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# Monetary Policy Tools and Lending Rates in Uganda: A Quantitative Analysis

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**Abstract:** This study examines the impact of key monetary policy instruments on Uganda's lending rates over the period from 1994-2024. Specifically, it examines the impact of the Central Bank Rate (CBR), Open Market Operations (OMO), Standing Lending Facilities (SLF), and the Cash Reserve Requirement (CRR) on commercial lending rates. With the Autoregressive Distributed Lag (ARDL) methodology, the study accommodates variables of mixed orders of integration and accounts for both short-run dynamics and long-run relationships. After overcoming multicollinearity problems, which resulted in CRR (being utilized as a proxy for demand deposits) being eliminated from the study, the study determines that CBR and the rediscount rate (being utilized as a proxy for SLF) have positive influences on lending rates in both the long run and short run. On the other hand, base money (proxy for OMO) is not statistically significant, and this reflects structural inefficiencies in the channel of passing through liquidity. Since diagnostic tests confirm the model under stability, normality of residuals, homoscedasticity, and no serial correlation, these findings confirm interest rate-based instruments in Uganda's monetary policy arsenal and simultaneously highlight indirect instrument weaknesses, such as OMO. These policy recommendations drawing from the research focus on reinforcing CBR signaling transparency, upgrading SLF mechanisms, and further deepening financial markets to improve policy transmission. This should be accompanied by further research into the wider macroeconomic effects of these instruments as well as further policy levers in Uganda's monetary framework.

**Keywords:** *Monetary Policy Tools, Lending Rates, Uganda, Quantitative Analysis*

## 1. Introduction

Lending rates are the average interest banks, SACCOs, microfinance institutions, and other financial institutions impose on fixed-rate loans granted for medium to short-term tenures (Feyen & Zuccardi Huertas, 2020). The rates vary depending on the creditworthiness of a borrower and the loan facility's purpose (Christian Glocker, 2012). Supportive lending rates play a crucial role in affecting macroeconomic stability and the development of the financial sector by stimulating private investment, employment, and income generation, according to Adam (2009).

Across the globe, lending rates are affected by various interconnected factors such as expectations of inflation, global economic trends, monetary policies of central banks, and credit risks (Matemilola et al., 2015a). Bernanke (2012) finds that some of the advanced nations like Japan and certain nations of Europe have managed to maintain low interest rates. Contrarily, lending rates in African economies remain quite high due to macro-financial challenges (Gregor & Melecký, 2018). Accommodative lending rates encourage investment, which in turn gives rise to improved macro-fiscal performance by influencing base interest rates, making financial institutions stable, improving liquidity, raising investments, and mitigating unemployment (Feyen & Zuccardi Huertas, 2020). For instance, World Bank figures reveal that Peru's lending rates are around 0.83%, Japan's is 1.8%, China's is 4.35%, France's is 4.38%, and in Ireland slightly lower than that (Feyen & Zuccardi Huertas, 2020).

As seen from an African point of view, lending rates have a significant impact on economic growth and business activities (Matemilola et al., 2015). Matemilola et al. (2018) opine that changes in lending rates have the capacity to stimulate or slow down growth, depending on their nature. Lending rates affect inflation, exchange rate, cost of production, and consumption choices, all of which are central to economic performance (Fishman, Parker & Straub, 2024). Since the lending rate forms part of the cost of funding, it will determine how much people and businesses are willing to borrow, hence affecting investment patterns and growth performance (Adabor, 2022). Chmel & Shmihel (2019) suggest that such a relationship makes the lending rate a key transmission mechanism for monetary policy to the economy.

Monetary policy tools, both quantitative and qualitative, are utilized by central banks to achieve price stability and economic growth (Mishkin, 2016). Quantitative tools like the Central Bank Rate (CBR), Open Market Operations, and Reserve Requirements are essential quantitative instruments, while qualitative instruments are moral suasion and credit guidelines (Della Valle, King & Veyrune, 2022). These tools have a direct impact on how banks raise funds and what they pay on lending (Pavković & Staka, 2022). To Maehle (2021), a policy tool shift usually has an impact on bank lending behavior in terms of shifts in the cost of capital.

As a central bank reduces its policy rate, the banks are able to refinance at a lower cost, driving them to reduce their lending rates (Maravalle & Pandiella, 2022). On the other hand, whenever it is more costly to borrow from central bank lending facilities like the Standing Lending Facility, lending by banks becomes more expensive in order to ensure profitability (Bindseil & Jablecki, 2021). According to Mayes & Toporowski (2007), government securities sales in open markets tighten liquidity, causing lending rates to increase, and when interest rates on the securities are higher, lending rates rise as banks shift to cover margins.

