



# Do Nigerian Money Markets React More Strongly to Monetary Tightening than to Easing? Evidence on Asymmetric Interest-Rate Pass-Through, 2006-2026

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**Abstract:** This paper tests whether increases and decreases in Nigeria's monetary policy rate are transmitted to market interest rates with equal force. Using monthly Central Bank of Nigeria data for March 2006 to March 2026 (241 observations, 29 rate increases and 10 cuts), I estimate change regressions in which positive and negative policy-rate changes enter separately, for four rates: the Treasury bill rate, the interbank call rate, the prime lending rate and the twelve-month deposit rate. Inference uses heteroskedasticity- and autocorrelation-consistent standard errors and Wald tests of equal cumulative responses. Two markets show clear asymmetry. A one-point policy increase raises the Treasury bill rate by 1.73 points in the same month and by 1.98 points over two months, while a one-point cut has no measurable effect (cumulative 0.25,  $p = 0.680$ ); equality is rejected ( $p = 0.019$ ). The prime lending rate rises by 0.28 points over two months after a one-point increase but does not fall after a cut ( $p$  for equality = 0.042); over three months, however, cuts catch up and the asymmetry disappears, so the rigidity in loan pricing is one of timing rather than magnitude. The bill-rate asymmetry remains large over three months but is no longer statistically significant ( $p = 0.110$ ). The interbank rate and the deposit rate respond symmetrically. The results hold before 2022 and are sensitive to one data issue: treating the December 2006 switch from the minimum rediscount rate to the monetary policy rate as a 400-basis-point cut distorts the estimated response to easing. Out of sample, allowing for asymmetry does not improve one-month-ahead forecasts of interbank or bill-rate changes.

**Keywords:** monetary policy; interest-rate pass-through; asymmetry; Treasury bills; lending rates; Nigeria

**JEL classification:** E43; E52; G12; C22

## 1. INTRODUCTION

When the Central Bank of Nigeria (CBN) raised the monetary policy rate (MPR) from 18.75 to 22.75 per cent in February 2024, the Treasury bill rate rose from 4.3 to 17.0 per cent in the same month. When the CBN lowered the MPR by 50 basis points in 2025, the bill rate barely moved. These two episodes are not a test of anything on their own, but they illustrate a question that matters for monetary policy and for anyone who invests in naira assets: do market rates respond to policy increases and policy cuts in the same way?

The answer has practical consequences. If tightening passes through quickly and easing does not, the central bank can raise borrowing costs when it needs to but will find it harder to bring them down again, and the policy stance will tend to be tighter in practice than it looks on paper. For investors, an asymmetric response changes how yields should be expected to behave over a policy cycle. For banks, it affects how quickly their funding costs and loan income adjust. There are good reasons to expect asymmetry. Banks with market power may raise loan rates promptly when funding costs rise but lower them slowly when costs fall, and may do the opposite with deposit rates (Hannan & Berger, 1991; Neumark & Sharpe, 1992). Credit-rationing arguments imply that banks adjust loan quantities and terms as well as prices (Stiglitz & Weiss, 1981). In money markets, asymmetry can arise if tightening is usually accompanied by liquidity withdrawal while easing is not accompanied by liquidity injection. Empirical work in other countries has often found asymmetric adjustment (Scholnick, 1996; Sander & Kleimeier, 2004), and several Nigerian studies report that lending rates respond more readily to increases than to decreases (Tule, 2014; Jibrilla & Balami, 2022; Nadani et al., 2026).

Most Nigerian studies, however, estimate pass-through to one or two rates using annual or quarterly data, and they rarely compare instruments within the same framework. This paper makes three contributions. First, it estimates the



short-run response to policy increases and cuts for four market rates with the same specification and monthly data, which allows a direct comparison across markets. Second, it addresses a data problem that has not been noted before: the December 2006 replacement of the minimum rediscount rate (MRR) by the MPR appears in a spliced policy series as a 400-basis-point cut, which would be the largest easing in the sample if left uncorrected. Third, it asks whether modelling asymmetry improves forecasts of market rates out of sample.

