



Do Treasury Bills Protect Investors Against Inflation in Nigeria? Evidence from Real Yield Gaps, the Fisher Relation and Out-of-Sample Forecasts, 2006-2026

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Abstract: Treasury bills carry almost no default risk for a naira investor, but that says nothing about what happens to their purchasing power. This paper measures how far Nigerian Treasury bill yields have kept up with inflation and asks whether monetary indicators help to predict changes in bill yields. Using 243 monthly observations from the Central Bank of Nigeria for January 2006 to March 2026, I find that the bill rate fell short of contemporaneous headline inflation by an average of 5.50 percentage points (HAC $p < 0.001$), and by 6.16 points when it is compared with the inflation actually realised over the following twelve months. The shortfall was negative in 72 per cent of months and, strikingly, in every one of the 122 months from October 2015 to November 2025. It widened to an average of 17.4 points in 2022–2024. A Fisher regression of the bill rate on inflation gives a coefficient of 0.17 that is statistically indistinguishable from zero and decisively different from one, and an ARDL bounds test finds no long-run relationship between bill yields and inflation. In a model of monthly yield changes, lagged changes in the policy rate and in inflation have positive but only marginally significant coefficients. Out of sample, over January 2022 to March 2026, no model beats a simple no-change forecast. The paper also shows that two zero values recorded in the published bill-rate series produce strong but spurious short-run dynamics if they are not corrected. Nigerian Treasury bills have been a reliable store of nominal value but a poor hedge against inflation for most of the last two decades.

Keywords: Treasury bills; inflation hedging; real interest rates; Fisher effect; financial repression; Nigeria

JEL classification: E31; E43; E52; G12; C53

1. INTRODUCTION

A Nigerian household that put its savings into Treasury bills in late 2015 and rolled them over month after month would have received a positive nominal return in every period. It would also have watched the real value of those savings fall for the next ten years. Between October 2015 and November 2025 the Treasury bill rate published by the Central Bank of Nigeria (CBN) was below year-on-year headline inflation in every single month. In January 2024, just before the CBN's 400-basis-point increase in the monetary policy rate (MPR), the gap reached 25.6 percentage points, with the bill rate at 4.3 per cent and inflation at 29.9 per cent.

These numbers matter for several groups. Treasury bills are the main liquid investment for Nigerian banks, pension funds, money-market mutual funds and, increasingly, retail savers. They are also the instrument through which the federal government finances a large share of its short-term borrowing. When bill yields stay below inflation for long periods, savers and fixed-income investors transfer real resources to the government. Reinhart and Sbrancia (2015) describe this mechanism as financial repression and show that it was an important means of reducing public debt in advanced economies after the Second World War. Whether something similar has been happening in Nigeria is an empirical question that has received surprisingly little attention.

The classical benchmark is the Fisher (1930) hypothesis, which holds that nominal interest rates should move one for one with expected inflation, leaving the real rate broadly unaffected. Fama (1975) found support for this view in US Treasury bill data, and Fama and Schwert (1977) concluded that US bills were a complete hedge against expected inflation. Later work showed that the result is sensitive to the monetary regime and to how non-stationarity is handled (Mishkin, 1992; Crowder & Hoffman, 1996). Evidence for Nigeria is thin and mostly uses annual data. Mogaji (2010) found no cointegration between Treasury bill rates and inflation over 1961–2009, while Bello et al. (2016), allowing for structural breaks, reported a long-run Fisher effect that was weak in size and absent in the short run.



This paper revisits the question with monthly data covering 2006 to early 2026, a period that includes the introduction of the MPR, the oil-price collapse and exchange-rate crisis of 2015–2016, the restriction of open market operation (OMO) bills in 2019, the high-inflation episode of 2022–2024 and the rebasing of the consumer price index in January 2025. It makes three contributions. First, it documents the size and persistence of the gap between bill yields and inflation, using both contemporaneous inflation and the inflation realised over the following twelve months, and shows how the gap varied across policy regimes. Second, it tests the Fisher relation in levels and with an ARDL bounds test that does not require the researcher to decide in advance whether the variables are stationary (Pesaran et al., 2001). Third, it asks whether lagged changes in the policy rate and inflation help to explain and to forecast changes in bill yields, using an expanding-window evaluation with formal tests of predictive accuracy.

The remainder of the paper is organised as follows. Section 2 reviews the literature. Section 3 describes the data, including two data problems that affect any estimates based on the published series. Section 4 sets out the methods. Section 5 presents the results. Section 6 discusses their implications, and Section 7 concludes.

