Deposits and the Interest Rate Dynamics in Turkiye

Turgay GEÇER and Bilal BAGIS*

Abstract

This paper examines the dynamics of local currency deposits in the Turkish financial system. Deposits are vital for banks, supporting lending, stimulating economic activity, and mitigating currency risks. They play a crucial role in promoting economic development. However, negative real interest rates and growing deposit dollarization pose risks to monetary policy and financial stability. This study demonstrates a strong correlation between local currency deposits and key economic indicators such as GDP, dollarization, reserve requirements, loans, net interest margin and inflation, highlighting the importance of a robust financial system for effective economic performance. The paper also explores relationship between inflationary dynamics and deposit growth in Türkiye. We employ basic time series analysis of Granger causality, cointegration and vector error correction tests to understand the deposit dynamics. The findings suggest that there is a positive and statistically significant nexus between the deposits, loans, economic growth, and the interest rate. Meanwhile, inflation has been the primary driver of deposit growth rather than a genuine rise in savings. This very fact highlights the need for policies that stabilize the domestic currency, encourage savings, and strengthen the financial system. Addressing these issues is essential for the Turkish banking sector's long-term stability and growth, as well as the sustained economic development.

Keywords: Deposits, Loans, Interest Rates

JEL Codes: E42, E51, E52

Introduction

In the dynamic landscape of emerging markets, local currency deposits are vital for encouraging economic development and stability. This is particularly evident in Türkiye, where loan regulations lead banks to extend credit mainly in local currency, supporting business growth and overall economic progress. Robust local currency deposits also buffer against the exchange rate fluctuations, mitigating currency risk for banks and borrowers. This paper examines the factors influencing these local currency deposits in Turkish banking sector, including deposit distribution and the trend of dollarization, where a significant portion of savings is shifting to foreign currencies. Addressing these challenges is critical for more effective monetary policy and the overall financial stability.

The analysis investigates the interconnectedness between local currency deposits and key economic indicators, including GDP, inflation, and the Loan to Deposit Ratio (LDR), a pivotal measure of the Turkish banking sector's financial health. The study also sheds light on two factors influencing bank liquidity and profitability: Reserve Requirements and Net Interest Margin (NIM). Furthermore, it explores how these factors have shaped banks' lending capacity, particularly in the context of high inflation and fluctuating interest rates. By adopting a comprehensive approach, this paper offers valuable insights into how banks navigate economic challenges while continuing to support ongoing economic growth.

The paper examines the impact of negative or very low real interest rates, coupled with high inflation, on deposit growth in Türkiye from 2003 to 2024, an era of relative political stability. The findings suggest that this environment has indeed contributed to a real decline in LCDs (local currency deposits), subsequently affecting the availability of local currency loans. Negative to low real interest rates led to lower savings and deposit accumulation in the Turkish banking system, as well as exacerbating the inflation dynamics. The paper highlights the challenges and opportunities within Turkish banking sector

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by focusing on these interconnected factors. It aims to provide policymakers, banks, and researchers with valuable insights to navigate the complexities of this evolving economic landscape.

1. Literature Review

Banks serve as dominant financial game makers in an economy, collecting deposits and lending. A larger deposit base, particularly in the local currency, strengthens a bank's lending capacity, enabling it to provide more loans to individuals and businesses. This lending activity drives economic growth by facilitating major purchases and supporting business investments. The complex interplay between deposit collection, reserve requirements, and lending is indispensable to the banking system's ability to promote economic development and ensure stability (Bağış, 2023; Ehlers & Villar, 2015; Woodford, 2003; Mishkin, 2007; Mishkin, 2009).

Deposits are a cornerstone of a stable and efficient financial system, providing required funding for banks to extend loans. The 'collateralizable asset model' by Kiyotaki and Moore (1997) well outlines this dynamic, highlighting deposits (for instance) as a reliable source of funding and collateral for the banks. Steady deposit growth strengthens a bank's capital base and expands its lending capacity, stimulating economic activity. This process benefits banks through higher interest income while promoting overall economic growth by increasing consumer spending and business investments.

Meanwhile, although deposits are that crucial for bank lending, they can pose significant challenges as well, as noted by Bağış (2017). A key concern is the maturity mismatch, where banks often use shorter-term finances to fund longer-term financing needs. Banks do indeed borrow short-term but lend out over the longer term (Bağış, 2023; Bernanke & Blinder, 1988; Paul, 2023). This practice of maturity transformation can expose a bank's stability, particularly when deposit levels fluctuate due to shifts in market interest rates and savings behavior.

Interest rates are particularly pivotal in driving deposit growth, as savings and deposit rates directly influence how individuals manage their deposits. Policymakers must comprehend the complex relationship between interest rates, depositor behavior, and other influencing factors (Kasri & Kassim, 2009; Finger & Hesse, 2009). As an instance, impact of interest rate policies on domestic deposit levels, particularly term deposits, has been extensively explored in academic literature (Özen et al., 2018). For example, Yakubu and Abokor (2020) emphasize that bank-specific factors and broader macroeconomic conditions, including money supply and inflation, significantly affect deposit growth in Türkiye.

Given this pivotal role of interest rates, though, the debate between strict policy rules and a more flexible, discretionary approach to monetary policy, first proposed by Kydland and Prescott (1977), remains relevant even today. In today's complex financial environment, effectiveness of economic policy and its transmission across the economy is most crucial. While the traditional interest rate channel often takes the center stage, other factors such as credit and reserve channels also play a major role in influencing market behavior (Bernanke & Blinder, 1988; Bernanke & Gertler, 1989; Boivin et al., 2010).

