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Article

Bank Securities Holdings in Uzbekistan and The Role of Excess Liquidity and Credit Dynamics

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Abstract: Between the end of 2019 and March 2026 the securities portfolio of Uzbekistan's commercial banks grew from UZS 3.2 trillion to UZS 120.0 trillion, and its weight in total assets rose from 1.2% to 12.5%. Almost all of the increase took the form of government and central bank paper. This paper asks whether the build-up reflects deliberate portfolio decisions or the placement of funds that banks do not lend. An autoregressive distributed lag model estimated on 72 monthly observations of the aggregate bank balance sheet (April 2020–March 2026) yields a level relationship in which deposits raise and loans lower holdings, with long-run elasticities of 2.09 and −1.08 whose sum is statistically indistinguishable from one. The spread between lending and policy rates has no negative effect, a higher share of non-performing loans pushes banks towards securities, and the replacement of central bank deposit auctions by central bank bonds in August 2025 lifted equilibrium holdings by about one quarter. Dynamic multipliers show that 93% of a permanent deposit shock reaches the portfolio within six months, whereas an acceleration of lending first cuts holdings by 2.4 times the long-run amount. Simulations conditional on deposit and loan scenarios place holdings at UZS 219–375 trillion by 2030. The evidence portrays the portfolio as a liquidity sink that tightens the link between banks and the sovereign and leaves little room for corporate debt.

Keywords: bank securities portfolio; excess liquidity; central bank operations; bank–sovereign nexus; ARDL bounds test; dynamic multipliers; Uzbekistan

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1. Introduction

In many emerging and frontier economies deposits arrive faster than banks can find borrowers they are willing to finance. The surplus does not stay idle: it is placed with the government or with the central bank, usually in short-term paper that carries no capital charge and can be pledged for liquidity at any time. The International Monetary Fund estimates that domestic sovereign exposures of banks in emerging markets reached 17% of banking-sector assets in 2021 (IMF, 2022, p. 42), and more recent work finds the share close to that level since 2020 and at about 22% in the Middle East and Central Asia in 2024 (Wezel et al., 2026). Such portfolios cushion liquidity shocks, but they also bind the solvency of banks to that of the state (Gennaioli et al., 2014, 2018), may crowd out private credit (Becker & Ivashina, 2018) and weaken the transmission of monetary policy when liquidity is in permanent excess (Agénor et al., 2004; Saxegaard, 2006).[1][2]

Uzbekistan illustrates the phenomenon unusually clearly. The line «investments and other securities» of the consolidated balance sheet of commercial banks rose from UZS 3.2 trillion at the end of 2019 to UZS 120.0 trillion in March 2026, a 38-fold increase, while deposits grew less than fivefold and net loans less than threefold (Figure 1). Disclosures of individual banks show what lies behind the aggregate. At the Uzbek Industrial and Construction Bank (SQB), one of the largest state-owned lenders, government bonds

made up 94.4% of debt securities at the end of 2025 and corporate bonds only UZS 8.1 billion (JSCB Uzbek Industrial and Construction Bank, 2026, pp. 42–43). On the Tashkent stock exchange, bond trading in 2025 amounted to UZS 1.70 trillion, of which bank bonds accounted for less than UZS 1 billion (Republican Stock Exchange «Tashkent», 2026, p. 15).[3][4]

The question addressed here is simple: are these holdings the result of an investment decision, in which banks weigh the return and risk of securities against those of loans, or are they the residual that remains after banks have collected deposits and granted the loans they want? The answer matters for policy.[5] If holdings are a residual, measures that improve the attractiveness of corporate bonds will change little as long as the balance sheet keeps producing surplus liquidity; the decisive levers are then the supply of creditworthy borrowers and the instrument through which the central bank absorbs liquidity. If holdings are chosen, relative prices and prudential treatment are the levers.[6]

We answer the question with monthly data on the aggregate balance sheet of Uzbek banks and the autoregressive distributed lag (ARDL) bounds approach of Pesaran et al. (2001), which accommodates regressors of different orders of integration and performs reasonably in short samples. Relative to existing work the paper adds four elements.[7] It provides the first time-series evidence on the determinants of bank securities holdings in Uzbekistan and, to our knowledge, in Central Asia. It confronts the residual and the portfolio-choice explanations within one specification. It measures how a change in the central bank's operational framework – the move from deposit auctions to central bank bonds in August 2025 – altered banks' portfolios, and it traces the timing of adjustment with dynamic multipliers. Finally, it translates the estimates into scenario paths for 2026–2030 with model-based uncertainty bands and a sensitivity analysis.[8]

Section 2 relates the paper to the literature and states the predictions to be tested. Section 3 describes the Uzbek setting. Section 4 presents the data and the econometric strategy, Section 5 the estimates and Section 6 the scenario simulations. Section 7 discusses implications and Section 8 concludes.[9]

2. Materials and Methods

2.1. Two views of a bank's securities portfolio

The first view comes from the industrial-organisation model of the banking firm developed by Klein (1971) and Monti (1972). A bank with market power sets loan and deposit volumes so as to equate marginal revenues and costs, while the yield on securities is given by the market.[10] Securities then absorb whatever the two decisions leave over. In the textbook presentation of Matthews and Thompson (2005, pp. 82–83), with deposits D, loans L and a reserve ratio k, the balance-sheet identity gives

$$T = (1 - k)D - L \qquad (1)$$

for holdings of securities T. An inflow of deposits therefore enlarges the portfolio one-for-one after reserves, and stronger demand for loans shrinks it; the securities yield matters only as the opportunity cost that pins down the optimal volume of lending. The model is silent on risk and on liquidity regulation, which limits its realism (Matthews & Thompson, 2005, p. 87).[11]