2. LITERATURE REVIEW

2.1 The Fisher hypothesis and inflation hedging

Fisher (1930) argued that lenders demand compensation for the expected erosion of purchasing power, so that the nominal interest rate equals the expected real rate plus expected inflation. If the real rate is stable, nominal rates should rise one for one with expected inflation. Fama (1975) tested this idea with US Treasury bill yields for 1953–1971 and found that bill rates contained nearly all available information about future inflation. Fama and Schwert (1977) extended the analysis to other assets and concluded that Treasury bills and government bonds were complete hedges against expected inflation, while common stocks were not.

The consensus did not last. Mishkin (1992) showed that the strong short-run association between interest rates and inflation in US data appears only in particular monetary regimes, and that the more robust evidence is for a long-run relationship in which both series share a stochastic trend. Crowder and Hoffman (1996), using cointegration methods and adjusting for taxes, found a long-run coefficient on inflation close to the value implied by full tax-adjusted Fisher behaviour. A common lesson of this work is that the answer depends on the time-series properties of the data and on how expectations are measured.

2.2 Policy, money markets and short-term yields

Short-term government yields are shaped by the policy rate, by liquidity in the banking system and by the government's borrowing needs. Campbell and Shiller (1991) show that the spread between long and short rates contains information about future changes in short rates, although the simplest version of the expectations hypothesis is often rejected. In economies with shallow financial markets, the link between the policy rate and market rates can be weak. Mishra et al. (2012) argue that thin interbank and securities markets, concentrated banking and frequent use of quantity instruments weaken the policy-rate channel in low-income countries.

In Nigeria, Tule (2014) finds that changes in the policy stance pass through more strongly to lending rates than to Treasury bill and deposit rates. Jibrilla and Balami (2022) and Oyadeyi (2023) both report incomplete pass-through from the policy rate to market interest rates. A distinctive feature of the Nigerian bill market is the role of the CBN's own bills. In October 2019 the CBN barred domestic individuals and non-bank corporates from its OMO auctions, which pushed their funds into the Treasury bill market and drove yields down sharply. During 2020 and 2021 Treasury bill yields fell close to zero even though the policy rate remained above 11 per cent.

2.3 Negative real rates and financial repression

When bill yields stay below inflation for long periods, holders of government paper bear a real loss that benefits the issuer. Reinhart and Sbrancia (2015) estimate that negative real interest rates, combined with regulations that kept domestic investors captive, reduced public debt ratios in several advanced economies by several percentage points of GDP a year in the post-war decades. The conditions they describe, including interest-rate ceilings, directed lending and restrictions on capital flows, have counterparts in Nigeria in the form of liquidity and reserve requirements, minimum loan-to-deposit ratios, OMO access rules and foreign-exchange controls. Whether these arrangements amount to financial repression is beyond the scope of this paper, but measuring the real return on Treasury bills is a necessary first step.

2.4 Gaps addressed by this paper

The Nigerian Fisher studies use annual data and end before the inflation surge of 2022–2024. None measures the ex post real yield on bills over a long monthly sample, and none examines whether short-run yield changes are predictable. This paper fills these gaps and tests three hypotheses:

H1: The mean gap between the Treasury bill rate and inflation is zero.



H2: Treasury bill yields move one for one with inflation (the Fisher coefficient equals one), and the two share a long-run relationship.

H3: Lagged changes in the policy rate and inflation do not improve forecasts of monthly changes in bill yields relative to a no-change benchmark.

3. DATA

3.1 Sources and definitions

The Treasury bill rate, the monetary policy rate and the interbank call rate are monthly figures from the CBN money-market indicators series (Central Bank of Nigeria, 2026b). Inflation is the year-on-year change in the all-items consumer price index, compiled by the National Bureau of Statistics and published by the CBN (Central Bank of Nigeria, 2026a). The sample runs from January 2006 to March 2026, giving 243 monthly observations. Because inflation figures are available to April 2026, the ex post measure described below can be computed for months up to April 2025.

The policy rate is the minimum rediscount rate (MRR) from January to November 2006 and the MPR from December 2006, when the MPR replaced the MRR as the CBN's policy anchor. The Treasury bill rate is the benchmark rate reported in the money-market series. It is not matched to a particular holding period, so the gap between it and inflation should be read as a comparison of annualised rates rather than as the return on a specific bill.