The rest of the paper proceeds as follows. Section 2 reviews the literature. Section 3 describes the data, Section 4 the methods and Section 5 the results. Section 6 discusses the findings and Section 7 concludes.

## **2. LITERATURE REVIEW**

### **2.1 Why transmission might be asymmetric**

Interest-rate pass-through refers to the degree and speed with which changes in a policy or money-market rate are transmitted to other rates. Cottarelli and Kourelis (1994) and de Bondt (2005) show that pass-through to retail bank rates is typically incomplete in the short run and varies with financial structure. Asymmetry adds the question of whether the response depends on the direction of the change.

Several mechanisms predict that it does. In concentrated banking markets, Hannan and Berger (1991) find that deposit rates are more rigid when they would need to rise than when they would need to fall, which benefits banks. Neumark and Sharpe (1992) find the same pattern in US deposit markets and show that it is stronger in more concentrated markets. The mirror image for loans is that banks raise loan rates quickly when funding costs rise but cut them slowly when costs fall. Stiglitz and Weiss (1981) imply that loan rates may be sticky in both directions because banks ration credit rather than raise prices, but the incentive to delay cuts is stronger, since a cut reduces income on the existing loan book. At the macroeconomic level, Cover (1992) finds that negative money-supply shocks reduce US output while positive shocks have little effect, which is another form of asymmetry in transmission.

### **2.2 Empirical evidence**

Scholnick (1996) finds asymmetric adjustment of deposit rates in Malaysia and Singapore, with rates adjusting more slowly when they are below equilibrium. Sander and Kleimeier (2004) report substantial asymmetries in euro-area retail rates before monetary union and show that pass-through became more homogeneous afterwards. Shin et al. (2014) develop the nonlinear autoregressive distributed-lag (NARDL) model, which decomposes the explanatory variable into partial sums of increases and decreases and allows asymmetry in both the short and the long run. That approach has become popular in studies of pass-through in developing economies.

For Nigeria, Tule (2014) uses a vector autoregression with the interbank rate as a proxy for the policy stance and finds stronger long-run pass-through to prime and maximum lending rates than to Treasury bill and deposit rates, with different responses to increases and decreases in the interbank rate. Jibrilla and Balami (2022) use an asymmetric cointegration approach and find that pass-through is incomplete, stronger before liberalisation than after, and that banks are slower to raise loan rates than to cut them, with deposit rates sticky downward. Oyadeyi (2024) applies NARDL models to annual data for 1986–2023 and finds short- and long-run asymmetries in the transmission channels. Nadani et al. (2026) find that lending rates respond faster and more strongly to policy increases than to cuts over 1970–2024. The evidence is not entirely consistent on the direction of asymmetry in lending rates, and it is based mostly on annual data, which cannot capture the month-to-month dynamics that matter for money markets.

### **2.3 Hypotheses**

H1: For each market rate, the cumulative response to a one-point increase in the policy rate equals the cumulative response to a one-point cut.

H2: Allowing for asymmetry improves one-month-ahead forecasts of market-rate changes relative to a linear model.

## **3. DATA**

### **3.1 Sources**

All series are monthly averages from the CBN money-market indicators release (Central Bank of Nigeria, 2026b), and inflation is year-on-year headline inflation from the CBN inflation release (Central Bank of Nigeria, 2026a). The four outcome variables are the Treasury bill rate, the interbank call rate, the prime lending rate and the twelve-month deposit rate. The policy rate is the MRR until November 2006 and the MPR from December 2006. The Treasury bill series contains zero values for December 2017 and December 2018, and the interbank series for four months; these represent missing quotations and are interpolated.

### 3.2 The December 2006 switch

The CBN introduced the MPR in December 2006 at 10 per cent, replacing the MRR, which had stood at 14 per cent. In a spliced series this appears as a four-point fall in the policy rate. It was not a monetary easing. The MPR was set within a new corridor system and the change was a change of instrument, not of stance. Because policy cuts are rare in the sample, this single observation would have a large influence on any estimate of the response to easing. I set the change in December 2006 to zero. Section 5.4 shows what happens if it is left in.