The second view treats the split between loans and safe securities as a portfolio decision under risk (Markowitz, 1952; Tobin, 1958). A risk-averse bank holds part of its earning assets in risk-free securities; it shifts towards them when loans become riskier or when the safe yield rises, and away from them when lending becomes more profitable (Matthews & Thompson, 2005, p. 104). Bank-management texts add that the securities portfolio is the core of liquidity management and that liquid assets carry an opportunity cost in foregone income (Saunders & Cornett, 2008, p. 531; Casu et al., 2006, p. 228). Credit rationing complicates the role of prices: when higher loan rates attract riskier borrowers, banks limit lending rather than raise rates, so a wide spread may signal risk rather than opportunity (Stiglitz & Weiss, 1981; Greenbaum & Thakor, 2007, pp. 238–245).[12][13]

2.2. Evidence on bank securities, sovereign exposure and excess liquidity

Three empirical literatures are relevant. Studies of monetary transmission treat securities as a buffer that protects lending: Kashyap and Stein (2000) show that the loans

of US banks with less liquid balance sheets react more strongly to monetary tightening, consistent with the adverse-selection argument of Stein (1998). Work on sovereign exposures shows that sovereign defaults depress private credit more where domestic banks hold more government bonds (Gennaioli et al., 2014) and that banks hold sizeable amounts of such bonds, more so in less financially developed countries, and add to them in periods of fiscal stress (Gennaioli et al., 2018); in the euro-area crisis banks bought domestic sovereign bonds as a carry trade (Acharya & Steffen, 2015) or under moral suasion that crowded out corporate credit (Becker & Ivashina, 2018). Finally, the literature on excess liquidity in developing economies separates the liquid assets that banks hold for precautionary reasons from involuntary holdings that build up when lending is constrained (Agénor et al., 2004; Saxegaard, 2006). This distinction is close to our question, but these studies measure excess liquidity mainly as reserves held with the central bank, and none of them covers Central Asia.[14][15]

A broader strand asks how banks and securities markets co-evolve. Song and Thakor (2010) argue that banks can help capital markets grow by securitising and underwriting, and Demirgüç-Kunt et al. (2013) find that the marginal contribution of securities markets to growth increases with income. Whether banks act as investors in the domestic bond market or merely as holders of government paper is therefore also a question about the development of that market.[16]

2.3. Predictions

The two views lead to the predictions summarised in Table 1. They are not mutually exclusive: the residual view concerns the volume of the portfolio, the portfolio view its response to prices and risk. A pure residual implies that deposits and loans enter with opposite signs and that a proportional expansion of the balance sheet leaves the ratio of securities to deposits unchanged, i.e. that the deposit and loan elasticities sum to one.[17]

Table 1. Testable predictions

	Prediction	Variable	Expected sign	Source of the prediction
P1	Deposits expand and loans shrink holdings; elasticities sum to one	ln DEP, ln LOAN	+ / −	Monti–Klein residual
P2	A wider lending–policy rate spread reduces holdings	SPR	−	Portfolio choice
P3	Higher credit risk raises holdings	NPL	+	Portfolio choice; precautionary liquidity
P4	Absorbing liquidity with central bank bonds raises holdings	D25	+	Central bank operations

Notes: variables are defined in Table 2. *Source:* compiled by the author.

2.4. The Uzbek setting

On 1 April 2026 the banking system consisted of 35 commercial banks with total assets of UZS 959.4 trillion; nine banks had state participation and together held 63.0% of assets, down from 84.4% at the beginning of 2020 (CBU, 2026a, Tables 5.1.1, 5.1.2). Lending is funded only partly by deposits. Net loans of UZS 605.6 trillion compared with deposits of UZS 433.9 trillion, the gap being covered mostly by UZS 251.5 trillion of borrowed funds and leasing, much of it from state funds and foreign lenders (CBU, 2026a, Table 5.1.10). Equation (1) therefore does not hold literally, but its directional predictions remain testable. The loan-to-deposit ratio fell from 228% at the end of 2019 to 140% in March 2026: deposits outgrew loans, which is exactly the configuration in which the residual view predicts a growing securities portfolio.[18]

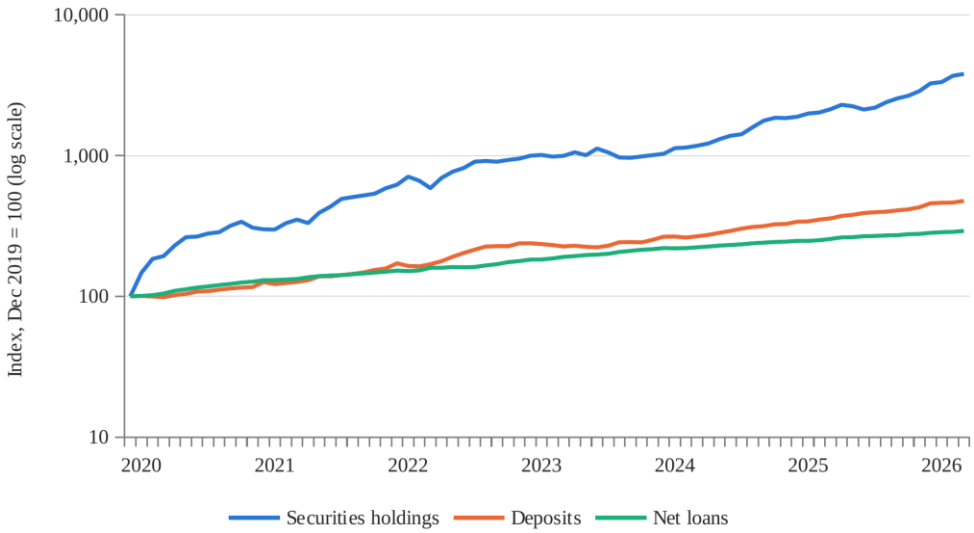


Figure 1. Securities holdings, deposits and net loans of Uzbek commercial banks, December 2019 = 100 (logarithmic scale)
Source: CBU (2026a).