3.2 Data screening

The published Treasury bill series records a rate of exactly 0.00 per cent in December 2017 and December 2018. Bill yields in both years were above 10 per cent, and the neighbouring months show 13.01 and 12.27 per cent (2017–2018) and 10.91 and 10.98 per cent (2018–2019). These entries are almost certainly months in which no rate was reported. I treat them as missing and fill them by linear interpolation. This matters more than it might appear. In a model of monthly changes, each zero creates two artificial movements of more than ten percentage points, one down and one back up. Section 5.5 shows that these four movements are responsible for the strongly significant short-run dynamics that appear when the series is used without correction. The interbank rate is screened in the same way for four months with recorded values of zero.

3.3 Measures of the real yield

Three measures of the gap between bill yields and inflation are used. The first is the simple contemporaneous gap,

$$g_t = i_t - \pi_t,$$

where i_t is the bill rate and π_t is year-on-year inflation in the same month. This is the measure most commonly reported in financial commentary. The second is the exact Fisher real rate, $r_t = 100[(1 + i_t/100)/(1 + \pi_t/100) - 1]$, which corrects for the approximation error that becomes noticeable when inflation is high. The third is an ex post measure,

$$g_t^{ex} = i_t - \pi_{t+12},$$

which compares the bill rate in month t with the inflation that actually occurred over the following twelve months. An investor who bought bills at time t and rolled them over for a year would have experienced something close to this gap. It is not a perfect measure, since the rate on later bills in the roll-over may differ from i_t , but it removes the most obvious mismatch in the contemporaneous measure, which compares a forward-looking yield with backward-looking inflation.

3.4 The CPI rebasing of January 2025

The National Bureau of Statistics rebased the consumer price index in early 2025, changing the base period and the weights. In the CBN inflation series, headline inflation falls from 34.80 per cent in December 2024 to 27.61 per cent in January 2025. Part of this fall reflects the new methodology rather than a change in price pressure. I handle it in three ways. The descriptive tables report 2025–2026 separately. The dynamic model sets the lagged change in inflation to zero in the month affected by the break. The forecast evaluation is repeated on a sample ending in December 2024.

3.5 Descriptive statistics

Table 1 reports summary statistics. Over the full sample the bill rate averaged 8.81 per cent and inflation 14.32 per cent. The contemporaneous gap averaged -5.50 percentage points, with a median of -3.75 and a range from -25.57 to 6.79 . The ex post gap was more negative on average, at -6.16 points, because inflation tended to rise after periods in



which the bill rate was low. Both gaps are skewed to the left: the worst months were much worse than the best months were good.

Table 1 Descriptive statistics, January 2006 – March 2026

Variable	N	Mean	SD	Min	Median	Max	Skewness	Kurtosis
Treasury bill rate (%)	243	8.81	4.72	0.03	9.11	19.07	0.07	2.10
Headline inflation (%)	243	14.32	6.68	3.00	12.60	34.80	1.25	4.39
Monetary policy rate (%)	243	13.50	5.37	6.00	12.00	27.50	1.37	4.55
Contemporaneous gap (pp)	243	-5.50	7.19	-25.57	-3.75	6.79	-0.58	2.19
Ex post gap, 12 months (pp)	232	-6.16	9.01	-30.97	-3.79	6.06	-0.88	3.01

Note. pp = percentage points. The ex post gap compares the bill rate in month t with inflation in month $t + 12$ and is available from January 2006 to April 2025. Jarque–Bera tests reject normality for every series at the 5 per cent level. Figure 1 plots the two series. The shaded areas mark months in which inflation exceeded the bill rate. Before 2015 the two series crossed several times. After October 2015 they did not cross again until December 2025.

