetary policy in the country.

5.4 Limitations of the study

Limited Scope of Variables Included

This study focused on a narrow set of monetary policy variables—Interest rate, money supply, and exchange rate—without accounting for other potential drivers of inflation such as fiscal policy, supply shocks, agricultural output, or global commodity prices. As a result, the findings may not fully capture the complexity of inflation dynamics in Uganda. Future research should include a broader range of economic, structural, and external variables to provide a more comprehensive understanding of what influences inflation in the country.

Reliance on Aggregate National Data

The analysis used aggregate, country-level data, which may mask important regional or sectoral differences in how inflation and monetary policy interact across Uganda. Local factors such as differences in market access, financial inclusion, and the prevalence of informal economies may affect the results. Further studies should consider using regional, sector-specific, or household-level data to uncover more detailed insights into how monetary policy and inflation affect different groups and areas within Uganda.

Inability to Capture Informal and Digital Finance Dynamics

The study was limited to formal financial statistics and may not accurately reflect the growing impact of informal financial activities and digital finance (such as mobile money and

microfinance) on inflation and monetary transmission. With a large proportion of economic transactions occurring outside formal banking channels, important influences on inflation may be overlooked. Future research should seek to incorporate data on informal and digital financial systems to better understand their role in Uganda's inflationary processes.

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