Monetary policy follows an inflation-targeting framework with the policy rate as the main instrument. The rate stayed at 14% for most of the period, with episodes between 13.5% and 17% (CBU, 2026a, Table 3.1). Until July 2025 surplus liquidity was absorbed mainly through weekly seven-day deposit auctions, each of which attracted UZS 4.9–10.3 trillion between April and July 2025. From August 2025 the auctions were discontinued, apart from one three-day operation in October 2025, and replaced by placements of short-term central bank bonds among commercial banks. Monthly placements jumped from UZS 4.0 trillion in July to UZS 41.8 trillion in August 2025; annual placements reached UZS 488.5 trillion in 2025 against UZS 17.5 trillion in 2024, and UZS 640.9 trillion in the first quarter of 2026 alone (CBU, 2026a, Tables 3.4, 3.5). The weighted average yield on these bonds, 1.6–2.2 percentage points above the policy rate in 2022–2024, converged to the policy rate in 2025–2026. Because the bonds are recorded among investments, the change of instrument also changed the form in which banks hold their surplus liquidity.[19][20]

Outside the sovereign segment the domestic market is thin. Outstanding corporate bonds reached a record UZS 5.28 trillion in February 2026 (bne IntelliNews, 2026), about one twentieth of the bank portfolio, and coupons ranged from 15–19% for bank-related and state-linked issuers to 26–29% for microfinance companies (bne IntelliNews, 2026; Freedom Finance Uzbekistan, 2025). A presidential decree of December 2025 set a target of UZS 5 trillion of new corporate bond issuance by 2030 and allowed listed securities to be used as collateral in credit and repo operations (President of the Republic of Uzbekistan, 2025). For a bank, however, a corporate bond yielding a few points above a risk-free central bank bond, with a full capital charge and no secondary market, is a poor substitute for either the bond or a loan.

2.5. Data and econometric strategy

2.5.1. Data

All series come from the statistical bulletin of the Central Bank of the Republic of Uzbekistan (CBU, 2026a): the consolidated balance sheet of commercial banks, the ratio of non-performing loans and the capital adequacy ratio, together with the CBU series of weighted-average rates on new soum loans, which excludes preferential loans, microloans and card credit (CBU, 2026b). Balance-sheet data are published for the first day of each month and are treated as end-of-month positions of the preceding month. The full sample runs from December 2019 to March 2026 (76 observations); after lags, estimation uses April 2020–March 2026. The spread is the lending rate minus the day-weighted monthly average of the policy rate. The dummy D25 equals one from August 2025, the first month of the bond-based framework. Definitions and summary statistics are given in Table 2.[21]

Table 2. Variables and summary statistics, December 2019–March 2026

Variable	Definition	Mean	Std. dev.	Min	Max
SEC	Investments and other securities, UZS trillion	36.5	28.0	3.2	120.0
DEP	Deposits, UZS trillion	216.1	97.7	89.8	433.9
LOAN	Net loans, UZS trillion	394.1	117.6	207.6	605.6
SPR	Rate on new soum loans minus average policy rate, percentage points	8.11	1.34	4.80	10.09
NPL	Non-performing loans, % of gross loans	3.91	1.06	1.50	6.24
D25	Central bank bond regime (1 from August 2025)	0.105	–	0	1
POL	Policy rate, monthly average, %	14.38	0.80	13.50	17.00
CAR	Capital adequacy ratio, %	17.90	1.60	15.87	23.53
SEC/TA	Securities, % of total assets	5.56	2.55	1.16	12.51
LTD	Net loans, % of deposits	196.0	32.7	139.6	249.2

Notes: 76 monthly observations. POL and CAR are used only in robustness checks; SEC/TA and LTD in an alternative specification. *Source:* author's calculations from CBU (2026a, 2026b).

2.5.2. Model

The long-run relationship implied by the predictions is

$$ln\ SEC_t = \theta_0 + \theta_1 ln\ DEP_t + \theta_2 ln\ LOAN_t + \theta_3 SPR_t + \theta_4 NPL_t + \theta_5 D25_t + u_t \quad (2)$$

where θ_1 and θ_2 are elasticities and θ_3, θ_4 and θ_5 semi-elasticities. Prediction P1 corresponds to $\theta_1 > 0$, $\theta_2 < 0$ and $\theta_1 + \theta_2 = 1$; P2–P4 to $\theta_3 < 0$, $\theta_4 > 0$ and $\theta_5 > 0$. With $y_t = ln\ SEC_t$ and $x_{i,t}$ denoting the four stochastic regressors, the unrestricted error-correction form of the ARDL model is