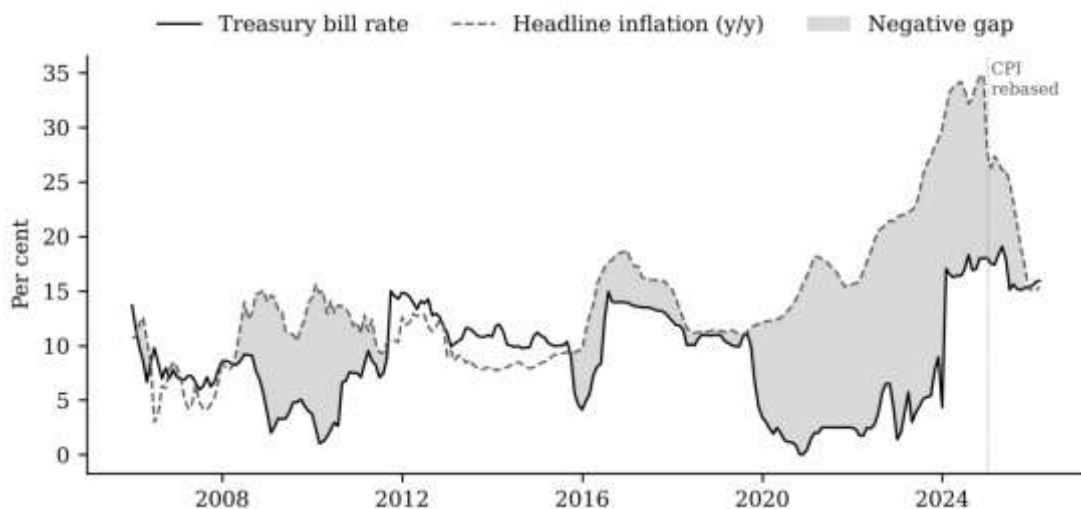


Figure 1. Treasury bill rate and headline inflation, January 2006 – March 2026. Shaded areas mark months in which inflation exceeded the bill rate. Source: Central Bank of Nigeria; author's calculations.

3.6 Unit-root properties

Augmented Dickey–Fuller tests (Dickey & Fuller, 1979) do not reject a unit root in the levels of the bill rate ($p = 0.247$), inflation ($p = 0.281$), the policy rate ($p = 0.916$) or the contemporaneous gap ($p = 0.338$). KPSS tests (Kwiatkowski et al., 1992) reject stationarity of inflation, the policy rate and the gap, but not of the bill rate (statistic 0.163 against a 5 per cent critical value of 0.463). Zivot and Andrews (1992) tests that allow for one break in the intercept do not reject the unit-root null for any series, with statistics between -2.84 and -4.06 against a 5 per cent critical value of -4.80 . All series are clearly stationary in first differences. The evidence on the bill rate is therefore mixed, while inflation and the policy rate behave as integrated series. This mixture is the situation for which the bounds test was designed.

4. METHODOLOGY

4.1 Testing for a zero mean gap

H1 is tested by regressing each gap measure on a constant and computing Newey and West (1987) standard errors with twelve lags, which allows for the strong serial correlation in monthly gaps. The gap is summarised separately for four sub-periods chosen on institutional grounds: 2006–2015 (before the 2015–2016 currency crisis), 2016–2021 (from the crisis through the OMO restriction and the pandemic), 2022–2024 (the high-inflation and tightening cycle) and 2025–2026 (after the CPI rebasing).



4.2 The Fisher relation

The static Fisher equation is

$$i_t = \alpha + \beta \pi_t + \varepsilon_t,$$

estimated by ordinary least squares with HAC standard errors. Full Fisher behaviour implies $\beta = 1$. A version with realised future inflation, π_{t+12} , is also estimated as a rough proxy for expected inflation. Because the series may be non-stationary, the static regression could be spurious, and a long-run relationship is tested formally with the ARDL bounds procedure of Pesaran et al. (2001). The unrestricted error-correction model is

$$\Delta i_t = c + \phi i_{t-1} + \theta_1 \pi_{t-1} + \theta_2 m_{t-1} + \sum_{j=1}^{p-1} a_j \Delta i_{t-j} + \sum_{j=0}^{q-1} (b_j \Delta \pi_{t-j} + d_j \Delta m_{t-j}) + u_t,$$

where m_t is the policy rate. The lag orders p and q are chosen by the Akaike information criterion from up to six lags. The null hypothesis of no level relationship is $\phi = \theta_1 = \theta_2 = 0$. If a relationship exists, the long-run effect of inflation on the bill rate is $-\theta_1/\phi$.

4.3 Short-run dynamics

The second part of the analysis asks what moves the bill rate from month to month. The model is

$$\Delta i_t = \alpha + \beta_1 \Delta i_{t-1} + \beta_2 \Delta \pi_{t-1} + \beta_3 \Delta m_{t-1} + \beta_4 (i_{t-1} - \pi_{t-1}) + \beta_5 (m_{t-1} - i_{t-1}) + u_t.$$

Every regressor is dated $t-1$ or earlier, so the equation can be used for forecasting. The coefficient β_3 captures the response of bill yields to the previous month's policy decision, and β_2 the response to news about inflation. The two level terms allow yields to drift back towards inflation and towards the policy rate, although the bounds test results below suggest that this adjustment, if it exists, is weak. Standard errors are Newey–West with six lags. The model is estimated over the full sample and over 2006–2021.