Meanwhile, another key aspect of interest rate analysis is distinguishing between nominal and real interest rates (Woodford, 2003; Mishkin, 2007; Walsh, 2010). While nominal rates are often the initial reference point, real interest rates—adjusted for inflation—provide a more accurate measure for informed economic decision-making. Therefore, policymakers should probably prioritize real interest rates over nominal rates to gain a more accurate reflection of underlying financial conditions.

Our analysis, therefore, focuses on the effects of real interest rates on deposit behavior. Accordingly, when real interest rates are very low or negative, several outcomes are likely:

- Decreased incentive to save: Individuals may be less motivated to save in local currency when real interest rates are low or negative.
- Slower deposit growth: Reduced interest income can contribute to slower deposit growth, as well.

Real interest rates, adjusted for inflation, are therefore imperative to this analysis as they accurately reflect underlying economic conditions. The long-term real interest rate, often the neutral or natural real rate, indicates the equilibrium point where savings and investments align (Woodford, 2003; Wicksell,

1998). In emerging economies, this neutral rate is typically higher than their advanced counterparts due to faster growth and greater inflationary pressures. However, in Türkiye, very low or even negative real interest rates have recently become increasingly prevalent (see Graph 2.7).

Another factor to contemplate is the LDR, which itself is primarily determined by the LC deposits. In response to the 2008-2009 Global Financial Crisis, Türkiye introduced the ROM (Reserve Option Mechanism) as a new unconventional policy tool (Bağış, 2017). The ROM enables Turkish banks to use a portion of their reserves as gold or foreign exchange reserves, thereby enhancing macro-financial stability (Alper et al., 2013). While traditional reserve requirements can be restrictive, including gold and reserve currencies in the ROM helps increase local currency deposits spared for new loans, improving overall liquidity in the financial system (CBRT, 2024).

Local currency (LC) liquidity, in particular, is momentous as it is the primary source for lending. On the other hand, foreign exchange reserves address external financing needs and support financial stability through mechanisms like the ROM. These reserves are particularly important for countries with high current account deficits or significant external financing requirements. In this context, local currency deposits—especially term deposits—are vital for funding and extending credit within the domestic financial system (CBRT, 2024) and serve as key collateral for banks.

Maintaining a positive NIM is also critical for banks' profitability and financial stability. Just as limited savings or negative real interest rates can slow down deposit growth, a low or negative NIM can also restrict loan availability. However, research by Diko (2019) and Ugur and Erkus (2010) has identified several domestic factors contributing to the reduced NIM trend in the Turkish banking sector.

On the other hand, while motivations for saving (as a key instrument of deposit accumulation) have been extensively studied (e.g., Modigliani & Brumberg, 1954; Friedman, 1957; Deaton, 1989; Carroll et al., 1992; Ozcan et al., 2003), financial inclusion is another key factor in understanding depositor behavior. Enhanced financial inclusion and a growing share of bank deposits are strategic instruments for economic growth. A well-developed banking sector, indicated by a high deposits-to-GDP ratio, promotes financial inclusion by providing secure savings options and improved access to credit. This financial intermediation is also a prerequisite for efficient capital allocation and overall economic development. Meanwhile, adequacy of auditing is another issue to contemplate (Kartal et al., 2018).

Banks must employ strategic market analysis, dynamic pricing, risk management, and product diversification to maintain adequate deposit levels, meet reserve requirements, and in the meantime support effective lending. These strategies enable banks to overcome market complexities, sustain profitability, and fulfill their economic and financial role. Furthermore, managing maturity transformation—a key challenge for banks—requires careful interest rate adjustments. However, a harsh reality, as per the rational expectations theory, even discretionary policy decisions and interest rate changes do not always lead to optimal outcomes (Kydland & Prescott, 1977; Lucas, 1987).

2. Local Currency Deposits

Local currency (LC) deposits are high priority for the growth and stability of commercial banks in Türkiye. By increasing their deposit base, banks can expand their lending capacity in local currency, which is a key instrument to support domestic economic activity and business growth. Effective management of local currency deposits ensures the bank's long-term financial health as well. A strong base of local currency deposits also reduces the currency risk for borrowers, making loan conditions more predictable. This is important for maintaining borrowers' financial health and the economy's overall stability. Additionally, a solid local currency deposit base improves a bank's liquidity, enabling it to meet short-term obligations and invest in future growth.

All these benefits, together, enhance the bank's competitive position and its financial performance. However, when domestic households limit their supply of local currency deposits, banks may face currency mismatches on their balance sheets. Hence, domestic savers are notable in this dynamic, especially when bank loans are denominated in foreign currency. For instance, Ferrante and Gornemann (2022) argue that high demand for dollar deposits can restrict credit availability in local currency.

In our analysis of key drivers of deposit holdings and factors influencing local currency deposits in Turkish banking sector, we employ the following data set (Table 2.1). The paper focuses on monthly and quarterly data from 2003 to 2024, an era of relative political stability in Türkiye. The data employed in this model is obtained from the TurkStat database (Turkish Statistical Institute), the BRSA (Banking Regulation and Supervision Agency) and the EDDS (Electronic Data Delivery System) of the CBRT (Central Bank of the Republic of Türkiye).