In Uganda, the monetary policy trend of the last few years has led to an increase in lending rates by commercial banks (International Growth Center, 2020). From 2021 to 2024, interest rates changed from 18.60% in 2021 to 18.4% in 2022, went up to 19.27% in 2023, and decreased slightly to 17.74% in 2024 (Kakeeto, 2023). These levels have been making it increasingly difficult for companies to get cheap credit to finance investments (Mbabazize et al., 2020). Most commercial banks in Uganda are accompanied by loan rates of more than 20% and deposit rates of just 5%, earning a huge interest rate spread (International Growth Center, 2020). This wide dispersion, as stated by Mugume & Rubatsimbira (2019), raises the borrowing cost, limits business profitability, and slows down economic momentum since businesses and households cannot easily obtain access to capital at a reasonable price.v

## 2. Literature Review

### *Theoretical Review*

The monetary policy theory advanced by Milton Friedman (1912–2006) suggests that banks use a range of monetary instruments to control the supply of money with a view to controlling lending rates, interest rates, and inflation with a view to triggering economic growth, stability, and employment (Bordo, 2013). At its essence, the theory is based on the premise that changes in the supply of money are prime causes of economic activity (Mathai, 2009b). It emphasizes that central banks, by altering the money supply and other liquid assets in the market, have enormous power over the economic growth rate of a country (Singh, 2023).

The theory assumes that the central bank can control the money supply and changes in the money supply have a significant impact on lending rates.

$$R = RO + \frac{(Ms - Md)}{(\beta * Md)}$$

Where: **R** is the lending rate.
**Ro:** Equilibrium interest rate.
**MS:** Money supply.
**Md:** Money demand.
$\beta$: Interest rate elasticity of money demand.

The strength of the theory is its potential to fight inflation by its influence on lending rates through policy manipulation, elasticity towards changes in economic conditions, and having a definite mechanism of transmission on how monetary policy instruments affect lending rates (Maravalle & Pandiella, 2022). Gregor and Melecký (2018) state that the theory has an evident conceptual framework for understanding how central bank actions filter through into commercial bank lending rates. Nevertheless, the theory is tenuous. The theory primarily focuses on monetary aspects at the expense of other elements like fiscal policy and institutions, which also have a considerable influence on lending rates (Adabor, 2022). Further, the theory can be undermined by outside factors like world economic trends and unstable exchange rates, which affect the influence of monetary interventions (Feyen & Zuccardi Huertas, 2020).

The second is the Customer Reaction Theory, which depicts those banks during difficult economic times that can avoid increasing lending rates due to fear of negative customer response (De Bondt, 2005). The theory argues that if the policy rate goes up, the lending rates move upwards as well. It also indicates how the behavior of borrowers responding to lending rates influences credit markets. According to Fishman, Parker, and Straub (2024), borrowers are still highly responsive to changes in lending rates, and those changes directly affect their attitudes and behaviors. These reactions from the borrowers contribute to credit market equilibrium (Chmel & Shmihel, 2019).

The Collusive Behavior of Banks Theory, which Hans Degryse formulated in 2005, links lending rates with the level of bank competition and retail market concentration. The theory posits that banks are able to withstand cutting lending rates so as not to break collusive arrangements (De Bondt, 2005). Matemilola et al. (2015a) add that collusion would result in sticky lending rates even after policy rates decline. The theory focuses on implicit or explicit collusion among banks that influences how the determination of rates is done and how credit markets work. It also relates to bank decision-making interdependence, market power, and information sharing between banks, which together determine lending (Gregor & Melecký, 2018).

**Effect of the variables**

***Central Bank Rate (CBR) and Lending rates.***

Various studies have shown that the Central Bank Rate (CBR) significantly affects commercial bank lending rates, particularly in Uganda. Openjuru & Ph (2019) uncover a positive effect of the CBR on lending rates within short and long terms, with a deeper effect in the long term. Their evidence attests that increases in the CBR raise the cost of opportunity of funds, forcing banks to increase lending rates. Similarly, Kakeeto & Michael (2023) also confirm this positive association using the ARDL method and regression analysis. They establish that inflation, along with the CBR, has a significant impact on lending rates, and that higher inflation relative to deposit rates discourages saving. These findings are in line with Cobbinah & Ekow (2011), who have a strong correlation between Ghana's policy rate and lending of banks, affirming that policy changes are passed on fully to consumers as interest rates. Taken collectively, these studies strongly argue that monetary policy tools like the CBR go a long way in determining lending rates, especially in fairly responsive banking systems like Uganda and Ghana.