### 3.3 Policy changes in the sample

The estimation sample runs from March 2006 to March 2026, giving 241 monthly changes. The policy rate rose in 29 months and fell in 10; in the remaining 202 months it did not change. The average increase was 1.01 points and the average cut 1.18 points. The largest increase was the four-point rise of February 2024 and the largest cut was two points. Almost half of the increases (14) came in 2022 or later. The small number of cuts means that responses to easing are estimated less precisely than responses to tightening, and the paper's conclusions are framed accordingly.

Figure 1 shows the policy rate together with the bill and interbank rates. The interbank rate moves around the policy rate with large and frequent swings, reflecting day-to-day liquidity conditions. The bill rate spent long periods well below the policy rate, especially in 2010, 2020–2021 and January 2024, and moved back towards it in the months of sharp tightening.

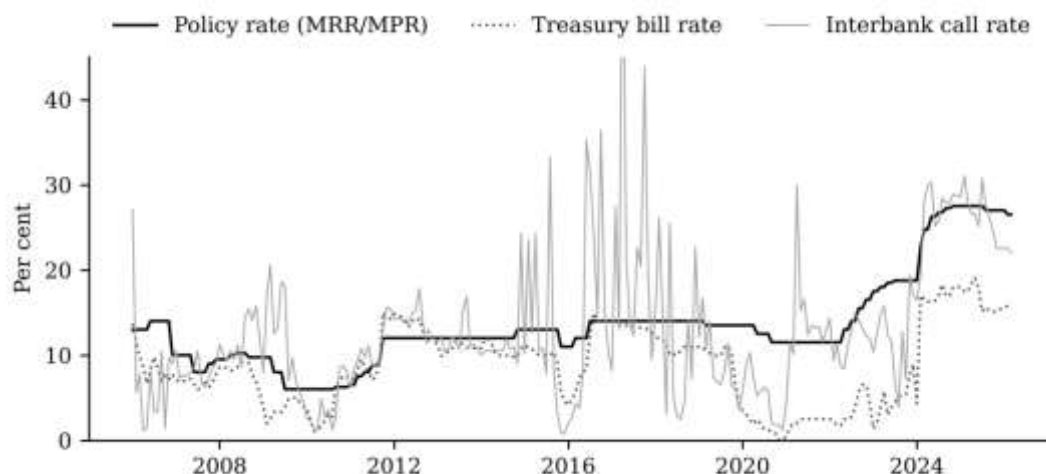


Figure 1. Policy rate, Treasury bill rate and interbank call rate, January 2006 – March 2026. The vertical axis is truncated at 45 per cent. Source: Central Bank of Nigeria.

## 4. METHODOLOGY

### 4.1 The asymmetric change regression

Let  $\Delta r_t$  be the monthly change in a market rate and  $\Delta p_t$  the change in the policy rate. Following the decomposition used in the NARDL literature (Shin et al., 2014), the policy change is split into its positive and negative parts,  $\Delta p_t^+ = \max(\Delta p_t, 0)$  and  $\Delta p_t^- = \min(\Delta p_t, 0)$ . The estimating equation is

$$\Delta r_t = \alpha + \phi \Delta r_{t-1} + \beta_0^+ \Delta p_t^+ + \beta_0^- \Delta p_t^- + \beta_1^+ \Delta p_{t-1}^+ + \beta_1^- \Delta p_{t-1}^- + \gamma \pi_{t-1} + \delta D_t + \varepsilon_t,$$

where  $\pi_{t-1}$  is lagged inflation and  $D_t$  is a dummy equal to one from January 2025, when the consumer price index was rebased. Because  $\Delta p_t^-$  is negative or zero, a positive  $\beta^-$  means that a cut lowers the market rate. The cumulative two-month responses are  $\beta_0^+ + \beta_1^+$  for an increase and  $\beta_0^- + \beta_1^-$  for a cut. H1 is tested with a Wald test of

$$\beta_0^+ + \beta_1^+ = \beta_0^- + \beta_1^-.$$

A separate Wald test of  $\beta_0^+ = \beta_0^-$  examines the impact response alone. For comparison, a linear model with  $\Delta p_t$  and  $\Delta p_{t-1}$  entering symmetrically is also estimated.

