

THE DYNAMIC INTERDEPENDENCE BETWEEN HOUSEHOLD BANK DEPOSITS, INTEREST RATES AND CONSUMER PRICES IN ROMANIA

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ABSTRACT: *This study investigates the dynamic relationship between household bank deposits, deposit interest rates and consumer prices in Romania using monthly data covering January 2007–December 2025. The empirical framework is based on a three-variable vector autoregressive (VAR) model. The variables are household term deposits in Romanian lei with an original maturity of one year or more (DEP), the average interest rate on household deposits (DOB), and the Consumer Price Index (CPI). Augmented Dickey–Fuller tests indicate that all three series are non-stationary in levels and become stationary after first differencing, supporting the use of DDEP, DDOB and DCPI in the VAR specification. Although information criteria provide different lag recommendations, residual diagnostics support a four-lag specification. The estimated model shows strong own-variable persistence, particularly for deposit interest rates. Granger causality tests identify a statistically significant unidirectional relationship from interest rates to bank deposits ($\chi^2 = 15.0125$; $p = 0.0047$), while the reverse relationship is not statistically significant ($p = 0.1139$). CPI does not Granger-cause either deposits or interest rates at the 5% level. Impulse-response analysis further indicates that a positive interest-rate shock increases deposits in the short run, while inflationary shocks have smaller and less persistent effects on deposits. The results underline the relevance of interest-rate conditions for household saving behaviour while also indicating that deposit dynamics are shaped by additional macroeconomic and behavioural factors.*

Keywords: *Household Deposits; Deposit Interest Rate; Consumer Price Index; Savings Behaviour; VAR Model; Granger Causality; Impulse-Response Functions; Romania.*

JEL Classification: *C32, E21, E43, E52, G21.*

1. INTRODUCTION

The mobilisation of household savings through bank deposits is one of the core functions of financial intermediation. Deposits provide commercial banks with a relatively stable source of funding and support their capacity to transform savings into credit for

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households and firms. For depositors, bank accounts and term deposits combine liquidity, capital preservation and interest income. The volume and composition of household deposits therefore have implications not only for individual financial decisions but also for bank liquidity, credit supply and broader financial stability.

Economic theory suggests that saving decisions are influenced by interest rates, disposable income, inflation, expectations and perceived economic uncertainty. In the Keynesian tradition, saving is closely connected to income and consumption decisions, while the life-cycle framework developed by Modigliani and Brumberg emphasises intertemporal smoothing over an individual's lifetime. Interest rates affect the relative attractiveness of present versus future consumption and, in the banking context, represent the explicit remuneration received for postponing consumption.

The Romanian economy provides a particularly relevant setting for studying this relationship. The period beginning in 2007 includes the global financial crisis, the post-crisis adjustment, a prolonged low-interest-rate environment, the COVID-19 pandemic, the subsequent inflationary surge and repeated monetary-policy changes. These episodes generated substantial variation in interest rates, prices and household financial behaviour.

The purpose of this paper is to examine whether changes in deposit interest rates help explain subsequent changes in household bank deposits and whether an inverse predictive relationship can also be identified. Consumer prices are introduced as a third variable in order to capture the inflationary environment in which saving and interest-rate decisions take place. The study thus extends a two-variable deposit–interest-rate framework into a broader dynamic system.

The empirical contribution consists of updating the Romanian evidence through December 2025 and applying a VAR framework to monthly observations. The analysis combines unit-root testing, lag selection, residual diagnostics, impulse-response functions and Granger causality tests. The central finding is a unidirectional predictive relationship from deposit interest rates to household deposits, while the reverse direction is not supported statistically.

Research questions

The analysis addresses three questions:

- (1) Do changes in household deposit interest rates significantly improve the prediction of changes in household deposits?
- (2) Do changes in deposits improve the prediction of deposit interest rates?
- (3) Does the consumer-price environment materially alter the short-run dynamics linking deposits and interest rates?