However, the universality of the effect across different economies cannot be guaranteed. The transmission of the central bank's policy rates to lending rates can be weak depending on banking structure and market circumstances, as stated by Chmel & Shmihel (2019). In elaboration, they further mention that constant changes of the policy rate discourage banks to change lending rates in an expeditious way. Furthermore, when the demand for credit is relatively inelastic, banks may not be willing to hike or lower lending rates even when policy rates fluctuate. The Ukrainian situation, which is typified by the presence of non-performing loans, is a manifestation of this deficiency but additionally. Banks may be more interested in maintaining their existing risky portfolios than in granting new credit, weakening the intended effect of central bank rate fluctuation. This criticism refers to the central research gap: while the Ugandan and Ghanaian cases illustrate a strong rate of transmission, the limit of this correlation is placed by risk levels, elasticity of loan demand, and market structure. Future research in Uganda can explore whether market competition, consumer sensitivity, and risk exposure influence the strength of monetary policy transmission to interest rates.

***Open Market Operations (OMO) and lending rates.***

Several studies have attempted to find the effect of Open Market Operations (OMO) on lending and short-run interest rates, most notably employing instruments like repos, reverse repos, and treasury bills. Subedi and Chaulagain (2022) confirmed that repos reduce interbank rates, whereas reverse repos and treasury bills increase them. Their result indicates that their issue of 1 billion NRs lowers the interbank rate marginally by 0.01% to 0.06%, whereas their reverse repo issue of the same amount raises the rate by at most 0.05%. Treasury bills have a very strong positive impact, a 1% rise in their rate causing the interbank rate to increase by 0.9%. In addition, Paper (2000) and Omonywa & Nairobi (2019) similarly establish a direct association between treasury bill yields and lending rates, where treasury bill yield increases raise the cost of capital, which gets transmitted to lending rates. These facts suggest that OMOs, particularly through the pricing of government securities, transmit information that shifts the cost of credit in financial markets, which directly affects private sector lending.

This is made complex, however, by Risal & Karki (2018). Applying Nepal as a lens, their evidence is of a reversal of normal predictions: repos increased interest rates and reverse repos decreased them, the reverse of normal monetary policy theory. They attribute this to the information effect; where production of these instruments is assumed to signal poor market expectations, rather than liquidity management. Also, backed up by studies like Brunetti et al. (2010) and Heider et al. (2009), these opposite findings may be due to liquidity hoarding or panic in the marketplace that reduces the efficiency of effective standard OMO tools. To everyone's surprise, their study found that it is not the size but the maturity length of repos that stabilizes interest rates. A longer maturity period gradually makes up for the bearish sentiment, allowing the actual effect of the OMO tool to take hold. This reveals a research gap of critical significance: most OMO research assumes textbook transmission channels, but in developing or turbulent agribusiness such as Uganda, maturity structure and market sentiment can be more pervasive than has been assumed hitherto. Future research in Uganda should explore whether OMO performance is more a matter of perception and maturity play than volume.

**Cash reserve requirement (CRR)and lending rates.**

Yimer (2018), using data from the Ethiopian Commercial Bank and the Ordinary Least Squares method, determined that while cash reserve requirements (CRR) have a positive effect on commercial bank lending, the effect was statistically insignificant. This would imply that in some developing economies, commercial lending could be driven more by other macroeconomic or structural variables than by changes in CRR alone. This view is not without its challenges, though. Alper et al. (2018) provide a strong argument showing that CRR plays an important role in influencing the lending behavior of banks. In their view, an increase in reserve requirements reduces the liquidity of the banking system, which forces banks to raise lending rates in order to ensure both profitability and liquidity. This is highly relevant to those economies with less developed financial markets where banks utilize deposits largely to finance lending.

Furthermore substantiating this statement, Hemedes and Lapid (2005) reaffirmed that elevated CRR is a levy on financial intermediation and thus an augmentation of the cost of credit. They are in agreement with Feinman (1993), who described the decrease in interest income on mandatory reserves as an effective cost to the private sector. Such a concept is also echoed by the IMF (1993), citing that in the case where CRR is set at below-market or non-remunerative levels, it effectively acts as a financial charge that disrupts lending incentives. The implication then is that in economies like Uganda's where lending interest rates are high (Mugume & Rubatsimbira, 2019), policy tools like CRR might need careful re-evaluation. Because this is the case, the reduction in CRR would ease the pressures of liquidity and allow banks to decrease lending rates, thus enhancing credit access and economic growth.