The regressions are estimated by ordinary least squares with Newey and West (1987) standard errors using six lags. Because they include the current policy change, they describe the response of market rates within the month of a policy decision. They do not identify exogenous policy shocks. The CBN may have changed its rate in response to the same

conditions that moved market rates, and policy decisions are partly anticipated. The coefficients should be read as conditional associations: how market rates moved, on average, in months when the policy rate went up or down.

I do not estimate the long-run NARDL model. The levels of the interest rates are non-stationary over this sample, but preliminary ARDL bounds tests on these series (not reported) find no stable long-run relationship between the bill or prime rate and the policy rate over 2006–2026, so a short-run specification in differences is the more defensible choice.

## 4.2 Forecasting

To test H2, the change in the interbank rate and the change in the bill rate are forecast one month ahead using information available at the end of the previous month: the lagged change in the market rate, lagged inflation and either the lagged policy change (linear model) or its positive and negative parts (asymmetric model). A no-change forecast is the benchmark. Each model is re-estimated monthly with an expanding window, and forecasts are evaluated for the 51 months from January 2022 to March 2026 using the root mean squared error (RMSE), mean absolute error (MAE) and the Diebold and Mariano (1995) test with the Harvey et al. (1997) correction. Note that the forecasting models use only the lagged policy change, while the explanatory regressions in Section 4.1 also use the current change; the two exercises answer different questions.

## 5. RESULTS

### 5.1 Asymmetry across markets

Table 1 presents the main results. The four markets behave in strikingly different ways.

Table 1 Responses of market rates to policy-rate increases and cuts, March 2006 – March 2026

| Outcome               | Hike,<br>impact $\beta^*_0$ | Cut,<br>impact $\beta_0$ | Hike, 2-<br>month total | Cut, 2-<br>month total | Wald $p$<br>(equal<br>totals) | $R^2$ |
|-----------------------|-----------------------------|--------------------------|-------------------------|------------------------|-------------------------------|-------|
| Treasury bill rate    | 1.729***                    | 0.166                    | 1.975***                | 0.253                  | 0.019                         | 0.324 |
| Interbank call rate   | 1.158**                     | 1.194*                   | 2.229***                | 2.790**                | 0.728                         | 0.237 |
| Prime lending rate    | 0.197***                    | −0.021                   | 0.281***                | −0.102                 | 0.042                         | 0.110 |
| 12-month deposit rate | 0.096                       | 0.130                    | 0.289**                 | 0.379                  | 0.866                         | 0.089 |

*Note.*  $N = 241$  for each equation. Dependent variable: monthly change in the market rate (percentage points). Each coefficient is the response to a one-point change in the policy rate; for cuts, a positive coefficient means the market rate falls. The regressions also include the lagged dependent variable, lagged inflation and a CPI-rebasing dummy. Newey–West HAC standard errors with six lags. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

**Treasury bills.** A one-point increase in the policy rate is associated with an immediate 1.73-point rise in the bill rate and a cumulative rise of 1.98 points over two months. Both are highly significant. A one-point cut, by contrast, is associated with a fall of only 0.17 points on impact and 0.25 points over two months, neither of which is distinguishable from zero. The Wald test rejects equal cumulative responses at the 5 per cent level ( $p = 0.019$ ) and equal impact responses at the 5 per cent level as well ( $p = 0.011$ ). The bill market reacts strongly to tightening and hardly at all to easing.

The response to increases is larger than one. This is not as strange as it may appear. Bill yields often sat well below the policy rate before a tightening cycle began, and policy increases were frequently accompanied by liquidity withdrawals through open market operations and higher cash reserve requirements. A policy increase was therefore a signal that the bill rate would be pushed back towards the policy corridor, and the bill rate often moved by more than the policy rate itself.

**Interbank rate.** The interbank call rate responds strongly and roughly symmetrically. The impact coefficients are 1.16 for increases and 1.19 for cuts, and the cumulative responses are 2.23 and 2.79. All four are significant at least at the 10 per cent level, and the test of equal cumulative responses does not come close to rejection ( $p = 0.728$ ). Because the interbank rate is set within the CBN’s standing-facility corridor, it is mechanically tied to the policy rate in both directions. Its large responses also reflect its volatility: monthly changes of several points are common.