2. THEORETICAL BACKGROUND

Household saving reflects the allocation of disposable resources between current consumption and future use. In the permanent-income and life-cycle traditions, households seek to smooth consumption over time, implying that saving may rise when current income exceeds expected long-run consumption needs. Bank deposits are one of the principal instruments through which this saving is held, particularly when households prioritise liquidity and low risk.

The attractiveness of deposits depends on both nominal remuneration and the broader opportunity set. A higher deposit rate increases the direct return on saving, but the strength of the response may depend on inflation, taxation, alternative investments, household indebtedness and expectations. Deposit growth can therefore continue even when nominal rates fall if precautionary motives, income growth, financial uncertainty or limited investment alternatives dominate the substitution effect.

Interest rates represent the price of intertemporal exchange. A rise in the return on deposits may increase the opportunity cost of current consumption and encourage households

to defer expenditure. At the same time, the income effect can work in the opposite direction for households targeting a specific future wealth level. Consequently, the aggregate relationship between rates and saving is ultimately an empirical question.

In banking markets, deposit rates also reflect institutions' funding needs, competitive pressures and monetary conditions. Banks may adjust offered rates when they seek additional stable funding, while deposit volumes themselves may influence the urgency with which banks reprice liabilities. This creates the possibility of feedback between rates and deposits, which motivates a system-based econometric approach rather than a single-equation specification.

Inflation affects the purchasing power of nominal savings. When consumer prices accelerate faster than nominal deposit rates, the real return on deposits declines. This can weaken the incentive to hold interest-bearing bank balances, but it can also induce precautionary saving if households perceive heightened uncertainty. The inclusion of CPI in the empirical system therefore allows the deposit–interest-rate relationship to be evaluated in an inflation-sensitive setting.

The Diamond–Dybvig framework highlights the role of confidence and liquidity in banking systems. Deposits are valuable because banks provide liquidity transformation, but depositor confidence is crucial. During periods of stress, deposit behaviour can reflect safety concerns and liquidity preferences as much as interest-rate incentives. This observation is particularly relevant for a sample spanning multiple crises and structural changes.

3. LITERATURE REVIEW

VAR models have become a standard tool for analysing dynamic macroeconomic interactions since Sims (1980). Their principal advantage is that each variable can be treated as endogenous and explained by its own lags and the lags of the other variables. This feature is useful when economic theory does not provide a sufficiently strong basis for imposing a strict contemporaneous causal ordering.

Fry and Pagan (2005) emphasise the practical value of VAR models as a compromise between data-driven analysis and economic interpretation. In monetary-policy research, VAR and Bayesian VAR approaches have been widely used to investigate transmission mechanisms, including the response of market and bank interest rates to monetary shocks. European evidence includes the work of Gerlach and Smets (1995), Peersman and Smets (2001), Mojon and Peersman (2001), and Angeloni, Kashyap and Mojon (2003).

For Romania, Ciurilă (2007) employed a VAR framework to investigate exchange-rate pass-through to inflation. Spulbăr and Nițoi (2013) used a Bayesian VAR to analyse monetary-policy transmission, interest rates, inflation and unemployment, while Roșoiu and Roșoiu (2014) examined the Romanian transmission mechanism using a Bayesian VAR approach. These studies support the suitability of multivariate time-series models for an economy undergoing structural transformation.

Research focusing more directly on deposits also provides a foundation for the present analysis. Dănulețiu, Iuga and Socol (2014) investigated Romanian household bank deposits with a VAR model and documented dynamic relationships between deposits and relevant economic variables. Nyström (2008) developed a framework for deposit volumes and non-maturing liabilities that explicitly connects customer behaviour to deposit rates. Raza, Hena and Saeed (2017) similarly analysed the effect of interest rates on savings and deposits.

The Romanian literature additionally emphasises institutional and behavioural determinants. Anghel and Străchinaru (2019) analyse post-crisis household saving behaviour, while Moroșan (2020) discusses characteristics of population deposits in Romania. Neagu (2009) and Prelipcean and Boscoianu (2014) draw attention to the wider financial and decision-making context of household saving.