Table 2.1 Data Description

Data	Source	Data code
Deposits	BRSA	TTD
Local Currency Deposits	BRSA	LCD
Foreign Currency Deposits	BRSA	FCD
Gross Domestic Product	Turkish Statistical Institute	GDP
Inflation	Turkish Statistical Institute	CPI
Loans to Deposit Ratio	BRSA	LDR
Reserve Requirement	BRSA	RR
Deposit Interest Rate	CBRT	DIR
Net Interest Margin	CBRT	NIM

Meanhwhile, we use seasonally adjusted data, since it comprises monthly data.

Table 2.2 Distribution of Total Deposits in the Turkish Banking Sector

	Local Currency Deposits	Foreign Currency Deposits	Sub Total
Demand Deposits	10,0%	23,5%	33,6%
Time Deposits	**42,3%**	24,1%	66,4%
Sub Total	52,3%	47,7%	100,0%

Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

The table provides a broader picture of deposit distribution in the Turkish financial sector, as of July 2024. It breaks down the percentage of deposits held in local versus foreign currency and the share of demand deposits compared to term deposits. This analysis offers insights into the balance between short-term liquidity needs (demand deposits) and long-term savings (term deposits) while revealing the prevailing preference for foreign currency holdings versus local currency deposits.

In the Turkish banking system, a significant portion of deposits is held in reserve currencies or Foreign Exchange-Protected Accounts (KKM), which can significantly affect the transmission of monetary policy (CBRT, 2024). The KKM scheme protects depositors from exchange rate fluctuations by safeguarding the value of their deposits against Turkish lira depreciation relative to major foreign currencies. This mechanism encourages Turkish citizens and businesses to keep their savings in local currency, reducing demand for foreign currencies and easing downward pressure on the Turkish lira.

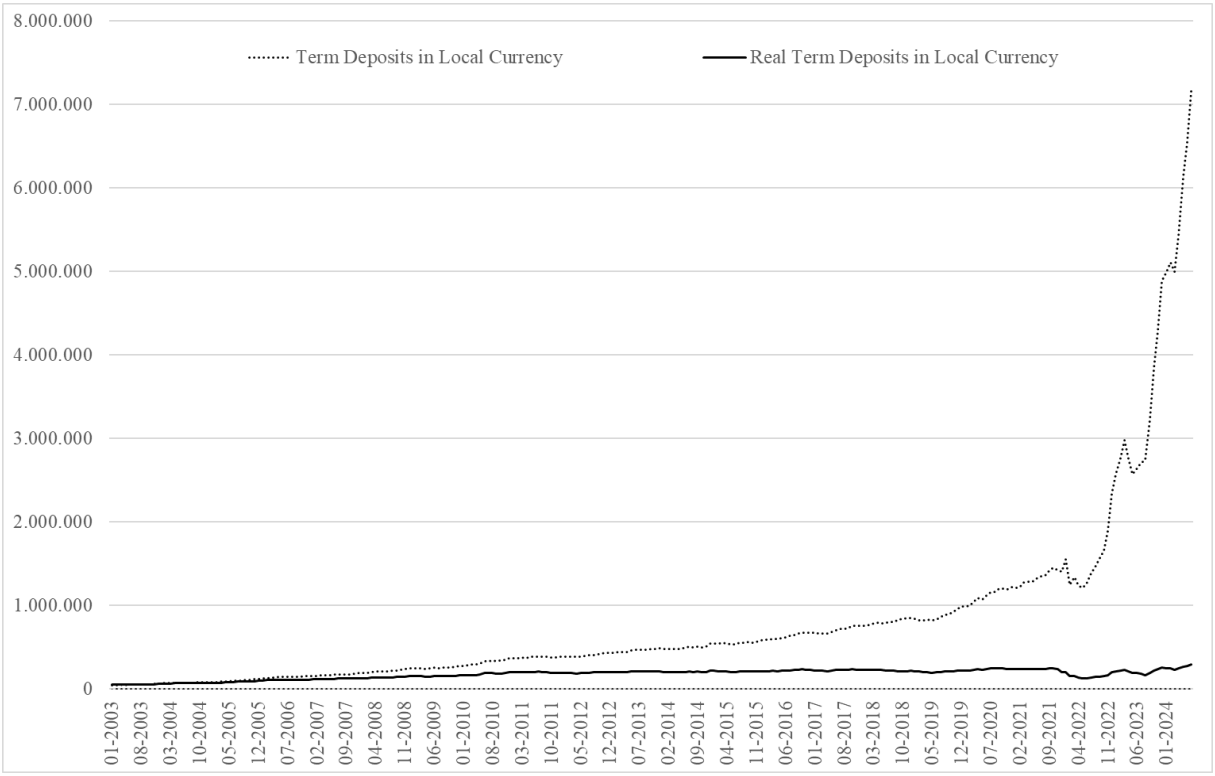
Meanwhile, while KKM accounts are technically classified as local currency deposits, they are excluded from the analysis in Table 2.2 due to the currency risks they involve. Therefore, in this study, they are treated as foreign currency deposits. In the meantime, to address concerns related to KKM accounts, the CBRT (Central Bank of the Republic of Türkiye) has recently removed the requirement to maintain securities and is gradually phasing out KKM as part of its post-2023 broader macroprudential policy reforms (CBRT, 2024).