**Prime lending rate.** Bank loan pricing shows the clearest downward rigidity. A one-point increase raises the prime rate by 0.20 points on impact and 0.28 points over two months, both significant at the 1 per cent level. A cut has no effect; the point estimates are slightly negative and insignificant. Equal responses are rejected ( $p = 0.042$  for the

cumulative effect and 0.004 for the impact effect). Banks passed policy increases on to their best borrowers, partially but promptly, and did not pass on policy cuts within two months.

**Deposit rate.** The twelve-month deposit rate responds weakly to both increases and cuts. Only the cumulative response to increases is significant ( $0.29, p = 0.038$ ), and there is no evidence of asymmetry ( $p = 0.866$ ).

Figure 2 plots the impact coefficients with 95 per cent confidence intervals. The intervals for cuts are wide in every market, which reflects the small number of easing episodes.

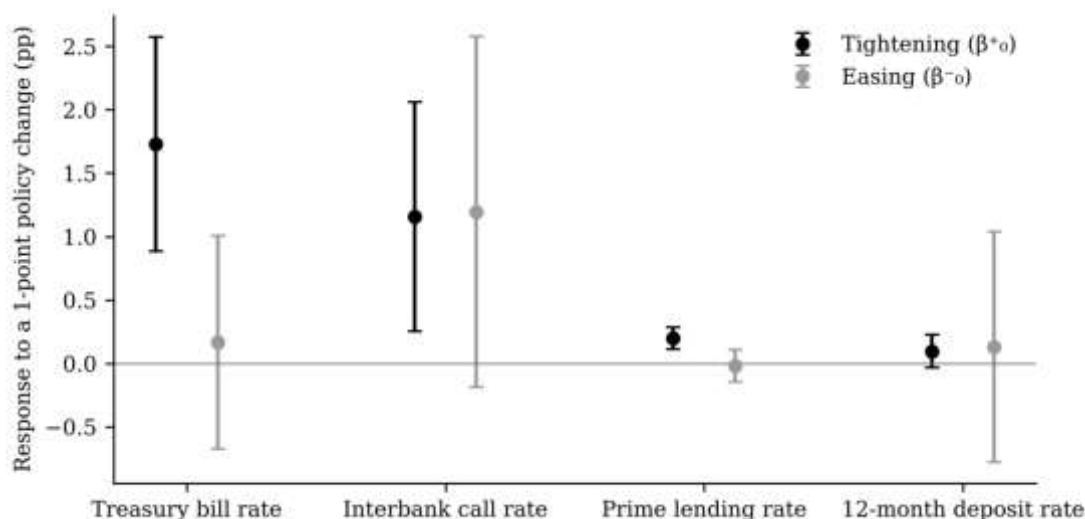


Figure 2. Impact responses of market rates to a one-point policy increase ( $\beta^{+o}$ ) and a one-point cut ( $\beta^{-o}$ ), with 95% confidence intervals based on HAC standard errors. Source: author's calculations.

## 5.2 Linear pass-through for comparison

If asymmetry is ignored, the linear model gives impact coefficients of 1.27 for the bill rate ( $p = 0.006$ ), 1.16 for the interbank rate ( $p = 0.002$ ), 0.14 for the prime rate ( $p = 0.018$ ) and 0.11 for the deposit rate ( $p = 0.439$ ). The linear estimates for the bill and prime rates are weighted averages of a large response to increases and a negligible response to cuts. Because increases far outnumber cuts in the sample, the linear coefficient is closer to the tightening response, but it understates that response and greatly overstates the response to easing.

## 5.3 Stability before 2022

Since half of the policy increases occurred after 2022, it is natural to ask whether the results are driven by the recent tightening cycle. Re-estimating the model on March 2006 to December 2021 (190 observations) gives very similar answers. The Treasury bill rate is asymmetric (cumulative responses of 2.04 and 0.17,  $p = 0.002$  for equality), the prime rate is asymmetric at the 10 per cent level (0.29 and  $-0.09, p = 0.086$ ), and the interbank and deposit rates are symmetric ( $p = 0.970$  and  $0.967$ ). The asymmetry is a feature of the whole period, not only of 2022–2026.