**Standing lending facilities (SLF) and lending rates**

Eleam, Umebali, and Atel (2021) found that an increase in the Standing Lending Facility (SLF) reduces the cost of borrowing and improves the liquidity of Nigeria, thereby resulting in a reduction of lending rates. Their study supports the hypothesis that SLF is a multidimensional monetary tool for managing liquidity risks and providing access to credit. This is in line with Bindseil and Jablecki (2021), wherein the same observations in Europe were also noted that lowering SLF rates by central banks was equivalent to lowering commercial lending rates. Both authors believe that the impact of SLF is positive when its rates are kept low because banks will be able to transfer benefits to clients. The impact on deposit rates, however, is not so certain. While the Nigerian data suggests deposit rates may go up or down depending on the bank's preference to cut costs or attract deposits, European data is more interested in dynamics on the lending side. Fife et al. (2022) also further reinforce that SLFs act as a ceiling for market interest rates, damping sudden spikes and controlling volatility.

This function becomes more critical in circumstances where monetary policy transmission is weak, as is often the situation with most of Africa's economy. In contrast,, although these foreign results guarantee the positive impact of SLF on credit markets, Uganda is a different story. Mugume and Rubatsimbira (2019) elucidate that Uganda's high interest rates persist due to weak transmission of monetary policies by the central bank and market structure inefficiencies. Kakeeto (2023) also testifies that the central bank rate has had no consistent impact on commercial lending rates in Uganda, which he blames for liquidity access and risk pricing difficulties. Adam (2009) also contributes that monetary policy transmission in Uganda is characteristically affected by poorly developed financial infrastructure. This testifies to a gap whereby policies like SLF can have a limited effect in the case of lacking financial sector-wide reforms. Relative to Ghana, Adabor (2022) found that interest rate responses to growth are asymmetric in that easing rates need not boost credit or output. Generally, while SLFs can work well in tranquil banking systems, their performance in countries like Uganda will be a function of the quality of monetary signals transmission to actual bank behavior and whether liquidity interventions are supported by structural changes.

***Summery***

The reviewed studies show that monetary policy tools such as the Central Bank Rate (CBR), Open Market Operations (OMO), Cash Reserve Requirements (CRR), and Standing Lending Facilities (SLF) have significant impacts on lending interest rates, mainly through their impact on liquidity and cost of funds (Openjuru & Ph, 2019; Subedi & Chaulagain, 2022). Theoretical frameworks such as Friedman's monetary policy theory, Customer Reaction Theory, and the Collusive Behaviour of Banks Theory offer systematic explanations of how central banks influence commercial lending through supply manipulation, borrower reaction, and bank rivalry (Singh, 2023; Gregor & Melecký, 2018). Empirical evidence supports these models, showing policy rate increases raise the price of borrowing, while tools like SLF and OMO have varying effects based on their utilization (Kakeeto & Michael, 2023; Eleam et al., 2021). Yet in countries like Uganda, expected policy impacts remain unsuccessful due to institutional frailties like poor transmission channels, low competition, and poor financial infrastructure (Mugume & Rubatsimbira, 2019; Adam, 2009). This exposes a key gap; while theory and experience from other economies confirm strong monetary policy transmission, Ugandan experience calls for additional research into how variables like market structure, elasticity of credit demand, and risk perception shape the real effect of such instruments.

## 3. Methodology

***Research design***

This study followed a longitudinal research design, which is appropriate for monitoring trends and patterns over time (Nwabuko et al., 2024). Using time series data from the period 1993 to 2024, it employed multivariate regression analysis to establish how every monetary policy tool has impacted lending rates over the years (Gottman et al., 1969). The research adopted a purely quantitative approach for 31 years, the time during which the Bank of Uganda began actively using monetary policy tools to manage lending. The lending rates have continued to be high despite the interventions, limiting access to credit from financial institutions and banks. All the data used in the research were secondary, and it was collected on a quarterly basis throughout the period of research.

***Data sources and collection***

Data was gathered from different credible institutions like the Bank of Uganda (BOU), Uganda Bureau of Statistics (UBOS), International Monetary Fund (IMF), World Bank (WB), and the Ministry of Finance, Planning and Economic Development (MoFPED). Some of the reports that were reviewed included quarterly economic statements, monetary policy reports, commercial banks' annual reports, financial stability reports, and other publications that touched on the monetary policy and lending rate relation in Uganda.