The present study differs from earlier Romanian deposit analyses in two respects. First, the sample is extended through December 2025, thereby covering the pandemic and the subsequent inflation and monetary-policy cycle. Second, CPI is explicitly incorporated as a third endogenous variable. This extension permits the deposit–rate relationship to be evaluated alongside changes in the price environment.

4. DATA AND RESEARCH HYPOTHESES

The empirical analysis uses monthly Romanian data for January 2007–December 2025. The source material reports 228 monthly observations after adjustment. Deposit and interest-rate data were obtained from the National Bank of Romania, while the Consumer Price Index was obtained from the National Institute of Statistics.

Table 1. Variables, Definitions, Frequency and Data Sources

Variable	Definition	Frequency	Source
DEP	Household term deposits in RON, maturity ≥ 1 year	Monthly	National Bank of Romania
DOB	Average interest rate on household deposits	Monthly	National Bank of Romania
CPI	Consumer Price Index	Monthly	National Institute of Statistics

Source: Authors' own elaboration based on data from the National Bank of Romania (NBR) and the National Institute of Statistics (INS)

DEP represents term deposits in Romanian lei placed by households with commercial banks, with an original maturity of one year or more. The average deposit volume reported for the analysed period is RON 61,833,065 thousand, with a minimum of RON 20,891,272 thousand in January 2007 and a maximum of RON 138,120,447 thousand in December 2025.

DOB represents the average interest rate applicable to household deposits. The source material notes that, from January 2007 onward, average deposit rates and rates on new deposit contracts were compiled according to the methodology established under the European Central Bank statistical framework for monetary financial institution interest rates.

CPI measures the average change in prices for a fixed basket of goods and services purchased by households and serves as the study's inflation-related variable.

Hypotheses

H1a: Changes in deposit interest rates have no statistically significant predictive effect on changes in household bank deposits. **H1b:** Changes in deposit interest rates have a statistically significant predictive effect on changes in household bank deposits.

H2a: Changes in household bank deposits have no statistically significant predictive effect on changes in deposit interest rates. **H2b:** Changes in household bank deposits have a statistically significant predictive effect on changes in deposit interest rates.

A third empirical question concerns CPI: whether changes in consumer prices provide significant predictive information for deposits or deposit interest rates within the estimated VAR system.

5. ECONOMETRIC METHODOLOGY

The analysis follows the traditional time-series sequence of testing integration properties, transforming non-stationary variables, selecting a lag structure, estimating a VAR

model, evaluating residual diagnostics, analysing impulse responses and testing Granger causality.

Let $Y_t = [DDEP_t, DDOB_t, DCPI_t]'$ denote the vector of first-differenced variables. A VAR(p) model can be written as $Y_t = c + A_1 Y_{t-1} + \dots + A_p Y_{t-p} + \varepsilon_t$, where c is a vector of constants, A_i are coefficient matrices and ε_t is the vector of innovations. In the final specification $p = 4$.

The Augmented Dickey–Fuller (ADF) test is used to evaluate the null hypothesis of a unit root. The source analysis finds that DEP, DOB and CPI are non-stationary in levels. First differencing is therefore applied, after which each transformed series is retested.

Lag-order selection considers the Akaike Information Criterion (AIC), Schwarz Criterion (SC), Hannan–Quinn Criterion (HQ), Final Prediction Error (FPE) and the likelihood-ratio criterion. The criteria do not identify a unique optimum: AIC, FPE and LR favour six lags, SC favours two and HQ favours three. Residual serial-correlation testing is consequently used as an additional specification criterion.

Granger causality is interpreted as incremental predictive content rather than structural causation. Variable X Granger-causes variable Y if lagged values of X jointly improve the prediction of Y after controlling for lagged values of Y and the remaining variables in the system.

Impulse-response functions trace the effect of a standardised innovation in one variable on the current and future values of the system. The study evaluates responses over ten periods with ± 2 asymptotic standard-error bands.

6. STATIONARITY RESULTS

The ADF results indicate that all three variables become stationary after first differencing. This supports the estimation of the VAR in DDEP, DDOB and DCPI and reduces the risk of spurious regression arising from common stochastic trends.