2.1. Volume of Local Currency Deposits

The volume of deposits plays a pivotal role in the health and stability of national economies. Deposits are a major indicator of financial health, reflecting individuals' and businesses' savings and liquidity preferences. They provide the source banks rely on to lend, fuel economic activity, and support a stable financial system. A larger deposit base is, thus, essential for the stability and growth of the Turkish economy. It enables banks to lend more, supports businesses, and creates jobs. Additionally, it contributes to lower interest rates, stimulating investments and promoting economic development. By understanding the critical role of deposits, policymakers, and banks can work to promote its growth and ensure continued stability and prosperity of the Turkish economy.

A robust deposit base (on the other hand) ensures banks maintain sufficient liquidity to meet withdrawal demands and fulfill other financial commitments. This liquidity preserves stability of the financial system, which, in turn, enhances confidence among depositors and investors, contributing to broader economic stability. By increasing the volume of local currency deposits, banks can reduce their reliance on foreign funding, which is often more volatile and exposed to currency risks. The decreased dependence on external financing allows banks to focus more on domestic investments, supporting the real economy, local industries, and even infrastructure projects—key drivers of economic development.

Graph 2.1. Nominal vs. Real (Inflation-Adjusted) Term Deposits in Local Currency



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

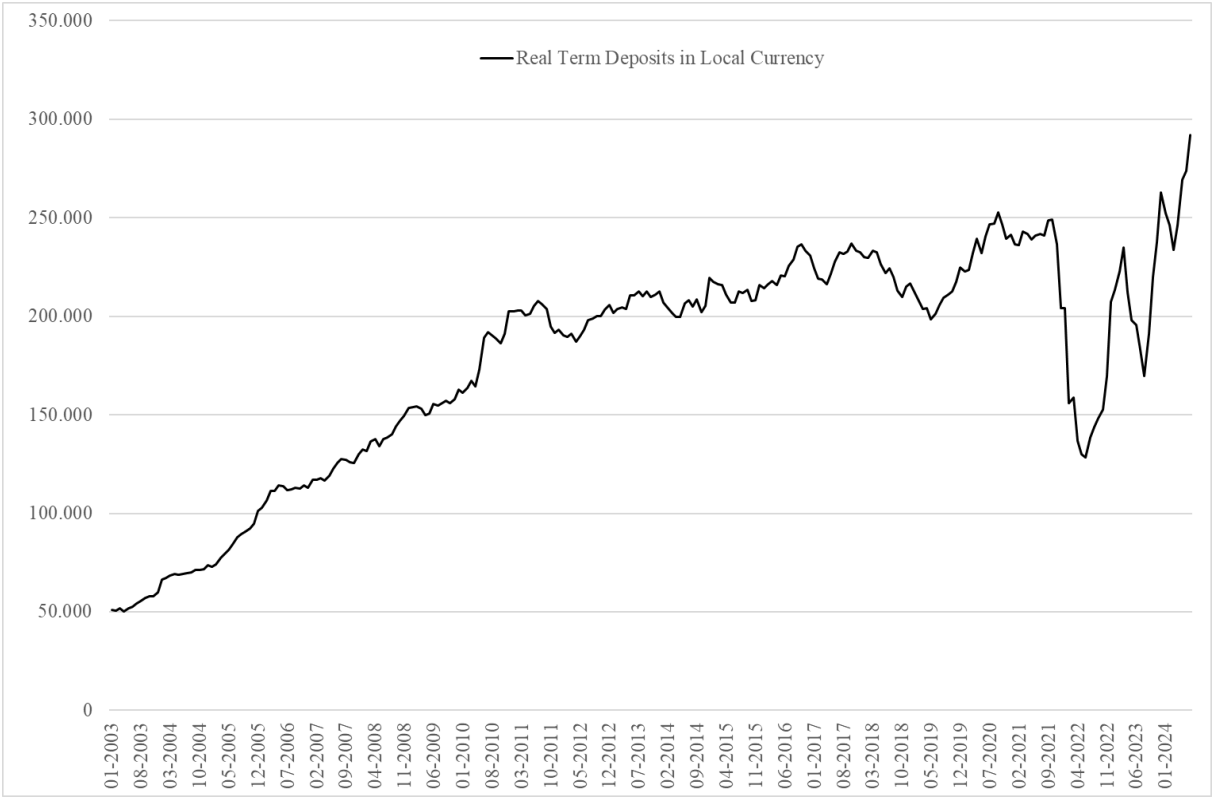
Turkish Statistical Institute, https://data.tuik.gov.tr/Bulten/Index?p=Consumer–Price–Index–July–2024–53616&dil=2

The graph plots the monthly changes in nominal and real-term local currency deposits (adjusted for inflation) from January 2003 to July 2024. It visualizes how nominal deposits have evolved, while real-term deposits provide a clearer understanding of the purchasing power of savings once accounted for inflation. This comparison highlights periods where inflation significantly impacted the value of local currency deposits, offering insights into the effects of economic conditions on savings behavior and the banking sector.

A larger base of local currency deposits reduces the need for banks to engage in foreign exchange transactions to meet lending demands too. Thus, banks contribute to the local currency's stability by minimizing these foreign currency activities, benefiting the banking sector and the broader economy. This stability also helps mitigate inflationary pressures, as highlighted by Kara et al. (2005) and enhances predictability of economic planning.