4.4 Forecast evaluation

Four forecasts of Δi_t are compared: a no-change forecast ($\Delta \hat{i}_t = 0$), an AR(1) in changes, the full dynamic model in Section 4.3 estimated by OLS, and the same model estimated by ridge regression with a fixed penalty of 10 on standardised predictors (Hoerl & Kennard, 1970). The penalty was set before the evaluation began and was not tuned on the test data. All models are re-estimated each month with an expanding window that begins in 2006, and forecasts are produced for the 51 months from January 2022 to March 2026. Accuracy is measured by the root mean squared error (RMSE) and mean absolute error (MAE). Equal accuracy is tested with the Diebold and Mariano (1995) statistic with the small-sample correction of Harvey et al. (1997). Because the macro models nest the AR(1), they are also compared with it using the Clark and West (2007) test.

5. RESULTS

5.1 How large is the inflation shortfall?

Table 2 breaks the gap down by period. Over the full sample the contemporaneous gap averaged -5.50 percentage points with a HAC standard error of 1.56, so H1 is rejected at any conventional level ($p < 0.001$). Inflation exceeded the bill rate in 71.6 per cent of months. The exact Fisher real rate, which avoids the linear approximation, averaged -4.56 per cent. The ex post gap, which compares each month's bill rate with the inflation realised over the next year, averaged -6.16 points ($p = 0.002$) and was negative in 69.0 per cent of months.

Table 2 Treasury bill yields and inflation by period

Period	Bill rate (%)	Inflation (%)	Mean gap (pp)	Median gap (pp)	Months with negative gap (%)	Exact real rate (%)	Ex post gap (pp)
2006–2015	8.56	10.03	−1.47	0.66	45.8	−1.25	−2.20
2016–2021	7.99	14.32	−6.33	−4.43	100.0	−5.49	−6.85
2022–2024	8.10	25.49	−17.39	−16.84	100.0	−13.86	−18.93
2025–2026	16.47	21.75	−5.27	−6.99	73.3	−4.21	2.50
Full sample	8.81	14.32	−5.50	−3.75	71.6	−4.56	−6.16



Note. Gap = bill rate minus year-on-year inflation. Exact real rate = $100[(1 + i/100)/(1 + \pi/100) - 1]$. The ex post gap uses inflation twelve months later and is based on 120, 72, 36 and 4 months in the four periods (232 in total). The 2025–2026 inflation figures follow the January 2025 CPI rebasing.

The averages conceal a sharp change over time. Between 2006 and 2015 the bill rate was roughly level with inflation: the mean gap was -1.47 points, the median was slightly positive and fewer than half of the months showed a shortfall. From 2016 to 2021 the gap was negative in every month and averaged -6.33 points. During 2022–2024 it averaged -17.39 points. Inflation more than doubled in these years while the average bill rate barely moved, and the ex post gap was even worse at -18.93 points. Only in 2025, after the CPI rebasing and with bill yields above 15 per cent, did the gap begin to close. It turned positive in December 2025, ending a run of 122 consecutive negative months that began in October 2015.

Figure 2 compares the contemporaneous and ex post gaps. The two measures move together, but the ex post gap is more volatile and usually lower. Its deepest point, -30.97 in May 2023, reflects the bill rates prevailing just before the exchange-rate unification of June 2023 compared with the inflation that followed it. The positive ex post value for early 2025 is based on only four months and should not be given much weight.