***Definition and measurement of variables***

The variables were clearly defined and measured. Standing Lending Facilities (SLF) are short-term facilities whereby the central bank extends liquidity to commercial banks on demand. Interest rates on SLFs were obtained as percentages for the entire duration (Fishman et al., 2024). Cash Reserve Requirements (CRR), or the proportion of deposits commercial banks must hold as reserves, were also obtained as percentages for all 31 years (Yimer, 2018). The Central Bank Rate (CBR), the rate at which commercial banks are lent by the central bank, was also gauged. Open Market Operations (OMO), in which the central bank sells and buys government securities to control liquidity, were represented by the yield rates of the securities (Axilaod & Axilrod, n.d.). Lastly, the lending rates were operationally defined as banks' volume-weighted mean interest rates on short- to medium-term loans. They were collected in percentages over the study (No, 2020).

## 4. Results

### Summary statistics of the used variables

This study set out to investigate the influence of key monetary policy instruments on lending rates in Uganda, focusing on four main objectives: to examine the effect of the Central Bank Rate (CBR), the impact of Open Market Operations (OMO) which was proxied by base money, the influence of the Cash Reserve Requirement (CRR) which was proxied by demand deposits, and the role of the Standing Lending Facilities (SLF) which was proxied by the rediscount rate. Each objective targets a specific policy tool commonly used by the Bank of Uganda to steer short-term interest rates and control liquidity in the Ugandan economy.

**Table 1: Summary Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Lending Rate | 32 | 20.80077 | 1.915208 | 18.12701 | 26.06232 |
| Rediscount Rate | 32 | 14.39258 | 3.961674 | 7.511667 | 26 |
| CBR | 32 | 15.87565 | 4.664045 | 6.708333 | 20.41667 |
| Demand Deposits | 32 | 3117.616 | 3288.871 | 125.1028 | 10482 |
| Base Money | 32 | 3605.322 | 3699.915 | 170.971 | 12392.17 |

The summary statistics reveal that the lending rate has a relatively low standard deviation (1.92) compared to its mean (20.8), indicating moderate variation over the observed period. In contrast, monetary policy variables like base money and demand deposits exhibit extremely high variability (standard deviations of 3699.92 and 3288.87, respectively), suggesting substantial fluctuations in monetary aggregates. Rediscount rate and CBR1 (central bank rate) also show moderate variation and overlap in their ranges, which aligns with their direct policy role in influencing interest rates. The rediscount rate has a mean of 14.39 and spans from 7.51 to 26, closely matching the lending rate range. These patterns suggest that rediscount rate and CBR1 are strong candidates for examining direct policy effects on lending rates, while base money and demand deposits may reflect broader liquidity conditions influencing lending indirectly. Their inclusion in the analysis is justified, as together they capture both the direct interest rate tools and the monetary aggregates central to monetary policy transmission mechanisms. All variables were log-transformed based on their large standard deviations to facilitate further analysis.

### Examining the threat of multicollinearity

Given that the independent variables in this study; CBR, base money, demand deposits, and the rediscount rate; all represent different instruments of monetary policy, there is a potential risk of multicollinearity due to their conceptual and functional overlap. To ensure the reliability of the regression results, the study examined multicollinearity. This step was essential to confirm that the independent variables are not excessively correlated, which could distort the estimated effects and weaken the explanatory power of the model.

**Table 2: Initial VIF results**

| Variable | VIF | 1/VIF |
|---|---|---|
| Base Money | 471.91 | 0.002119 |
| Demand Deposits | 470.11 | 0.002127 |
| CBR | 3.63 | 0.27564 |
| Rediscount Rate | 1.34 | 0.748902 |
| Mean VIF | 236.7475 | |

The initial VIF results reveal a severe multicollinearity problem, with base money and demand deposits showing extremely high VIF values of 471.91 and 470.11, respectively; far above the acceptable threshold of 10. Such high collinearity indicates a strong linear relationship between these two variables, which threatens the reliability of coefficient estimates by inflating standard errors and reducing statistical significance. This level of multicollinearity can block accurate model estimation and undermine the interpretability of results. To address this, demand deposits were dropped from the model, as they serve only as a proxy for reserve requirements and are less directly tied to policy than base money. A revised VIF test was conducted to ensure the remaining variables did not present similar multicollinearity issues.

**Table 3: VIF results after dropping demand deposits**

| Variable | VIF | 1/VIF |
|---|---|---|
| CBR | 3.62 | 0.276336 |
| Base Money | 3.49 | 0.28673 |
| Rediscount Rate | 1.08 | 0.92732 |
| Mean VIF | 2.73 | |

The updated VIF results show a significant improvement in multicollinearity levels following the removal of demand deposits from the model. All remaining variables, CBR1 (VIF = 3.62), base money (VIF = 3.49), and the rediscount rate (VIF = 1.08), now fall well below the critical VIF threshold of 10, indicating that multicollinearity is no longer a threat to model estimation. The mean VIF of 2.73 further confirms that the predictors are sufficiently independent and that their coefficients can be estimated reliably. This outcome validates the decision to drop demand deposits, ensuring that the model maintains both theoretical soundness and statistical stability.