Graph 2.1 demonstrates a strong positive correlation (0.996) between the CPI (Consumer Price Index) and local currency term deposits (LCD), indicating that inflation significantly influences the nominal value of these deposits. As inflation increases, the nominal value of term deposits rises accordingly. However, this high correlation suggests that deposit growth is primarily driven by inflation rather than a genuine increase in savings or deposit activity, raising concerns about the deposit growth's sustainability and overall quality.

Graph 2.2. Real (Adjusted for Inflation) Term Deposits in Local Currency



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

Turkish Statistical Institute, https://data.tuik.gov.tr/Bulten/Index?p=Consumer–Price–Index–July–2024–53616&dil=2

The graph plots the monthly changes in real-term local currency deposits (adjusted for inflation) from January 2003 to July 2024. By accounting for inflation, the graph provides a clearer view of the actual increase in real-term deposits over time. This helps assess the long-run sustainability of deposit dynamics concerning inflationary pressures in the Turkish economy.

If inflation is the primary driver of deposit growth, more than a simple increase in deposits may be required to support long-term economic development and investment. To ensure that deposit growth translates into real financial benefits, it is of great importance to implement policies that control inflation and promote genuine economic growth. This very fact highlights the importance of maintaining positive real interest rates for savings and deposits within the banking sector. Given this strong correlation between inflation and local currency term deposits, our analysis focuses on how inflation and the resulting real interest rates impact existing deposits. The effect of growth from new savings is excluded, as such growth remains limited in Türkiye.

2.2. Deposit Dollarization

Dollarization refers to the tendency of individuals and businesses in an economy to keep their assets in reserve currencies rather than the local currency, often to protect their wealth from devaluation. Dollarization is common in countries experiencing economic instability, high inflation, or weak confidence in domestic currency. This phenomenon is common in emerging market economies, leading to partial financial dollarization, where foreign currencies are frequently used to store value. As a result, banks also hold a larger share of deposits in foreign currencies (see e.g. the resulting ROM arrangement). In Türkiye, too, deposit dollarization is marked by a growing share of foreign currency in savings, reflecting a preference for assets denominated in stable currencies like the US dollar or Euro.

This practice though can influence banks' lending practices and impact the overall financial stability. High levels of deposit dollarization can also significantly limit central banks' ability to effectively implement monetary policy, as foreign currency deposits fall outside the direct control of national monetary authorities (except for under the ROM mechanism). Additionally, deposit dollarization may increase the risk of currency mismatches for banks. Banks holding foreign currency deposits but lending in local currency might face potential losses if the local currency depreciates.

Furthermore, how banks align their assets and liabilities in the same currency affects credit dollarization in transitioning economies too. High deposit dollarization often results in high credit dollarization (Luca & Petrova, 2008). During periods of financial stability, individuals typically prefer to hold local currency to avoid exchange fees and benefit from low inflation and confidence in the domestic economy. However, in times of instability, people tend to shift to reserve currencies, to safeguard their purchasing power and safeguard their wealth against economic uncertainty.

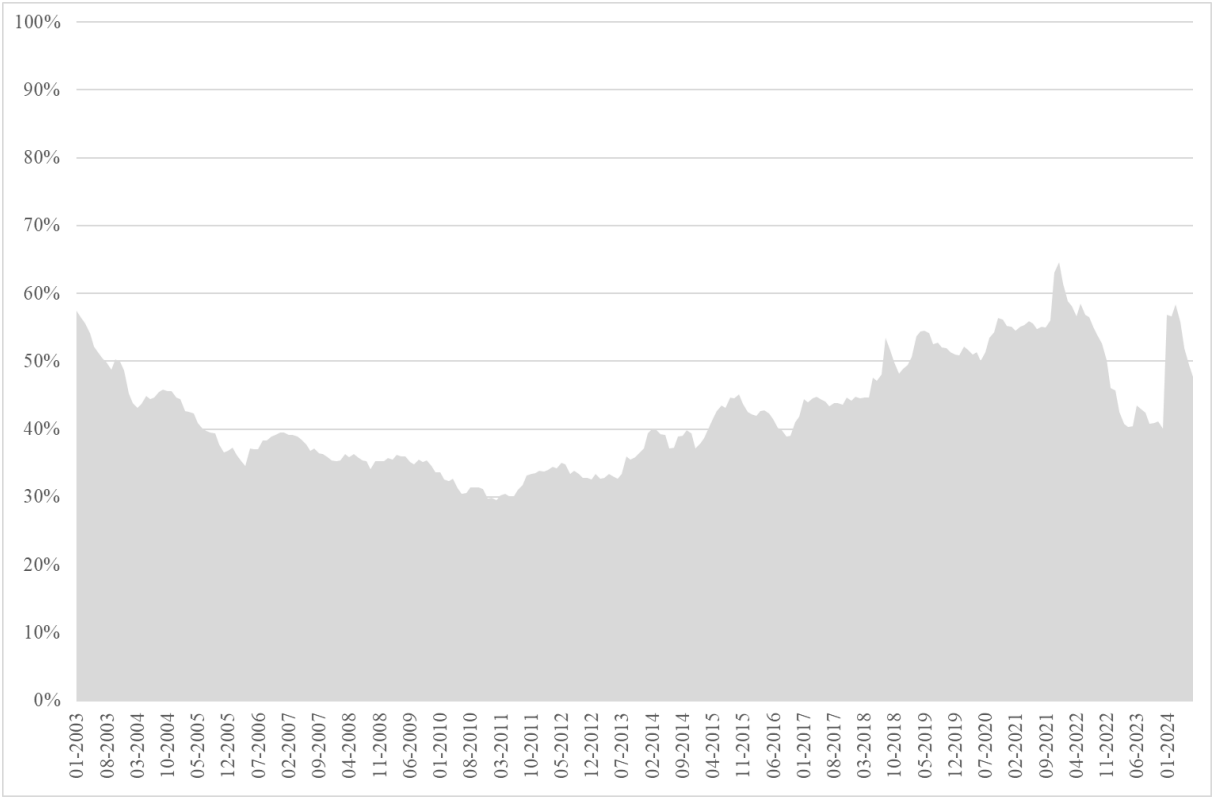
For banks with significant domestic and external liabilities in foreign currencies, a major decision (at this point) is whether to absorb the currency risk or transfer it to the borrowers by lending in reserve currencies (Luca & Petrova, 2008). Accordingly, the degree of dollarization in deposits often mirrors the level of dollarization in loans, as banks seek to manage currency risk by aligning the currency unit of their assets (loans) with that of their liabilities (deposits).