## 5.4 The December 2006 switch

If the December 2006 change from the MRR to the MPR is treated as a four-point cut, the conclusions for the interbank rate change noticeably. The impact response of the interbank rate to cuts falls from 1.19 to 0.19 and becomes insignificant, and the cumulative response falls from 2.79 to 0.83. The interbank rate did not fall by anything like four points in December 2006, so including that month as a cut makes interbank rates look unresponsive to easing. The Treasury bill and prime-rate results are qualitatively unchanged, with equality rejected even more strongly ( $p < 0.001$  and  $p = 0.004$ ). Any study that splices the MRR and MPR series should treat December 2006 as a change of instrument rather than a policy cut.

## 5.5 A longer adjustment window

The main specification allows two months of adjustment. Because cuts may simply be passed on more slowly, I re-estimate the model with the current and two lagged policy changes, so that the cumulative responses cover three months. Table 2 reports the results. For the Treasury bill rate the gap between the responses remains large, 1.63 points for an increase against 0.35 for a cut, but with the extra parameters equality can no longer be rejected at conventional levels ( $p = 0.110$ ). For the prime lending rate the asymmetry disappears entirely. The three-month response to an



increase is 0.22 and to a cut 0.25, and the test of equality gives  $p = 0.880$ . The interbank and deposit rates remain symmetric.

Table 2 Three-month cumulative responses to policy increases and cuts

| Outcome               | Hike, 3-month total | $p$   | Cut, 3-month total | $p$   | Wald $p$ (equal totals) |
|-----------------------|---------------------|-------|--------------------|-------|-------------------------|
| Treasury bill rate    | 1.628               | 0.000 | 0.349              | 0.614 | 0.110                   |
| Interbank call rate   | 1.772               | 0.118 | 2.921              | 0.020 | 0.547                   |
| Prime lending rate    | 0.220               | 0.042 | 0.253              | 0.168 | 0.880                   |
| 12-month deposit rate | 0.498               | 0.016 | 0.390              | 0.418 | 0.847                   |

Note.  $N = 240$ . Same specification as Table 1, with the current and two lagged positive and negative policy changes. Newey–West HAC standard errors with six lags.

This changes the interpretation of the lending-rate result. Banks raised the prime rate within a month or two of a policy increase, but they cut it only after a delay of about three months. The asymmetry in loan pricing is therefore mainly one of timing, not of eventual magnitude. In the bill market the difference in magnitude persists, but the evidence becomes weaker once more lags are allowed.

### 5.6 Does asymmetry help to forecast?

Table 3 reports the forecasting results. For the interbank rate, the linear model has the lowest RMSE (3.170), the asymmetric model is slightly worse (3.218) and the no-change forecast is worst on RMSE (3.344) but best on MAE (2.285). For the bill rate, the no-change forecast is best on both measures. None of the differences is statistically significant, and the asymmetric model is never significantly better than the linear model ( $p = 0.427$  and  $0.418$ ).  $H_2$  is rejected.

Table 3 Out-of-sample forecasts of monthly rate changes, January 2022 – March 2026 (51 forecasts)

| Outcome             | Model      | RMSE  | MAE   | DM vs no change | $p$   |
|---------------------|------------|-------|-------|-----------------|-------|
| Interbank call rate | No change  | 3.344 | 2.285 | –               | –     |
|                     | Linear     | 3.170 | 2.388 | 0.560           | 0.578 |
|                     | Asymmetric | 3.218 | 2.442 | 0.441           | 0.661 |
| Treasury bill rate  | No change  | 2.179 | 1.072 | –               | –     |
|                     | Linear     | 2.386 | 1.208 | –1.544          | 0.129 |
|                     | Asymmetric | 2.399 | 1.230 | –1.671          | 0.101 |

Note. Percentage points. The forecasting models use only lagged information (the lagged policy change, the lagged change in the market rate and lagged inflation). DM = Diebold–Mariano statistic with the Harvey et al. (1997) correction; positive values favour the model in the row.