**Variable stationarity tests**

Following the resolution of multicollinearity concerns, the study proceeded to test for stationarity of the variables using the Augmented Dickey-Fuller (ADF) test. This step was essential to ensure that the time series data used in the analysis did not exhibit unit roots, which can lead to spurious regression results and unreliable inferences. Testing for stationarity provides a foundational check for model validity, as many econometric models, such as OLS and VAR, require that variables be stationary to produce consistent and unbiased estimates. The ADF test results helped determine whether differencing or other transformations were necessary before proceeding with model estimation. The results are presented as follows.

**Table 4: ADF test results**

| Variable | Level Test Statistic | Level p-value | 1st Difference Test Statistic | 1st Difference p-value | Order of Integration (I(d)) |
|---|---|---|---|---|---|
| Lending Rate | -1.239 | 0.6565 | -3.516*** | 0.0076 | I(1) |
| Rediscount Rate | -4.978*** | 0.0000 | - | - | I(0) |
| CBR | -0.479 | 0.8961 | -2.864** | 0.0496 | I(1) |
| Base Money | -1.542 | 0.5124 | -7.605*** | 0.0000 | I(1) |

The Augmented Dickey-Fuller (ADF) test showed that the variables in this study were of different orders of stationarity. Lending rate, central bank rate (CBR), and base money were unstable in their level form but ended up being stable when the first difference was applied. They are therefore integrated in order one, or I(1). The rediscount rate was already stationary at a level and is therefore an I(0) variable. Due to this combination of I(0) and I(1) variables, the research could not utilize conventional cointegration techniques such as the Johansen test, which is only applicable when all the variables are of I(1) order. The research, therefore, utilized the Autoregressive Distributed Lag (ARDL) model. This technique is best applied when there are mixed integration orders of variables and is effective even with small samples. It helps to establish both short-term and long-term effects, hence the best instrument to understand how monetary policy affects lending rates in Uganda.

**Table 5: ARDL Model Results**

| Variable | Coef. | Std. Err. | t | P>\|t\| |
|---|---|---|---|---|
| Long run | | | | |
| Error Correction Term | -0.40727** | 0.152908 | -2.66 | 0.014 |
| Rediscount Rate | 0.315663** | 0.136418 | 2.31 | 0.030 |
| CBR | 0.350618* | 0.182987 | 1.92 | 0.068 |
| Base Money | 0.068352 | 0.045958 | 1.49 | 0.151 |
| Short Run | | | | |
| Rediscount Rate | 0.118538*** | 0.041538 | 2.85 | 0.009 |
| CBR | 0.185439* | 0.092837 | 2 | 0.058 |
| Base Money | -0.20972 | 0.137974 | -1.52 | 0.142 |
| Constant | 0.327657 | 0.463757 | 0.71 | 0.487 |

Model Summary: ARDL (1,1,1,1) Regression, Sample: 1994 – 2024, Log likelihood = 52.168164, Number of observations = 31, R-squared = 0.6189, Adjusted R-squared = 0.5029, Root Mean Squared Error (RMSE) = 0.0522

***Influence of Central Bank Rate (CBR) on Ugandan Lending Rates***

Adjustment of the Central Bank Rate (CBR) in the short run captures a positive and relatively significant effect on lending rates. A moderate rise in the CBR has the impact of increasing lending rates, though the impact is quite slightly significant, i.e., not very powerful but still significant. This is reasonable because whenever the central bank modifies its policy rate, it changes how much money commercial banks pay in order to borrow funds, which then affects how much they charge people as customers. The fact that lending rates react to such short-term policy adjustments means that signals from the central bank are important as far as determining banks' rates are concerned.

In the long run, the historical CBR values continue to drive lending rates upwards positively though in this case, the evidence is less strong on a statistical level. The trend is that commercial banks will increase lending rates subsequently if the central bank keeps rates up over a period. Both short and long-term findings generally show that the CBR is a significant tool in how Uganda's monetary policy affects lending rates.