Table 2. Augmented Dickey–Fuller Unit-Root Test Results for First-Differenced Series

Series	ADF statistic	1% critical	5% critical	10% critical	p-value	Conclusion
DDEP	-5.4913	-3.4594	-2.8742	-2.5736	0.0000	Stationary
DDOB	-4.6712	-3.4596	-2.8743	-2.5737	0.0001	Stationary
DCPI	-10.3839	-3.4592	-2.8741	-2.5736	0.0000	Stationary

Source: Authors' own calculations based on NBR and INS monthly data, January 2007–December 2025

For DDEP, the ADF test uses one lag selected automatically by the Schwarz criterion with a maximum lag length of 14. The test statistic of -5.4913 is more negative than all reported critical values, and the associated probability is effectively zero. The Durbin–Watson statistic of 2.0369 also indicates no material residual autocorrelation in the auxiliary regression.

For DDOB, the ADF test uses three lags. The statistic of -4.6712 and p-value of 0.0001 reject the unit-root null. The auxiliary equation contains a negative and statistically significant lagged term, while the Durbin–Watson statistic is 2.0390.

For DCPI, the ADF statistic is -10.3839 with no additional lag beyond the tested lagged level term. The p-value is 0.0000 and the Durbin–Watson statistic is 2.0999. The evidence for stationarity after differencing is therefore particularly strong.

Taken together, the results indicate that DEP, DOB and CPI are integrated of order one, $I(1)$, according to the tests reported in the source study. The empirical analysis therefore proceeds with first differences.

7. VAR SPECIFICATION AND ESTIMATION

The lag-selection exercise was conducted with up to eight lags. AIC, FPE and LR selected lag six, SC selected lag two, and HQ selected lag three. A two-lag specification, however, displayed significant residual serial correlation at the first three lags. A four-lag model eliminated this problem, with LM-test probabilities above 0.05. The final VAR therefore contains four lags.

The estimated system shows substantial differences in explanatory power across equations.

Table 3. Explanatory Power of the Estimated VAR(4) Model

Dependent variable	R ²	Interpretation
DDEP	0.372	Moderate explanatory power
DDOB	0.878	Very high explanatory power
DCPI	0.212	Low explanatory power

Source: Authors' own VAR(4) estimations based on NBR and INS monthly data, January 2007–December 2025

The information criteria reported for the final model are AIC = 30.99 and SC = 31.58. The relatively high R² in the DDOB equation indicates that the dynamics of changes in deposit interest rates are largely captured by their own lags and the other lagged variables in the system. By contrast, deposit and inflation changes appear to depend more strongly on omitted determinants.

DDEP exhibits statistically significant positive persistence. DDEP(−1) has a coefficient of approximately 0.326 with a t-statistic of 4.62, while DDEP(−2) has a coefficient of approximately 0.206 with a t-statistic of 2.81. Individual DDOB and DCPI coefficients are not statistically significant in this equation.

DDOB is strongly influenced by its own history. DDOB(−1) is positive and highly significant (coefficient ≈ 1.170 ; $t = 17.36$), DDOB(−3) is negative and significant (≈ -0.602 ; $t = -6.26$), and DDOB(−4) is positive and significant (≈ 0.257 ; $t = 3.76$). DDEP(−3) is also negative and significant, with a t-statistic of approximately −2.13.

DCPI is primarily driven by its own lagged values. DCPI(−1) is positive and significant (≈ 0.245 ; $t = 3.55$), and DCPI(−3) is also positive and significant (≈ 0.143 ; $t = 2.05$). Deposit and interest-rate changes are not individually significant in this equation.

8. MODEL DIAGNOSTICS

The LM tests provide no statistically significant evidence of residual serial correlation at lags one through four in the selected specification. Individual probabilities are reported between approximately 0.09 and 0.39, while cumulative probabilities are between approximately 0.07 and 0.33. This diagnostic result is central to the choice of the four-lag VAR.