Graph 2.3 demonstrates the increasing trend in reserve currency deposits as a share of total deposits over the past two decades. This trend has been marked by noticeable fluctuations in the past five years due mainly to unconventional macroeconomic policies. The rise in dollarization signals a decline in depositor confidence, primarily driven by high inflation and a growing preference for foreign currencies, which further contributes to economic uncertainty (Garcia-Escribano, 2010). Additionally, increases in either shorter or longer-term local currency rates are also associated with higher levels of dollarization in the economy (Bărbuță-Mișu et al., 2022).

Deposit dollarization heightens the banking sector's vulnerability to exchange rate fluctuations too. After all, as value of the local currency changes, foreign currency deposits and loans are directly affected, creating uncertainty and potential instability within the financial system. Heavy reliance on foreign currency can also undermine confidence in the local currency, making it rather difficult to achieve longer-term financial stability and sustainable growth. While monetary or fiscal policies that adjust interest rate spreads to favor local currency deposits might reduce dollarization in the short term, they often prove less effective in the long run. After all, over time, no-arbitrage conditions tend to equalize real interest rate differences between deposits in domestic and reserve currencies. Therefore, a more

sustainable policy approach would focus on reducing inflation volatility and maintaining a floating exchange rate (Urošević & Rajković, 2017).

Graph 2.3. Dollarization in Deposits



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

The graph plots share of foreign currency deposits. The data are presented monthly and cover January 2003 to July 2024.

Graph 2.3 also demonstrates a strong positive correlation (0.954) between foreign and total currency deposits, indicating that increases often coincide with increases in the other. Exchange rate fluctuations primarily drive this relationship. When the local currency depreciates, people tend to shift their savings into foreign currency deposits to protect their wealth, increasing share of foreign currency deposits relative to those in local currency. Conversely, when the local currency appreciates, saving in local currency becomes more attractive, reducing the demand for reserve currency deposits. This pattern primarily reflects shifts in the currency denomination of deposits rather than real growth in total deposits. As a result, the focus should remain on managing existing deposits within the banking system since new savings, particularly in Türkiye, are relatively limited. Interest rate spreads also play a critical role in deposit decisions, as depositors often compare the real interest rates of local versus foreign currency deposits.

Accordingly, when real rates on local currency deposits are higher, depositors are more likely to favor LCDs. Yet, if foreign currency deposit rates become more attractive, savings may shift toward foreign currency deposits. Economic stability also plays a key role in deposit preferences. In periods of uncertainty or high inflation, individuals tend to turn to foreign currency deposits. In contrast to periods of economic instability, stable economic conditions generally lead to a preference for local currency deposits. Meanwhile, while real interest rates are important, other factors such as a country's economic,