$$\Delta y_t = \alpha_0 + \varphi y_{t-1} + \sum_{i=1}^{4} \beta_i x_{i,t-1} + \sum_{j=1}^{p-1} \gamma_j \Delta y_{t-j} + \sum_{i=1}^{4} \sum_{j=0}^{q_i-1} \delta_{ij} \Delta x_{i,t-j} + \lambda D25_t + \varepsilon_t \quad (3)$$

with $\theta_i = -\beta_i/\varphi$ and $\theta_5 = -\lambda/\varphi$. A level relationship exists if the joint null $\varphi = \beta_1 = \cdots = \beta_4 = 0$ (F-test) and the null $\varphi = 0$ (t-test) are rejected against the case III bounds of Pesaran et al. (2001). Lag orders are chosen by the Akaike criterion with at most three lags, long-run standard errors by the delta method, and heteroskedasticity- and autocorrelation-robust t-ratios (Newey & West, 1987) are reported alongside. Residuals are checked with the Breusch–Godfrey (Breusch, 1978; Godfrey, 1978), Breusch–Pagan (1979), ARCH (Engle, 1982), Jarque–Bera (1987) and RESET (Ramsey, 1969) tests, and parameter stability with CUSUM and CUSUM-of-squares statistics (Brown et al., 1975).

To trace the timing of adjustment we compute dynamic multipliers from (3). For a permanent unit change in regressor i at month 0, the response of y follows

$$m_{i,0} = \delta_{i0}, \quad m_{i,k} = (1 + \varphi) m_{i,k-1} + \beta_i, \quad k \geq 1 \qquad (4)$$

which converges to θ_i; the ratio $m_{i,k}/\theta_i$ measures the share of the long-run effect reached after k months. The same recursion with λ in place of β_i and $m_0 = \lambda$ describes the effect of the regime dummy, which enters every month. The specification also provides the basis for the scenario simulations in Section 6. The models were estimated in R (R Core Team, 2024) and re-estimated in Python with statsmodels (Seabold & Perktold, 2010) and arch (Sheppard, 2025); the two sets of estimates coincide.[22]

3. Results

3.1. Integration properties and the bounds test

Panel A of Table 3 reports p-values of augmented Dickey–Fuller (Dickey & Fuller, 1979) and Phillips–Perron (1988) tests. Deposits, loans, the spread and the NPL ratio are integrated of order one; for loans, only the Phillips–Perron test with a constant rejects at 5%, which we treat as inconclusive. The dependent variable is non-stationary around a constant (ADF p = 0.074) but stationary around a linear trend. No series is I(2). This mixture of integration orders is the situation for which the bounds approach was designed.[23]

Table 3. Pre-estimation tests

	ADF level, c	ADF level, c + t	ADF difference	PP level, c	PP level, c + t	PP difference
A. Unit root tests (p-values)						
ln SEC	0.074	<0.001	<0.001	0.166	<0.001	<0.001
ln DEP	0.965	0.598	<0.001	0.966	0.448	<0.001
ln LOAN	0.075	0.596	<0.001	0.026	0.626	<0.001
SPR	0.263	0.210	<0.001	0.249	0.300	<0.001
NPL	0.095	0.345	0.013	0.134	0.609	<0.001
B. Bounds tests for a level relationship						
Statistic	**Value**	**5%: I(0)**	**5%: I(1)**	**1%: I(0)**	**1%: I(1)**	**Decision**
F, baseline (case III, k = 4)	7.39	2.86	4.01	3.74	5.06	reject at 1%
t, baseline (case III)	−4.09	−2.86	−3.99	−3.43	−4.60	reject at 5%
F, with linear trend (case V)	6.81	3.47	4.57	4.40	5.72	reject at 1%
F, SEC/TA on LTD, SPR, NPL, CAR	2.18	2.86	4.01	3.74	5.06	no relationship

Notes: c – constant, t – linear trend; ADF lags by AIC (maximum 6), PP with Bartlett kernel; MacKinnon (1994) p-values. Bounds: Pesaran et al. (2001), case III unless stated; 72 observations, ARDL(1, 1, 1, 3, 1) with D25 unrestricted. In the trend model the trend is insignificant (t = 1.17). *Source:* author's calculations.

The Akaike criterion selects an ARDL(1, 1, 1, 3, 1). The bounds F-statistic of 7.39 exceeds the 1% upper bound and the t-statistic of −4.09 the 5% upper bound, so a level relationship exists (Panel B). Adding a deterministic trend does not change the conclusion, and the trend itself is insignificant. It is the level of holdings, not their share in assets, that is anchored to fundamentals: a model of the securities-to-assets ratio on the loan-to-

deposit ratio, the spread, the NPL ratio and capital adequacy gives F = 2.18, below even the lower bound.[24]

3.2. Long-run relationship and short-run adjustment

Table 4. Long-run coefficients and error-correction estimates

	Coefficient	Std. error	HAC t-ratio	p-value
A. Long run (dependent variable ln SEC)				
ln DEP	2.091***	0.347	7.86	<0.001
ln LOAN	−1.081*	0.612	−2.34	0.083
SPR	0.061*	0.034	2.44	0.075
NPL	0.050**	0.022	3.71	0.024
D25	0.230**	0.089	–	0.013
B. Short run (dependent variable Δln SEC)				
Error-correction term (φ)	−0.321**	0.079	–	bounds
Δln DEP	0.6067**	0.2616	–	0.024
Δln LOAN	−2.6045***	0.7750	–	0.001
ΔSPR, lags 0 / 1 / 2	0.008 / −0.020* / −0.016			
ΔNPL	−0.0077	0.0225	–	0.733
D25	0.0738***	0.0252	–	0.005
C. Tests				
Wald test of $\theta_1 + \theta_2 = 1$	F = 0.001, p = 0.971			
Short-run spread terms jointly zero	F = 2.16, p = 0.102			
Serial correlation, 2 / 4 lags (Breusch–Godfrey)	p = 0.598 / 0.854			
Heteroskedasticity (Breusch–Pagan; ARCH)	p = 0.483; p = 0.599			
Normality (Jarque–Bera); functional form (RESET)	p = 0.142; p = 0.484			
R^2 / adjusted R^2; S.E. of regression	0.478 / 0.372; 0.0491			
CUSUM / CUSUM of squares	inside the 5% bounds over the whole sample			