The residuals do not satisfy multivariate normality. Joint probabilities for skewness, kurtosis and the Jarque–Bera statistic are reported as 0.0000. The source study associates this outcome with the long sample period and the presence of major economic shocks, including the global financial crisis, the pandemic and the sharp inflationary and monetary-policy adjustments of the early 2020s.

The DDEP residuals display especially high kurtosis, reported at 71.6. The material also notes an abrupt fall in deposits in June 2021 that may be associated with a statistical reclassification. Such observations can materially affect higher moments of residual distributions.

The joint VAR residual heteroskedasticity test rejects homoskedasticity ($\chi^2 = 273.61$; $df = 144$; $p = 0.0000$). The component analysis reported in the study indicates that heteroskedasticity is concentrated mainly in the DDOB equation, while the DDEP and DCPI equations do not show the same evidence.

This pattern is economically plausible because interest-rate volatility differed markedly across the sample. The study highlights relatively stable conditions during 2015–2021 and substantially greater volatility around 2008–2009 and 2022–2023.

Non-normality and heteroskedasticity do not automatically invalidate the dynamic specification, but they do require caution in statistical inference. The absence of residual serial correlation and the stationarity of the transformed variables support the use of the model for descriptive dynamic analysis. Nevertheless, robustness checks using heteroskedasticity-robust inference, alternative lag structures, structural-break controls or sub-sample estimation would strengthen future work.

9. IMPULSE-RESPONSE FUNCTIONS

The impulse-response functions trace the reaction of each variable to a one-standard-deviation innovation over a ten-period horizon. The patterns reported in the source analysis are consistent with a system in which most shocks gradually dissipate.

Table 4. Impulse–Response Patterns in the Estimated VAR(4) Model

Shock → Response	Reported dynamic pattern
DDEP → DDEP	Large initial positive response; declines toward zero by period 10
DDOB → DDEP	Positive response; peaks around period 3; then gradually declines
DCPI → DDEP	Small, unstable response around zero
DDEP → DDOB	Small negative response, approximately -0.01 to -0.03
DDOB → DDOB	Positive persistent response; peak near period 3; turns negative near periods 9–10
DCPI → DDOB	Initial negative response; gradual recovery
DDEP → DCPI	Small positive oscillations without a clear persistent pattern
DDOB → DCPI	Initial negative response; recovery toward positive values
DCPI → DCPI	Strong initial response; rapid decline and subsequent stabilisation

Source: Authors' own impulse–response analysis based on the estimated VAR(4) model using NBR and INS monthly data, January 2007–December 2025

Of particular relevance to the study's central question, a positive shock to the deposit interest rate is followed by an increase in household deposits. The response becomes positive early in the horizon, reaches its maximum around the third period and then diminishes. This pattern is compatible with the view that higher deposit remuneration increases the short-run attractiveness of bank saving.

The deposit response to an inflation shock is considerably smaller and less stable. This suggests that, within the estimated system, consumer-price innovations do not generate a clear persistent deposit response once deposit and interest-rate dynamics are accounted for.

The response of interest rates to their own shocks is persistent and oscillatory, consistent with the strong autoregressive structure identified in the DDOB equation. CPI also reacts strongly to its own innovation before the effect declines.

The IRF evidence should be interpreted as dynamic responses conditional on the VAR identification and not as definitive structural causal effects. Nevertheless, it provides a useful complement to the joint significance tests and supports the short-run relevance of interest-rate innovations for deposits.

10. GRANGER CAUSALITY RESULTS

The VAR Granger Causality/Block Exogeneity Wald tests provide the clearest evidence regarding directional predictive relationships among the variables.

Table 5. VAR Granger Causality/Block Exogeneity Wald Test Results

Dependent variable	Excluded variable	Chi-square / p-value	Decision at 5%
DDEP	DDOB	$\chi^2 = 15.0125$; $p = 0.0047$	Reject H_0
DDEP	DCPI	$p = 0.9834$	Do not reject H_0
DDOB	DDEP	$p = 0.1139$	Do not reject H_0
DDOB	DCPI	$p = 0.7244$	Do not reject H_0
DCPI	DDEP	$p = 0.3339$	Do not reject H_0
DCPI	DDOB	$p = 0.1043$	Do not reject H_0

Source: Authors' own Granger causality/Block Exogeneity Wald tests based on the estimated VAR(4) model using NBR and INS monthly data, January 2007–December 2025.