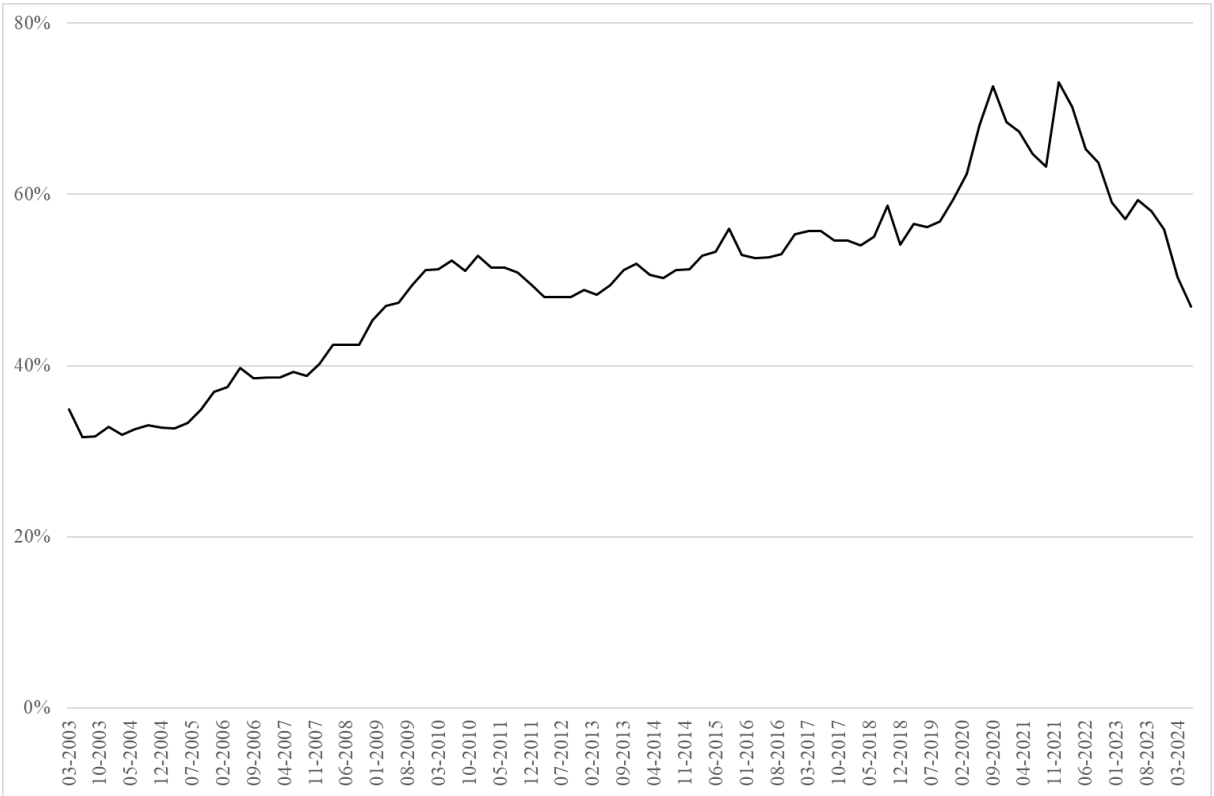
political, and financial conditions, also influence deposit behavior. Public policies, including foreign currency holdings or capital control regulations, may also impact this dynamic. Restrictions on foreign currency may decrease foreign currency deposits and encourage local currency deposits, while more relaxed policies could lead to a shift towards foreign currency deposits.

Market expectations also play another key role. Accordingly, if people anticipate weakening of the local currency, they may increase their foreign currency deposits. Conversely, a positive economic outlook might enhance confidence in local currency deposits. External economic factors, such as global interest rates, foreign investor behavior, and international trade dynamics, also affect the balance between foreign and local currency deposits. Global financial conditions may also influence capital flows, impacting the relative proportions of each deposit type.

2.3. GDP and Deposits

The deposits-to-GDP ratio is another pivotal indicator of financial sector's health, economic stability, and the banking system's effectiveness in supporting economic growth. By highlighting the nexus linking financial sector and the overall economy, this ratio provides valuable insights for economists, policymakers, and investors. It also serves as a benchmark for evaluating economic development across different regions and over time. Accordingly, a higher Deposits-to-GDP ratio signifies a well-developed financial sector and a stronger integration of banking services into the economy. It indicates that a large portion of the economy's savings is channeled through the banking system, which can enhance stability and drive growth. Banks use these deposits to provide loans to businesses and consumers, stimulating investment, increasing consumption, and promoting economic development.

Graph 2.4. Deposits–to–GDP Ratio



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

Turkish Statistical Institute, https://data.tuik.gov.tr/Bulten/Index?p=Donemsel-Gayrisafi-Yurt-Ici-Hasila-I.-Ceyrek:-Ocak-Mart,-2024-53753

The graph plots the monthly changes in the deposits-to-GDP ratio in Türkiye from January 2003 to July 2024.

The correlation between the Deposits-to-GDP ratio and GDP growth is approximately 0.35, yet it has recently exhibited a downward trend. This decline suggests that GDP growth has been outpacing the growth of total deposits, indicating that deposit expansion has slowed compared to the rising rates of GDP growth. A higher Deposits-to-GDP ratio signifies greater access to banking services, enhancing economic inclusivity and financial stability. Many individuals and businesses deposit their savings with banks, allowing these funds to be channeled into productive investments, which is essential for sustained economic growth.

A strong deposit base enables banks to provide more credit to businesses and consumers, stimulating key economic activities like investment, consumption, and production, which, in turn, drive GDP growth. A healthy Deposits-to-GDP ratio indicates that banks have a stable, low-cost funding source, reducing their dependence on more volatile capital sources and improving their liquidity positions. This solid deposit base maintains financial stability, especially during economic downturns. Economies with higher Deposits-to-GDP ratios are generally more resilient to financial crises, as banks are better equipped to handle liquidity pressures without requiring emergency measures.

A higher Deposits-to-GDP ratio also reflects public trust in domestic banking system. When individuals and businesses prefer placing their savings into banks, it signals broader economic stability and even trust in economic policies. Thus, tis ratio offers insights into depositor and investor behavior; as a high ratio may indicate a preference for bank deposits over other assets, suggesting a cautious or risk-averse economic environment (Markowitz, 1952). While a higher ratio is typically linked to higher savings rates and better economic activity, this relationship has lately weakened, as shown in Graph 2.4.

Furthermore, the Turkish financial system is well-known to be shallower compared to its GDP, limiting the effectiveness of bank loans. With restrictions on foreign exchange-denominated loans in Türkiye, local currency loans have become increasingly important. However, the low share of domestic deposits remains a significant concern.