Notes: ARDL(1, 1, 1, 3, 1), April 2020–March 2026, 72 observations. ***, **, * – significance at 1%, 5%, 10% (for φ, against the bounds t critical values). HAC – Newey–West t-ratios of the long-run coefficients. *Source:* author's calculations.

Table 4 supports the residual view. Deposits are the dominant and best-determined driver: a 1% increase raises holdings by 2.09% in the long run (HAC t = 7.86). The elasticity exceeds one simply because the portfolio is small relative to deposits; at the March 2026 balance sheet each additional soum of deposits adds 0.58 soums to holdings. Loans enter negatively (−1.08), with conventional p = 0.083 and a HAC t-ratio of −2.34; one additional soum of loans removes about 0.21 soums of securities. The two elasticities sum to 1.011,

and the homogeneity restriction is not rejected (p = 0.97). A balance sheet that grows evenly therefore keeps the securities-to-deposits ratio constant, and the portfolio expands faster than deposits only when deposits outrun loans.[25]

The price variable behaves differently from what portfolio choice would predict. The long-run spread coefficient is positive (0.061, p = 0.075), only the first short-run lag is negative and marginal, and the three short-run terms are jointly insignificant. With the policy rate fixed at 14% for most of the period, movements in the spread came from lending rates, and the credit-rationing argument suggests that higher lending rates reflect riskier borrowers rather than better opportunities. Credit risk does matter in the predicted direction: a one-point rise in the NPL ratio raises equilibrium holdings by 5.2% (p = 0.024), equivalent to about UZS 6.2 trillion at the current portfolio size. The central bank bond regime raised the equilibrium portfolio by 25.8% (p = 0.013). In August 2025 alone banks' balances at the CBU fell from UZS 36.2 to 30.9 trillion while their securities rose from UZS 69.2 to 75.5 trillion, so part of the effect is a relabelling of liquidity that previously sat in deposit auctions.[26]

Adjustment is fast. The error-correction coefficient of −0.321 implies that about 32% of a gap between actual and equilibrium holdings closes each month, a half-life of 1.8 months. Residual diagnostics reveal no serial correlation, heteroskedasticity, non-normality or misspecification, and both recursive stability statistics stay within their bounds, including after August 2025, which indicates that the dummy captures the regime change adequately.[27]

3.3. How quickly do shocks reach the portfolio?

The dynamic multipliers in Figure 2 add a dimension that the long-run coefficients conceal. A permanent increase in deposits raises holdings immediately by 0.61% for each 1% of deposits, i.e. 29% of the long-run effect; 78% is reached after three months and 93% after six. Deposit inflows are thus channelled into securities within one to two quarters. Loans behave in the opposite manner. An acceleration of lending reduces holdings on impact by 2.60% per 1% of loans, 2.4 times the long-run reduction; the overshoot fades gradually, and after six months the effect is still 14% larger than in the long run. Banks evidently finance bursts of lending by letting securities run off and rebuild the portfolio afterwards. The NPL effect starts slightly negative and turns positive after one month, consistent with a gradual shift towards safe assets as asset quality deteriorates. The regime effect builds up at the same pace as the deposit effect: 79% of the 26% shift had materialised by November 2025.[28]

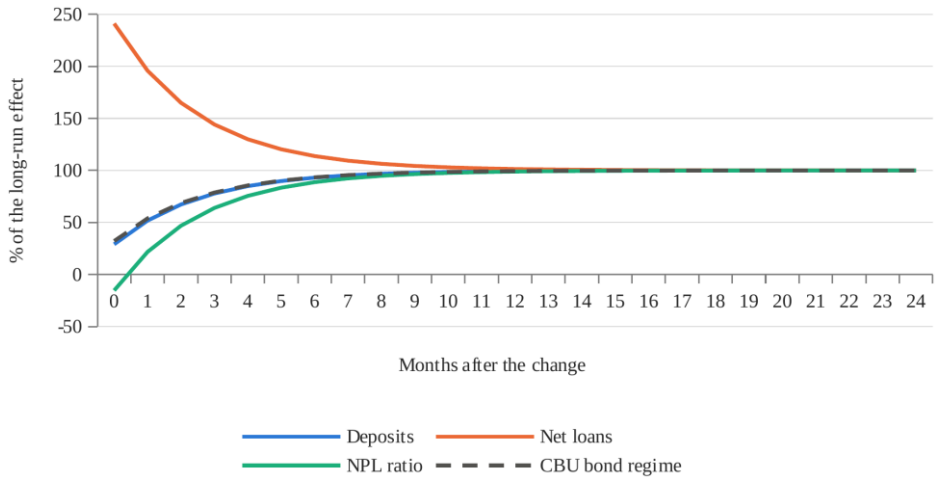


Figure 2. Dynamic multipliers: share of the long-run effect reached k months after a permanent change in a driver, %

Notes: computed from equation (4) with the estimates in Table 4; long-run effects: deposits 2.09, loans −1.08, NPL 0.050, D25 0.230. *Source:* author's calculations.