***Role of Open Market Operations (OMO), Proxied by Base Money***

For Open Market Operations (OMO), proxied here by base money change, the short-run impact on lending rates seems weak and uncertain. Although there is some evidence that more liquidity (an increase in base money) would lower lending rates, this is not strongly supported in the data. This would mean that there is a time lag for the effect of OMO to work its way through the financial system or other market issues hold up the impact.
In the long run, the relationship is tenuous and statistically insignificant, suggesting that persistent alterations in the money supply from OMOs do not have a material impact on the lending rates in Uganda. These results suggest potential shortcomings of relying on OMO alone to efficiently manage interest rates, and other parts will tend to have greater effects in the lending market.

***Role of Standing Lending Facilities (SLF), Proxied by Rediscount Rate***

The rate of rediscount, which signifies SLF, explains the evident and strong influence on the short and long lags of lending rates. Any change in this rate, which central banks use to borrow overnight or funds in emergencies, directly impacts the price at which banks lend. Such a strong effect in the short run makes the rate of rediscount a pointed indicator of monetary policy change, which affects the cost of credit access.

In the long run, the rediscount rate continues to set lending rates, proving it has a lasting influence on how banks price loans and forecast future interest rates to move. This strong relationship proves the rediscount rate is an effective monetary instrument in Uganda, especially since the central bank is likely to act as lender of last resort and supply liquidity in the market.Diagnostic tests after model estimation

***Normality test for residuals***

The study conducted a normality test to ensure that the regression model's residuals followed a normal distribution, which is one of the assumptions required in proper hypothesis testing and confidence interval estimation. The Jarque-Bera (JB) test was employed to ascertain whether the residuals were considerably deviating from normal. Ensuring this assumption renders the statistical inference of the model more credible and justifies the reliability of policy inference of the study from the results.

**Table 6: Normality Test**

| Test | Test Statistic | Chi-squared (df = 2) |
|---|---|---|
| Jarque-Bera normality test | 0.2096 | 0.9005 |

The Jarque-Bera test statistic is 0.2096 and the p-value is 0.9005. The p-value is much greater than 0.05. Therefore, we cannot reject the null hypothesis that the residuals are normally distributed. That implies that the model residuals are not significantly apart from normality. Therefore, the normality assumption holds good, and statistical inferences made using the regression model are true.

**Heteroscedasticity test**

The study performed a heteroscedasticity test to assess whether the residuals' variance was constant across observations, as required for efficient and accurate estimates. The Breusch-Pagan test was used to check for any presence of heteroscedasticity in the model. Ensuring homoscedasticity confirms standard errors and test statistics and thus enhances the validity of the study findings.

**Table 6: Heteroscedasticity Test**

| Statistic | Value |
|---|---|
| $chi^2(1)$ | 1.08 |
| Prob > $chi^2$ | 0.2984 |

Notes: Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity, Null hypothesis ($H_0$): Constant variance (homoskedasticity), Tested on: Fitted values of Lending Rate

Since the p-value (0.2984) is greater than 0.05, the study fails to reject the null hypothesis. This suggests there is no significant evidence of heteroskedasticity in the estimated model.

**Serial Correlation Test**

The study tested for serial correlation to determine whether the residuals from the regression model were independent over time, as required for consistent and unbiased parameter estimates. The Breusch-Godfrey LM test was applied to identify any autocorrelation in the error terms. Ensuring the absence of serial correlation supports the reliability of the model's estimates and the robustness of its policy implications.

**Table 7: Serial Correlation Test**

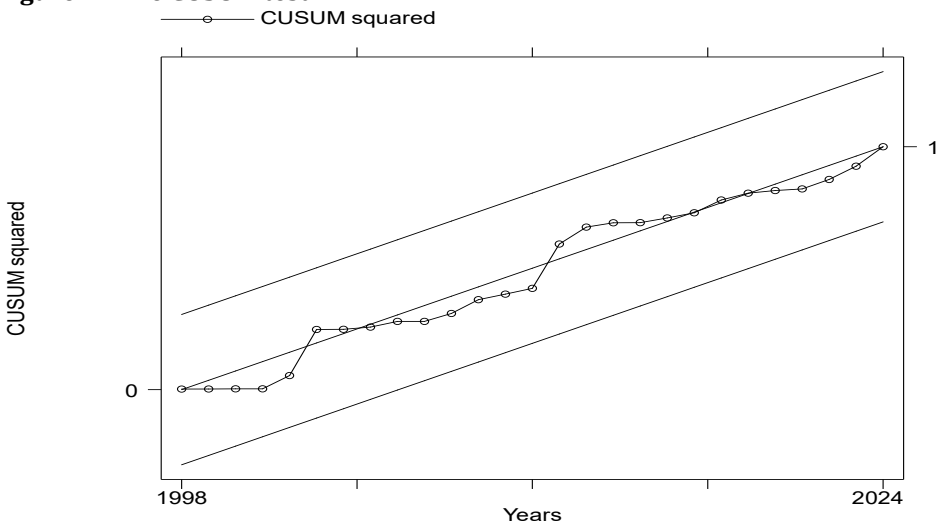
| lags (p) | $chi^2$ | df | Prob > $chi^2$ |
|---|---|---|---|
| 1 | 3.689 | 1 | 0.0548 |