When DDEP is the dependent variable, the four lags of DDOB are jointly significant. The null hypothesis that interest-rate changes do not Granger-cause deposit changes is therefore rejected. The joint test for all explanatory blocks in the DDEP equation is also significant ($p = 0.0309$).

When DDOB is the dependent variable, DDEP is not jointly significant at the 5% level ($p = 0.1139$). The evidence therefore does not support reverse Granger causality from deposits to deposit interest rates. DCPI is likewise insignificant in the DDOB equation.

For DCPI, neither DDEP nor DDOB is significant at the 5% level. The DDOB-to-DCPI probability of 0.1043 is relatively close to a 10% threshold but remains above it. The joint probability for all explanatory blocks is 0.1046.

The principal empirical conclusion is thus a unidirectional Granger-causal relationship from deposit interest rates to household deposits. This finding supports the first substantive hypothesis of the study while failing to support the second.

11. DISCUSSION

The results show that the deposit–interest-rate relationship is more nuanced than a comparison of individual VAR coefficients would suggest. In the DDEP equation, no single DDOB lag is individually significant, yet the four lags are jointly significant in the Wald test. This is not contradictory: distributed effects can be statistically meaningful as a block even when individual coefficients are imprecisely estimated.

The unidirectional Granger result is consistent with the theoretical proposition that deposit remuneration affects saving incentives. It also aligns with the impulse-response evidence, which indicates that a positive interest-rate innovation is followed by higher deposits over the short run. However, the moderate R^2 of the deposit equation indicates that interest rates are only one component of household deposit dynamics.

The source material identifies several plausible omitted determinants, including household income, unemployment, exchange rates, fiscal policy, monetary-policy conditions and confidence in the banking system. The Romanian experience after the global financial crisis also illustrates why deposit growth need not move mechanically with nominal interest rates. Deposits continued to expand during periods of low rates, implying that precautionary motives, income developments and portfolio preferences may have offset weaker remuneration.

The CPI results are also informative. Inflation is strongly autoregressive, but CPI changes do not Granger-cause deposits or deposit interest rates in the estimated model. This does not imply that inflation is economically irrelevant. Rather, the particular monthly specification does not identify incremental predictive power from CPI after controlling for the lag structure of the system.

The strong persistence in DDOB may reflect gradual repricing, competitive behaviour among banks and the transmission of monetary conditions to retail deposit products. The oscillatory lag pattern suggests that adjustments do not occur in a single step.

Comparison with prior Romanian evidence

The findings are broadly compatible with Dănuțiu, Iuga and Socol (2014), who also used a VAR framework for Romanian household deposits, while the longer sample employed here captures additional structural episodes. The evidence also complements Anghel and Străchinaru (2019) by highlighting the persistence of deposit behaviour and the importance of factors beyond the contemporaneous interest rate.

12. IMPLICATIONS FOR BANKS AND POLICYMAKERS

For commercial banks, the results suggest that deposit pricing can influence household funding volumes, although the effect is distributed over time and should not be viewed in isolation. Deposit strategies should therefore combine rate decisions with segmentation, maturity design, liquidity management and an assessment of competing household investment opportunities.

The evidence is particularly relevant when banks face changing funding needs. A higher deposit rate may support deposit mobilisation, but the cost of funding also rises. Banks therefore face a trade-off between attracting stable liabilities and preserving interest margins. Because the DDOB equation displays strong persistence, repricing decisions may also have effects that extend beyond the immediate month.

For monetary policymakers, the findings illustrate one channel through which broader interest-rate conditions can be associated with household saving behaviour. The result should not be interpreted as a direct estimate of the policy-rate transmission coefficient because the model uses deposit rates rather than the policy rate and does not impose a structural monetary-policy identification. Even so, the predictive role of deposit rates is consistent with a functioning interest-rate channel at the retail banking level.