3.4. Accounting for the growth of the portfolio

The long-run coefficients define an equilibrium path, plotted together with actual holdings in Figure 3. Actual holdings stayed below equilibrium for most of the period: the gap was 36% in April 2020, peaked again at 29% in August 2022 and 30% in December 2023, and narrowed to 7% in March 2026. With deposits growing steadily the target moved up every month, and the monthly correction never fully caught up. Table 5 decomposes the change in log holdings between April 2020 and March 2026 into the contributions of each driver, measured as the long-run coefficient times the change in the variable, and the closing of the initial gap.[29]

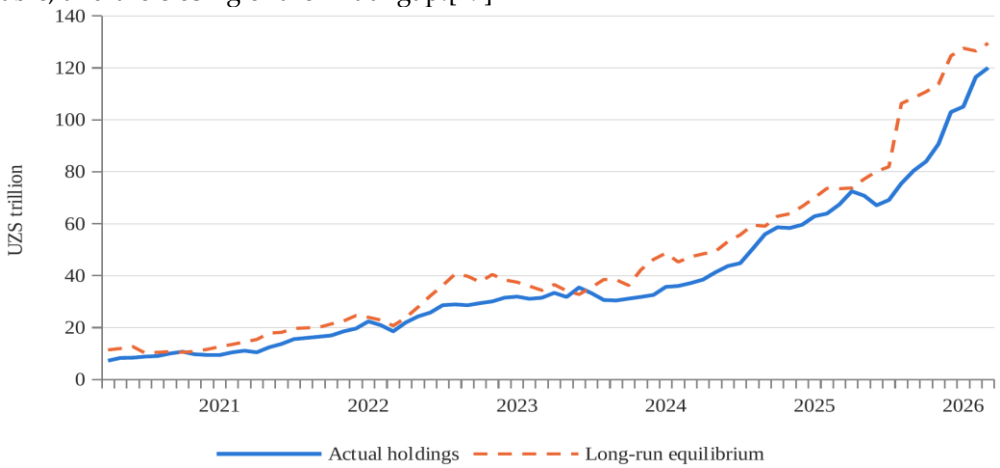


Figure 3. Actual and long-run equilibrium securities holdings, April 2020–March 2026, UZS trillion

Notes: equilibrium from equation (2) with the long-run coefficients in Table 4, including the D25 shift from August 2025. *Source:* author's calculations based on CBU (2026a).

Table 5. Decomposition of the change in ln SEC, April 2020–March 2026

Source	Change in the driver	Contribution, log points	Share of the total, %
Deposits ($\theta_1 \cdot \Delta$ln DEP)	1.544	3.229	115.1
Net loans ($\theta_2 \cdot \Delta$ln LOAN)	0.980	−1.059	−37.7
Spread ($\theta_3 \cdot \Delta$SPR)	−0.30 pp	−0.018	−0.7
NPL ratio ($\theta_4 \cdot \Delta$NPL)	0.94 pp	0.047	1.7
CBU bond regime ($\theta_5 \cdot \Delta$D25)	0 → 1	0.230	8.2
Change in equilibrium		2.429	86.5
Closing of the gap to equilibrium	−0.453 → −0.076	0.378	13.5
Actual change	UZS 7.2 → 120.0 trn	**2.807**	**100.0**

Notes: log points; the gap is ln SEC minus ln of equilibrium holdings. *Source:* author's calculations.

Deposit growth alone would have raised holdings by 3.23 log points, more than the actual increase of 2.81; loan growth took away 1.06. The net balance-sheet effect – deposits outpacing loans – explains 77% of the growth. The change of the central bank's instrument contributed 8.2%, the NPL ratio 1.7% and the spread virtually nothing (−0.7%). The remaining 13.5% reflects the narrowing of the gap between actual and equilibrium holdings.

3.5. Robustness

Table 6. Robustness of the long-run estimates

Specification	ARDL order	Bounds F	φ	ln DEP	ln LOAN	NPL	D25
(1) Baseline	1, 1, 1, 3, 1	7.39	−0.321	2.091 (6.02)	−1.081 (−1.77)	0.050 (2.32)	0.230 (2.57)
(2) Lags by Schwarz criterion	1, 1, 1, 1, 1	6.44	−0.324	1.962 (5.78)	−0.852 (−1.45)	0.046 (2.08)	0.239 (2.58)
(3) $\theta_1 + \theta_2 = 1$ imposed: ln (SEC/DEP) on ln (LOAN/DEP)	1, 1, 3, 1	5.74	−0.279	–	−1.212 (−4.85)	0.072 (2.53)	0.277 (2.46)
(4) Capital adequacy added	1, 1, 2, 1, 1, 1	5.86	−0.322	1.791 (5.66)	−0.298 (−0.55)	0.091 (3.07)	0.158 (1.68)
(5) Policy rate instead of spread	1, 1, 2, 2, 1	3.84	−0.297	1.663 (3.56)	−0.191 (−0.26)	0.072 (2.46)	0.278 (2.58)
(6) April 2020–July 2025, no D25	1, 1, 2, 3, 1	5.84	−0.327	1.961 (5.65)	−0.861 (−1.43)	0.064 (2.67)	–

Notes: long-run coefficients with t-ratios in parentheses; in (3) the loan column reports the coefficient on ln (LOAN/DEP). Bounds F exceeds the 1% upper bound in (1)–(4) and (6); in (5) it lies in the inconclusive range at 5%. In (4) CAR enters with 0.067 (t = 1.97); in (5) the policy rate with −0.010 (t = −0.21). (6) uses 64 observations. *Source:* author's calculations.