Notes; Null hypothesis ($H_0$): No serial correlation
Since the p-value (0.0548) is just above the 0.05 significance level, the study fails to reject the null hypothesis at the 5% level. This suggests there is no evidence of autocorrelation in the residuals.

**Model stability test**

The study conducted a model stability test to assess whether the estimated coefficients remained stable over the sample period, which is crucial for consistent and reliable forecasting. The CUSUM test was employed to detect any structural breaks or parameter instability in the model. Verifying model stability confirms that the relationships between variables are stable over time, enhancing the credibility of the study's findings and their relevance for policy analysis.

**Figure 1: The CUSUM test**




The CUSUM squared plot shows that the test statistic remains within the 5% significance level boundaries throughout the sample period from 1998 to 2024. This indicates that there are no significant structural breaks or instability in the estimated model parameters over time. Since the CUSUM squared line does not cross the critical bounds, the study concludes that the model is structurally stable, and the relationships among the variables are consistent, reinforcing the reliability of the regression results for both inference and policy analysis.

## 5. Conclusion

The study demonstrates that the CBR has a meaningful influence on lending rates in both the short and long run. This validates its role as the central signaling mechanism under Uganda's inflation-targeting framework. Both theoretical models and empirical results confirm that when the CBR rises, lending rates follow suit, indicating effective policy transmission. This finding underscores the importance of preserving the credibility and responsiveness of the Bank of Uganda's interest rate policy. It also highlights the need for timely and transparent communication from the central bank to reinforce expectations and guide market behavior.

The rediscount rate has been found to have a significant and sustained impact on lending rates, making it a crucial instrument alongside the CBR. Its effectiveness in influencing short-term credit conditions and long-term expectations positions SLFs as vital tools for managing liquidity and credit supply. These findings suggest that the Bank of Uganda should continue to use the rediscount window not just for emergency liquidity, but also as an intentional interest rate management mechanism, especially in periods of financial uncertainty or inflationary pressure.

Base money, used to proxy OMO, did not significantly affect lending rates in the short or long run. This indicates that liquidity injections alone may not translate effectively into lower borrowing costs, likely due to transmission frictions such as excess liquidity, low financial depth, or limited competition among banks. This highlights the need for reforms aimed at strengthening financial markets, improving interbank operations, and enhancing competition to improve the efficiency of OMO as a policy tool. Without such structural adjustments, OMOs may remain ineffective as standalone levers for influencing lending behavior.

**Study Recommendations**

Strengthen the Central Bank Rate (CBR) framework through enhanced transparency and market signaling. Given the significant influence of the CBR on lending rates, the Bank of Uganda should continue refining its inflation-targeting approach by ensuring timely, clear, and consistent communication of CBR decisions. Forward guidance and policy statements should be widely disseminated and easily interpretable by financial institutions and market participants to reinforce the signaling power of the CBR. Additionally, increasing the frequency of policy reviews or publishing expected CBR pathways can help anchor market expectations and improve the responsiveness of lending rates to policy changes.

Expand the role and accessibility of Standing Lending Facilities (SLF) to manage short-term liquidity more effectively. The rediscount rate is a strong driver of lending rate adjustments, suggesting it should be actively used in both routine monetary operations and emergency liquidity management. The Bank of Uganda should ensure that commercial banks have streamlined access to SLF mechanisms, especially during periods of market stress or seasonal liquidity shortages. Furthermore, enhancing the visibility of SLF rate adjustments; by including them in policy announcements can strengthen their role in influencing market interest rates and reinforcing policy objectives.

Deepen financial markets to improve the transmission of Open Market Operations (OMO) to lending rates. To enhance the effectiveness of OMOs, structural reforms are needed to develop Uganda's money and capital markets. This includes increasing the diversity and tradability of government securities, promoting secondary market activity, and fostering stronger interbank linkages. The central bank should also invest in financial sector education and digitization to reduce liquidity hoarding and improve banks' responsiveness to liquidity changes. These measures would help ensure that changes in base money translate more efficiently into credit supply and lending rate adjustments, enhancing the overall efficacy of monetary policy.

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