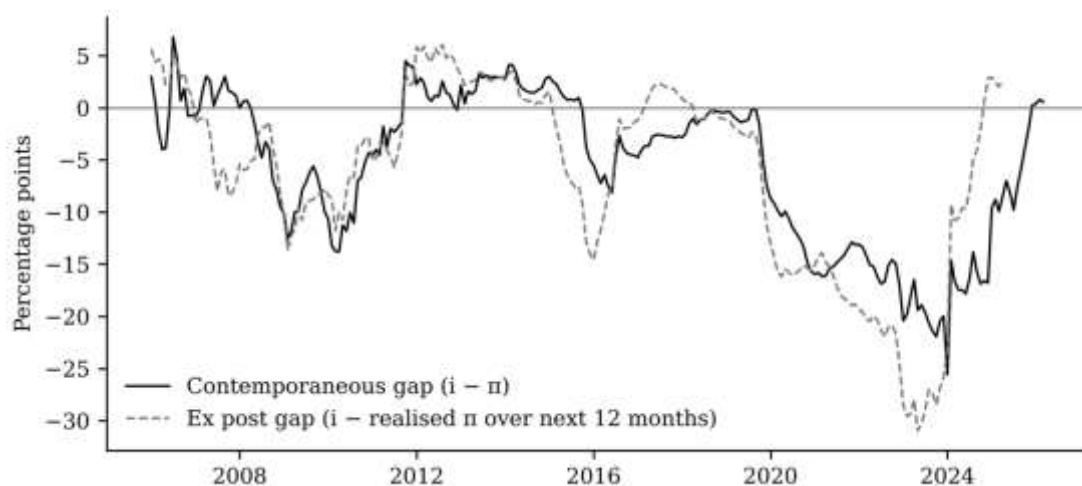


Figure 2. Contemporaneous and ex post (12-month) gaps between the Treasury bill rate and inflation. Source: author's calculations.

5.2 The Fisher relation

The static Fisher regression gives a coefficient on inflation of 0.170 with a HAC standard error of 0.134 ($p = 0.205$). Inflation explains only 5.8 per cent of the variation in bill yields, and the simple correlation between the two is 0.24. The hypothesis $\beta = 1$ is rejected decisively ($t = -6.17$, $p < 0.001$). Using realised inflation twelve months ahead as a proxy for expected inflation does not help: the coefficient becomes -0.183 ($p = 0.101$).

The bounds test confirms that this is not simply a problem of non-stationarity. The selected specification is an ARDL(2, 2) with inflation and the policy rate as long-run forcing variables. The F -statistic is 1.79, well below the 5 per cent lower bound of 3.23 and below the 10 per cent lower bound of 2.73. The null of no level relationship therefore cannot be rejected whether the regressors are treated as stationary or as integrated. The error-correction coefficient is -0.043 ($p = 0.062$). The implied long-run coefficient on inflation is -0.08 with a delta-method standard error of 0.44, so the data cannot distinguish the long-run inflation effect from zero, while a coefficient of one lies more than two standard errors away. The implied long-run coefficient on the policy rate is about 0.50. H2 is rejected in both its forms: bill yields do not move one for one with inflation, and there is no evidence of a stable long-run link between them.

These results are consistent with Mogaji's (2010) finding of no cointegration between bill rates and inflation in annual data, and they are weaker than the long-run Fisher effect reported by Bello et al. (2016) for 1970–2014. The difference probably reflects the sample period. The decade after 2015 is exactly the period in which the link between bill yields and inflation broke down, and it is absent from the earlier studies.



5.3 Short-run dynamics of bill yields

Table 3 reports the dynamic model. Over the full sample, a one-point increase in the policy rate is followed by an increase of 0.22 points in the bill rate the next month ($p = 0.095$), and a one-point increase in inflation by an increase of 0.13 points ($p = 0.080$). Both effects have the expected sign and are significant only at the 10 per cent level. The lagged change in the bill rate is close to zero (-0.052 , $p = 0.785$), and neither of the level terms is significant. The model explains about 5 per cent of the monthly variation in bill-yield changes.

Table 3 Dynamic model of monthly changes in the Treasury bill rate

Regressor	2006–2021 coef.	HAC s.e.	Full sample	
			coef.	HAC s.e.
Intercept	-0.110	0.071	-0.158	0.108
Δ Bill rate ($t-1$)	0.286***	0.087	-0.052	0.192
Δ Inflation ($t-1$)	0.119*	0.070	0.128*	0.073
Δ Policy rate ($t-1$)	0.220*	0.118	0.218*	0.130
Bill rate – inflation ($t-1$)	-0.019	0.016	-0.030	0.023
Policy rate – bill rate ($t-1$)	0.005	0.024	-0.002	0.025
Observations	190		241	
R^2	0.138		0.051	

Note. Dependent variable: monthly change in the Treasury bill rate (percentage points). Newey–West HAC standard errors with six lags. The lagged change in inflation is set to zero for February 2025 to remove the effect of the CPI rebasing. *** $p < 0.01$, * $p < 0.10$.