The central findings survive the alternatives in Table 6. The deposit elasticity lies between 1.66 and 2.09 and is significant at 1% wherever it appears; the NPL effect is positive and significant at 5% in all six specifications; and the regime effect varies between 0.16 and 0.28. The pre-regime estimates in (6) are very close to the baseline, so the results are not an artefact of the surge after August 2025. The loan coefficient is always negative but loses precision when capital adequacy or the policy rate is added, which reflects the near-collinearity of deposits and loans (correlation 0.988); once the homogeneity restriction is imposed, the loan-to-deposit ratio is estimated precisely (t = −4.85). The policy rate itself is insignificant, and the capital ratio enters positively, so there is no sign that capital scarcity pushed banks into zero-risk-weight assets.[30]

6. Where are holdings heading? Scenario simulations

Because the model is conditional on deposits and loans, projections require assumptions about these drivers. We simulate the error-correction model month by month from April 2026 to December 2030:

$$\hat{y}_t = \hat{y}_{t-1} + \hat{\alpha}_0 + \hat{\varphi}\hat{y}_{t-1} + \sum_{i=1}^{4} \hat{\beta}_i x_{i,t-1} + \sum_{i=1}^{4} \sum_{j=0}^{q_i-1} \hat{\delta}_{ij} \Delta x_{i,t-j} + \hat{\lambda} D25_t \qquad (5)$$

with the regressors following the scenario paths. Uncertainty is quantified by 5,000 Monte Carlo paths in which the coefficient vector is drawn from its estimated sampling distribution and monthly shocks are resampled from the residuals (Efron, 1979); percentiles of the simulated paths give the bands shown in Figure 4 (Britton et al., 1998). The bands cover model uncertainty only, so the comparison of scenarios is the main guide to uncertainty about the drivers themselves.

The scenarios take as their reference the CBU's monetary policy guidelines, which foresee real growth of 5.5–6.5% in 2026 and 6–7% in 2027–2028 and a return of inflation to the 5% target in 2027 (CBU, 2025, p. 6). Since the guidelines do not quantify deposits and loans, three paths are used (Table 7). In the baseline (S1) recent trends fade: deposit growth, which was 27.7% in 2024 and 35.2% in 2025, slows from 26% to 15%, and loan growth from 14% to 12%. In the conservative scenario (S2) deposits and loans grow at the same rate, so the loan-to-deposit ratio stays at its current 140%. The high-liquidity scenario (S3) keeps deposit growth close to its 2025 pace for two more years. The spread (8.6 points), the NPL ratio (3.2%) and the bond regime are held at their latest values.

Table 7. Scenario assumptions and simulated securities holdings

	S1 baseline	S2 conservative	S3 high liquidity
Assumptions, % per year (2026 → 2030)			
Deposit growth	26 → 15	16 → 12	32 → 20
Loan growth	14 → 12	16 → 12	14 → 11
Holdings, UZS trillion (end of year)			
2026	147.6	131.0	156.1
2028	253.2	172.6	331.8
2030	374.9	218.5	593.4
2030, 80% band	312–435	168–266	492–708
Derived indicators			
Average annual growth 2025–2030, %	29.5	16.2	41.9
Holdings, % of deposits, 2030	37.2	27.9	47.4
Loans, % of deposits, 2030	106	140	84

Notes: December-on-December growth rates converted to monthly rates; in 2026 they apply from April. Point paths use estimated coefficients without shocks; bands are the 10th and 90th percentiles of 5,000 simulated paths. Holdings at end-2025: UZS 103.0 trillion (24.7% of deposits). *Source:* author's calculations.

In the baseline holdings reach UZS 374.9 trillion at the end of 2030 (80% band 312–435), 3.6 times their end-2025 level, with growth slowing from 43% in 2026 to 19% in 2030 as the gap between deposit and loan growth narrows. Their ratio to deposits climbs from 24.7% to 37.2%. In the conservative scenario holdings grow with the balance sheet to UZS 218.5 trillion and stay at about 28% of deposits. The high-liquidity scenario produces UZS 593.4 trillion, almost half of deposits; since it would require banks to place nearly one soum in sovereign and central bank paper for every two soums of deposits, we read it as an upper bound rather than a forecast. A plausible range for 2030 is therefore UZS 219–375 trillion.

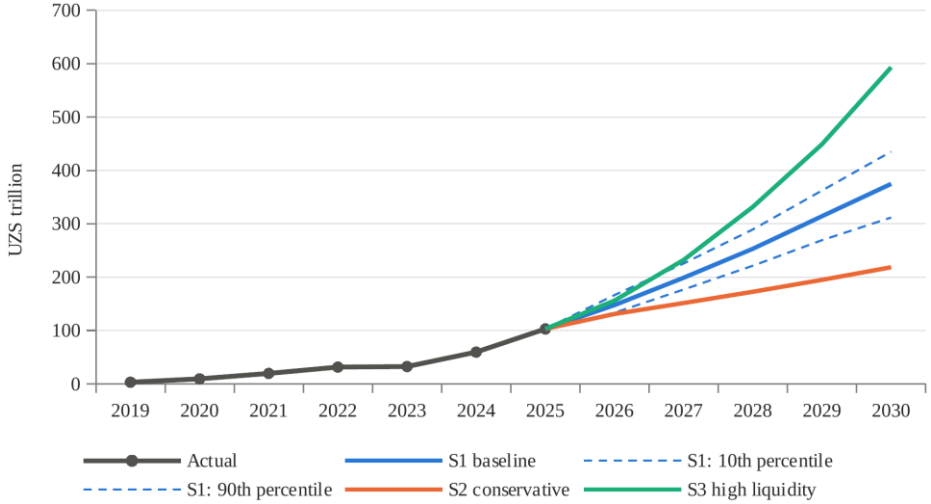


Figure 4. Securities holdings: actual values and scenario paths to 2030, UZS trillion (end of year)

Notes: dashed lines show the 10th and 90th percentiles of the simulated S1 paths. *Source:* CBU (2026a) for actual values; author's simulations.