The contrast with Table 1 is easy to explain. The asymmetry operates mainly within the month of a policy change. Once the policy decision is known, a forecaster gains little from knowing whether it was an increase or a cut, because most of the adjustment has already happened. And with only two cuts in the evaluation period, there is little opportunity for the asymmetric model to show its value.

## 6. DISCUSSION

The results suggest that monetary transmission in Nigeria depends not only on the size of the policy move but also on its direction and on the market. In the Treasury bill market, tightening is transmitted strongly and easing only weakly. In bank lending, tightening is transmitted quickly and easing slowly. In the interbank market, which is tied to the policy corridor, transmission is strong in both directions. Deposit rates move little either way.

The asymmetry in the bill market is probably best understood in terms of how the CBN implements policy. Tightening episodes in Nigeria have typically combined higher policy rates with liquidity withdrawals, higher cash reserve requirements and, in some periods, more aggressive open market operations. These measures push up the yields at which banks and investors are willing to hold government paper. Policy cuts have been less frequent and have rarely been accompanied by equivalent liquidity injections. In addition, the Debt Management Office's borrowing needs have



put a floor under bill yields at times when the CBN might have wanted them to fall. The bill rate therefore rises quickly when the CBN tightens but does not fall automatically when it eases.

The delayed response of the prime lending rate to cuts is consistent with the literature on bank pricing behaviour. Banks have strong incentives to pass on increases in funding costs and weaker incentives to pass on decreases, especially when their funding comes largely from low-cost current and savings deposits whose rates do not fall much when the policy rate is cut. The finding agrees with Nadani et al. (2026), who report faster and stronger lending-rate responses to increases than to cuts, and with the downward rigidity of deposit rates noted by Jibrilla and Balami (2022). It differs from Jibrilla and Balami's finding that banks are slower to raise loan rates than to cut them. One possible reason is the frequency of the data: monthly data capture the immediate response, while annual data reflect adjustment over a much longer horizon. The three-month results in Section 5.5 support this reading, since the gap between increases and cuts in the prime rate closes within a quarter.

For the CBN, the implication is that easing cycles may need to be accompanied by explicit liquidity measures if they are to lower market and lending rates in the way tightening raises them. For investors in Treasury bills, the asymmetry suggests that yields are likely to rise quickly in a tightening cycle and to remain elevated for some time after the policy rate begins to fall. For borrowers, the prime rate is likely to rise promptly when the MPR increases and to follow cuts only after a delay of a few months.

### 6.1 Limitations

The analysis has several limitations. With only ten policy cuts in the sample, responses to easing are imprecisely estimated, and a failure to reject symmetry in the interbank and deposit markets should not be read as proof of symmetry. The regressions use monthly averages, so the timing of a policy decision within the month is not captured. The policy rate is not an exogenous shock; part of each change may have been anticipated and part may have been a response to the same conditions that moved market rates. The analysis does not separate the effect of the policy rate from that of accompanying measures such as changes in the cash reserve requirement, which often occurred at the same meetings. Finally, the prime lending rate is a posted rate for the best borrowers and may not reflect the rates charged to most firms. Future work could use the dates of Monetary Policy Committee meetings and daily money-market data to identify policy surprises, and include the cash reserve ratio as a separate instrument.

## 7. CONCLUSION

Nigerian market rates do not respond to policy increases and cuts in the same way. Over 2006–2026, a one-point increase in the MPR was associated with a rise of about two points in the Treasury bill rate over two months and about 0.3 points in the prime lending rate, while cuts had no measurable effect on either within two months. Over three months, cuts caught up in the prime rate, so the lending-rate asymmetry is one of speed; in the bill market the gap in magnitude remained large but became statistically imprecise. The interbank rate responded strongly and symmetrically, and the deposit rate weakly and symmetrically. These patterns hold before 2022 and survive the correction of a data issue that otherwise distorts the estimated response to easing. Allowing for asymmetry does not improve one-month-ahead forecasts, because most adjustment occurs in the month of the policy change. The practical lesson is that monetary easing in Nigeria is transmitted more slowly and, in the bill market, less forcefully than tightening.

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