The two samples agree on the policy and inflation effects, which are almost identical in size, but disagree on the persistence of yield changes. Before 2022 a rise in bill yields tended to be followed by a further rise (coefficient 0.286, $p = 0.001$). Over the full sample this momentum disappears, because the period after 2022 contains several very large one-month movements that were partly reversed, above all the fall from 8.9 to 4.3 per cent in January 2024 and the jump to 17.0 per cent in February 2024. The coefficient on the lagged change is unstable, while the policy and inflation coefficients are not.

The size of the policy effect is modest. Even if the full 0.22-point response to a one-point policy change is taken at face value, it implies that the bill rate absorbs only a small fraction of policy moves within a month. This is in line with the incomplete pass-through to short-term rates reported by Tule (2014) and Oyadeyi (2023).

5.4 Forecasting yield changes

Table 4 reports the out-of-sample results. The no-change forecast has the lowest RMSE (2.179) and the lowest MAE (1.072). The AR(1), the dynamic OLS model and the ridge model all do slightly worse on both measures. None of the differences is statistically significant: the Diebold–Mariano p -values against the no-change forecast range from 0.16 to 0.29. The Clark–West tests of the macro models against the AR(1) give p -values of 0.169 and 0.162. H3 cannot be rejected. Lagged policy and inflation changes do not improve forecasts of monthly bill-yield changes.

Table 4 Out-of-sample forecasts of monthly bill-rate changes, January 2022 – March 2026

Model	RMSE	MAE	DM vs no change		CW vs AR(1)	
				p		p
No change	2.179	1.072	–	–	–	–
AR(1) in changes	2.339	1.100	-1.068	0.291	–	–
Dynamic model (OLS)	2.324	1.179	-1.416	0.163	0.958	0.169
Dynamic model (ridge)	2.314	1.166	-1.383	0.173	0.987	0.162

Note. 51 one-month-ahead forecasts from an expanding window. Errors in percentage points. DM = Diebold–Mariano statistic with the Harvey et al. (1997) correction; negative values mean the model is less accurate than the no-change forecast. CW = Clark–West statistic, one-sided p -value.

Excluding the period after the CPI rebasing does not change the conclusion. Over the 36 months from January 2022 to December 2024, the no-change forecast again has the lowest RMSE (2.532) and MAE (1.293), and the dynamic OLS model has an RMSE of 2.699. The forecast errors in this period are dominated by a handful of very large yield movements, which none of the models anticipates.



5.5 The effect of the zero entries

The results in Sections 5.3 and 5.4 differ from those obtained when the bill-rate series is used exactly as published. With the two zero entries left in, the full-sample dynamic model gives a coefficient of -0.306 on the lagged change in the bill rate ($p = 0.002$) and a coefficient of 0.459 on the lagged change in the policy rate ($p = 0.009$), and its R^2 rises from 0.051 to 0.135 . On that basis one would conclude that bill yields show strong short-run reversal and respond to policy changes about twice as strongly as the corrected data suggest. In the forecast comparison, the uncorrected data also make the dynamic model appear to beat the no-change forecast on RMSE (2.083 against 2.179), and the Clark–West test against the AR(1) becomes significant at the 5 per cent level ($p = 0.047$).

These differences come from just four monthly changes: the drops to zero in December 2017 and December 2018 and the recoveries that follow. Each is larger than ten percentage points, and together they dominate a regression in which the typical monthly change is well under one point. The reversal coefficient is mechanical, and the policy coefficient is inflated because the December zeros happened to coincide with periods of policy movement in the regressors. The corrected estimates are the appropriate ones. The levels results in Sections 5.1 and 5.2 are hardly affected, since two observations out of 243 have little influence on means and on the Fisher regression; the mean gap is -5.60 with the zeros and -5.50 without them.

5.6 Sub-samples and structural breaks

The 2015–2016 currency crisis marks the start of the long run of negative gaps, so it is natural to ask whether the Fisher relation behaves differently before and after it. Splitting the sample at January 2016 gives a Fisher coefficient of -0.26 for 2006–2015 ($p = 0.399$) and 0.34 for 2016–2026 ($p = 0.033$). The later coefficient is statistically significant but still far below one. The bounds test finds no level relationship in either sub-sample: the F -statistic is 3.12 for 2006–2015, just below the 5 per cent lower bound of 3.23 , and 0.37 for 2016–2026. Adding a level-shift dummy for 2016 onwards to the full-sample Fisher regression leaves the inflation coefficient at 0.25 ($p = 0.125$) and the dummy itself insignificant. Finally, excluding the post-rebasing months of 2025–2026 gives a mean gap of -5.52 points, negative in 71.5 per cent of months, almost identical to the full-sample figures. None of these checks changes the conclusion that bill yields have not tracked inflation in Nigeria.