Figure 5 shows that the projections are far more sensitive to the assumed drivers than to estimation uncertainty. A deposit growth path one point lower or higher every year moves 2030 holdings by −7.7% and +8.3%; faster loan growth lowers them by 4.8%. An NPL ratio of 4.5% would add 6.8%, while a spread compressed to 7 points would subtract 9.1% – a reminder that the positive spread coefficient, although weak, is carried into the simulation.

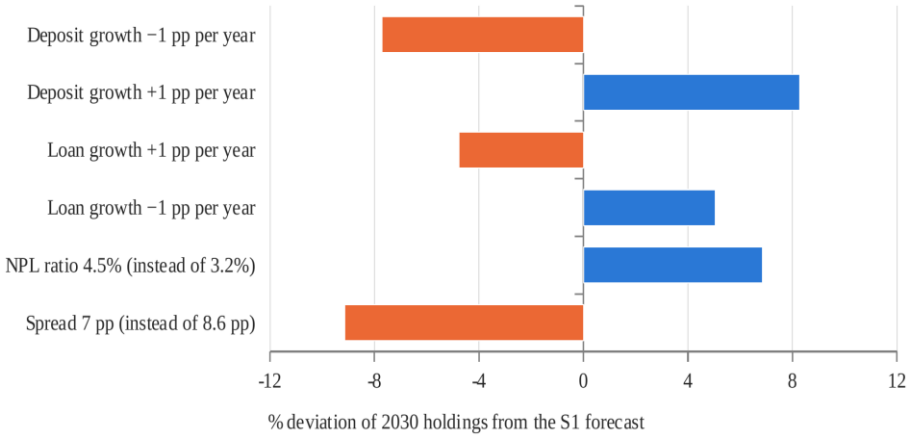


Figure 5. Sensitivity of the 2030 baseline projection to single changes in the assumptions, % deviation from S1
Source: author's calculations.

4. Discussion

Three findings stand out. First, the volume of the portfolio is governed by the balance sheet rather than by prices: deposits and loans explain the bulk of its growth, their elasticities obey the homogeneity restriction, deposit inflows reach the portfolio within one to two quarters, and the lending spread carries no negative weight. Uzbek banks behave as the Monti–Klein bank does – they lend what they can and park the rest. The rising weight of securities in bank assets is therefore not, by itself, evidence that banks have become active investors in the securities market.

Second, the instrument chosen by the central bank shapes the portfolio. The switch to bonds raised equilibrium holdings by about a quarter and did so within a few months. Central bank bonds paying the policy rate are liquid, free of credit risk and free of capital charges, which makes them the natural destination for surplus funds and the benchmark against which any corporate bond is judged. As long as corporate issuers cannot offer a premium that compensates for credit risk, a full risk weight and the absence of a secondary market, banks have no reason to diversify. Policies that aim at a domestic bond market with banks as anchor investors – the targets set in the December 2025 decree are an example – therefore need to work on these margins: the prudential treatment of listed and rated corporate debt, its eligibility as collateral and the liquidity of the secondary market.

Third, sovereign concentration is likely to deepen. At the end of March 2026 the portfolio equalled about 85% of the capital of the banking system, still well below the roughly 200% average for emerging markets cited by the IMF (2022, p. 41), but in the baseline scenario holdings increase by a further UZS 272 trillion by 2030. If the composition does not change, almost all of this will be government and central bank paper. Redirecting even a tenth of it to corporate and bank bonds would create demand of about UZS 27 trillion, more than five times the corporate bonds outstanding in early 2026. The positive response of holdings to non-performing loans points in the same direction: the margin on which banks decide is borrower quality, and improvements in credit information and collateral enforcement would affect both lending and the size of the residual.

5. Conclusion

Using monthly data for December 2019–March 2026, this paper has shown that the securities holdings of Uzbek commercial banks are tied to deposits and loans by a stable long-run relationship whose elasticities (2.09 and −1.08) sum to one, as the residual view of the portfolio implies. Higher credit risk raises holdings, the spread does not lower them, and the August 2025 switch to central bank bonds lifted the equilibrium portfolio by about 26%. Deposit shocks reach the portfolio within one to two quarters, whereas lending surges are financed by temporarily running down securities. Conditional on plausible deposit and loan paths, holdings will amount to UZS 219–375 trillion in 2030.

The analysis has limitations. Aggregate data cannot distinguish state-owned from private banks or banks with different funding structures; a bank-level panel would allow heterogeneous responses to be estimated. The sample is short, and small-sample (Narayan, 2005) or bootstrap (McNown et al., 2018) critical values could refine the bounds tests. The projections hold structural features constant and do not reflect the privatisation of state banks, the new capital market legislation under discussion or changes in prudential rules, all of which could alter the composition of the portfolio more than its size.

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