The weak direct role of CPI in the VAR suggests that inflationary conditions may influence deposits through more complex pathways than the simple lagged CPI channel. Real interest rates, inflation expectations, disposable income and uncertainty could provide a richer representation of household responses.

Managerial relevance

A practical implication is that banks should not infer deposit sensitivity from a single contemporaneous rate elasticity. The evidence instead points to delayed and cumulative effects. Scenario analysis and deposit beta models could therefore be combined with VAR-based evidence when evaluating funding strategies.

Policy relevance

The results also support continued monitoring of household deposit composition during periods of rapid rate changes. Shifts between sight deposits, short-term deposits and longer-maturity products may contain information that is obscured when aggregate deposit volumes are analysed alone.

13. LIMITATIONS, ROBUSTNESS AND FUTURE RESEARCH

Several limitations should be recognised. First, the model uses only three variables. The moderate explanatory power of the deposit equation and low explanatory power of the CPI equation indicate that important determinants remain outside the system. Household disposable income, unemployment, exchange rates, fiscal transfers, bank competition, confidence indicators and alternative asset returns are natural candidates for extension.

Then the sample spans multiple structural regimes. The global financial crisis, post-crisis regulatory adjustment, the low-rate period, the pandemic and the 2022–2023 inflation episode may have changed behavioural parameters. A constant-parameter VAR averages across these regimes.

The residuals are non-normal and the joint heteroskedasticity test rejects constant variance. Although the absence of serial correlation supports the selected lag specification, conventional inference may be sensitive to these residual properties.

First differencing removes long-run information. The source analysis reports that all variables are $I(1)$, but it does not provide a full cointegration analysis in the sections used to construct this article. A future study should formally test for cointegration and, if appropriate, estimate a vector error-correction model (VECM) to distinguish short-run adjustments from long-run equilibrium relationships.

Granger causality is predictive rather than structural. Establishing a causal policy mechanism would require stronger identification assumptions, potentially through a structural VAR, external instruments or high-frequency monetary-policy surprises.

Recommended robustness extensions

Future research could: estimate sub-sample VARs around major structural breaks; use heteroskedasticity-robust or bootstrap confidence intervals; test alternative lag lengths; replace CPI with inflation rates or expected inflation; include the monetary-policy rate and household income; distinguish new-business deposit rates from outstanding-stock rates; and model deposit categories by maturity.

Research contribution

Despite these limitations, the study contributes by extending the observation window through 2025 and incorporating CPI into the dynamic system. The resulting evidence provides an updated view of the Romanian household deposit market across a period marked by unusually diverse macroeconomic conditions.

14. CONCLUSIONS

This paper examined the dynamic interdependence between household bank deposits, deposit interest rates and consumer prices in Romania using monthly data from January 2007 to December 2025. A three-variable VAR framework was estimated after first-differencing the series, which the ADF tests identified as $I(1)$. Residual serial-correlation diagnostics supported a four-lag specification.

The results reveal strong persistence in both deposit changes and, especially, deposit interest-rate changes. The most important finding is that changes in deposit interest rates Granger-cause changes in household deposits at conventional significance levels, while the reverse direction is not statistically supported. CPI does not display significant Granger-causal relationships with the other variables at the 5% level.

Impulse-response functions reinforce the main result: a positive deposit-rate shock is followed by a short-run increase in household deposits, with the effect peaking after several periods and then declining. Inflation shocks generate smaller and less persistent deposit responses.

The evidence therefore supports the view that deposit pricing matters for household saving behaviour in Romania, but it also shows that interest rates do not fully explain deposit dynamics. The continued growth of deposits during some low-rate periods and the moderate explanatory power of the deposit equation point toward a broader set of determinants, including income, uncertainty, confidence, portfolio alternatives and institutional factors.

For banks, the findings imply that rate-setting can be an effective component of deposit mobilisation strategy, but should be integrated with broader funding and customer-management decisions. For policymakers, the results are consistent with an interest-rate transmission channel operating through retail deposit products, although a structural monetary-policy interpretation requires a richer identification strategy.

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