6. DISCUSSION

The central finding is simple. For most of the last twenty years, and for all of the last ten, Nigerian Treasury bills did not preserve the purchasing power of the money invested in them. A saver who held bills over 2016–2024 lost, on the contemporaneous measure, between 6 and 17 per cent of purchasing power a year. The statistical evidence fits the description. Bill yields and inflation do not share a long-run relationship, the Fisher coefficient is close to zero, and the gap between them is itself non-stationary, drifting for years at a time rather than fluctuating around a stable real rate.

Why did bill yields fail to track inflation? Several features of the Nigerian market point in the same direction. Banks hold Treasury bills to meet liquidity ratio requirements and to manage excess reserves, so a large part of demand is relatively insensitive to the real return. The October 2019 restriction of OMO bills to banks and foreign portfolio investors redirected the funds of domestic non-bank investors into Treasury bills and pushed yields towards zero in 2020–2021, at a time when inflation was rising. Foreign-exchange controls between 2015 and 2023 limited the options available to domestic savers who wanted to escape naira inflation. And the inflation surge of 2022–2024 was driven largely by the exchange rate, food prices and the removal of the petrol subsidy, shocks that monetary tightening could not reverse quickly. Each of these mechanisms kept bill yields below inflation, and together they resemble the combination of captive demand and negative real rates that Reinhart and Sbrancia (2015) identify with financial repression.

The episode that ends the run of negative gaps is also instructive. From February 2024 the CBN raised the MPR aggressively, and bill yields rose from single digits to between 16 and 19 per cent. Inflation then began to fall in 2025, partly because of the rebasing and partly because of slower price growth. By December 2025 the bill rate was slightly above inflation. Whether this marks a lasting change depends on whether the decline in measured inflation persists under the new index.

The short-run results are more modest. Policy changes and inflation news do appear to move bill yields in the following month, but the responses are small and only marginally significant, and they are not reliable enough to improve forecasts. This is not surprising for a market in which yields are set at fortnightly auctions whose outcomes depend on the Debt Management Office's borrowing plans, the CBN's liquidity operations and the balance sheets of a small number of large banks. None of these is captured in a monthly model of aggregate rates.



6.1 Implications

For investors, the message is that the nominal safety of Treasury bills should not be confused with real safety. Over horizons of a year or more, bills have tended to lose purchasing power in Nigeria, sometimes heavily. Portfolio decisions that treat bills as a risk-free benchmark in real terms will overstate their attractiveness. For policymakers, the persistence of the negative gap suggests that the policy rate alone has had limited influence on the real return to savers. Measures that affect who can buy government paper, and on what terms, appear to have mattered at least as much. For researchers, the paper shows that two recording errors in a widely used CBN series are enough to change conclusions about short-run dynamics. Published money-market data should be screened before use.

6.2 Limitations

The analysis has several limitations. The bill rate is a benchmark rate rather than the yield on a specific security, and it is not matched to the holding period over which inflation is measured. The ex post gap assumes that the bill rate at the start of the year is a reasonable guide to the return on a year of roll-overs. Taxes, transaction costs and the difference between discount and yield conventions are ignored. The CPI rebasing in January 2025 affects comparisons across that date. Finally, the sample contains several regime changes, and the dynamic results in particular should be treated as averages across regimes rather than structural parameters. Future work could use auction-level data from the Debt Management Office to construct maturity-matched real returns and study the relationship between auction demand, OMO access rules and real yields.

7. CONCLUSION

This paper has examined whether Nigerian Treasury bills protected investors against inflation between 2006 and 2026. They did not, at least not after 2015. The bill rate fell short of inflation by an average of 5.5 percentage points over the full sample and by more than 17 points in 2022–2024, and it was below inflation in every month from October 2015 to November 2025. Bill yields show no long-run relationship with inflation, and the Fisher coefficient is close to zero. In the short run, policy-rate and inflation changes have small, marginally significant effects on bill yields, but they do not improve on a no-change forecast. Once two zero entries in the published series are corrected, the strong short-run dynamics that the uncorrected data suggest disappear. Nigerian Treasury bills have offered nominal security and liquidity; they have not offered protection against inflation.

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