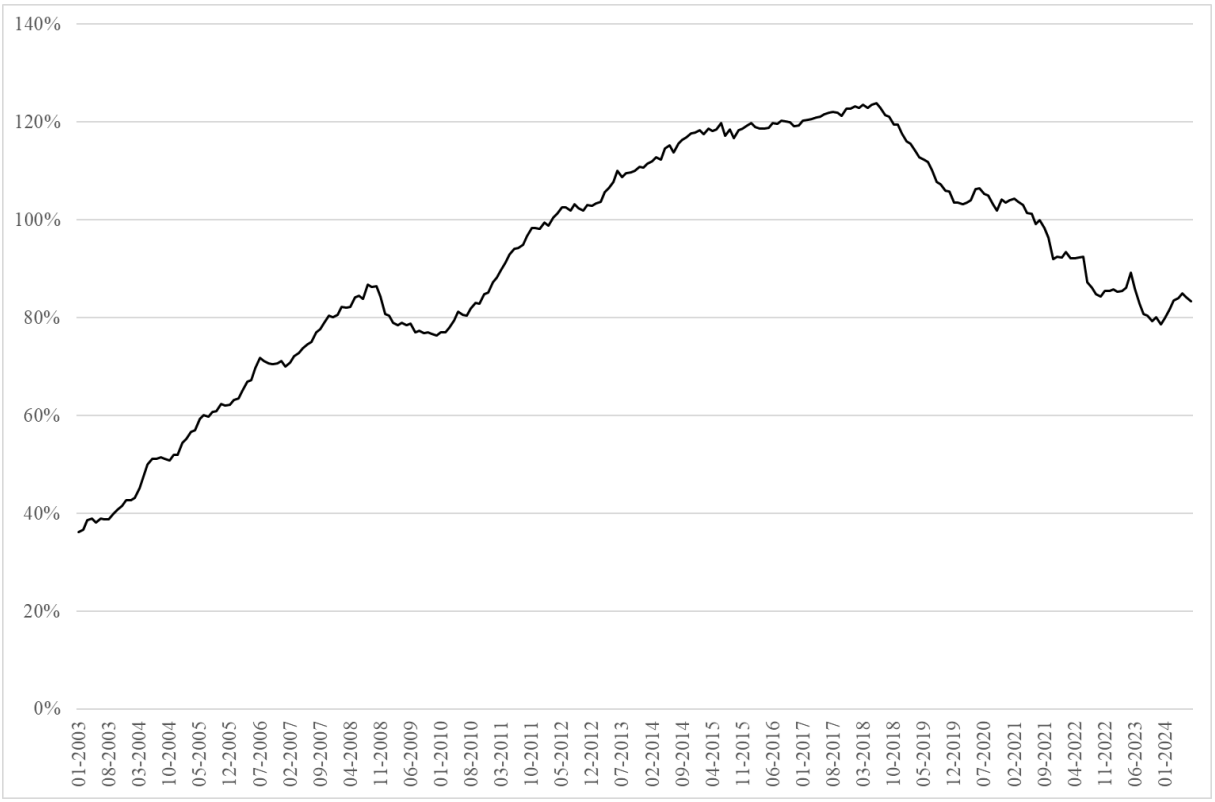
2.4. Loans-To-Deposits

Banks primarily finance loans through the deposit sources. In a competitive banking environment, they manage a portfolio that includes deposits, loans, government bonds, and reserves etc. When a bank lends, it simultaneously creates a deposit, generating intermediation profit (Bianchi & Bigio, 2014). A key metric in this process is the LDR, which measures the proportion of loans relative to deposits. It also sheds light into a bank's lending practices and financial health (Chun & Ardaaragchaa, 2024).

Graph 2.5 (below) illustrates the LDR, showing a strong positive correlation of 0.994, indicating a close connection between deposit dynamics and quantity of loans supplied. However, during economic downturns, such as the global financial crisis of 2008-2009, banks often become hesitant to lend due to increased credit risks and the uncertainties in an inflationary environment. Furthermore, the (to some extent) oligopolistic nature of and the significant role of state-owned banks can further alter the supply of loans too, just as it has been in the Turkish case.

In Türkiye, state-owned banks have occasionally been utilized to stimulate the economy through targeted subsidies and market interventions. Presence of these state banks and the long accumulation of domestic deposits have enabled the financial system to meet credit demands, thereby supporting the country's long economic growth trend (Duran & Duran, 2017). Yet, given Türkiye's current GDP, population, and the size of its banking sector, the number and scale of banks are still relatively limited. And this very fact has resulted in a relatively oligopolistic structure in the banking system, sometimes allowing even monopolistic practices in setting loan and deposit rates (Mahmutoğlu & Ardor, 2019).

Graph 2.5. Loans–to–Deposit Ratio



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

The graph plots the changes in LDR. The data presented here is monthly and covers January 2003 to July 2024.

LDR is a key metric for assessing how effectively a bank manages its resources to balance liquidity and profitability. It is a measure of total bank loans versus total deposits, providing insight into how efficiently it uses its deposits to generate income through lending. Maintaining a balanced LDR provides financial stability. A low LDR may indicate resource underutilization, potentially reducing profitability. On the other hand, a high LDR proves that banks are lending a large portion of their deposits, that could even increase the risk of liquidity problems. In such situations, banks may struggle to meet withdrawal demands or manage unexpected financial shocks due to the high volume of illiquid loans (Bağış, 2023). Therefore, careful LDR management is strategic to ensure that bank remains solvent and can meet its liquidity needs.

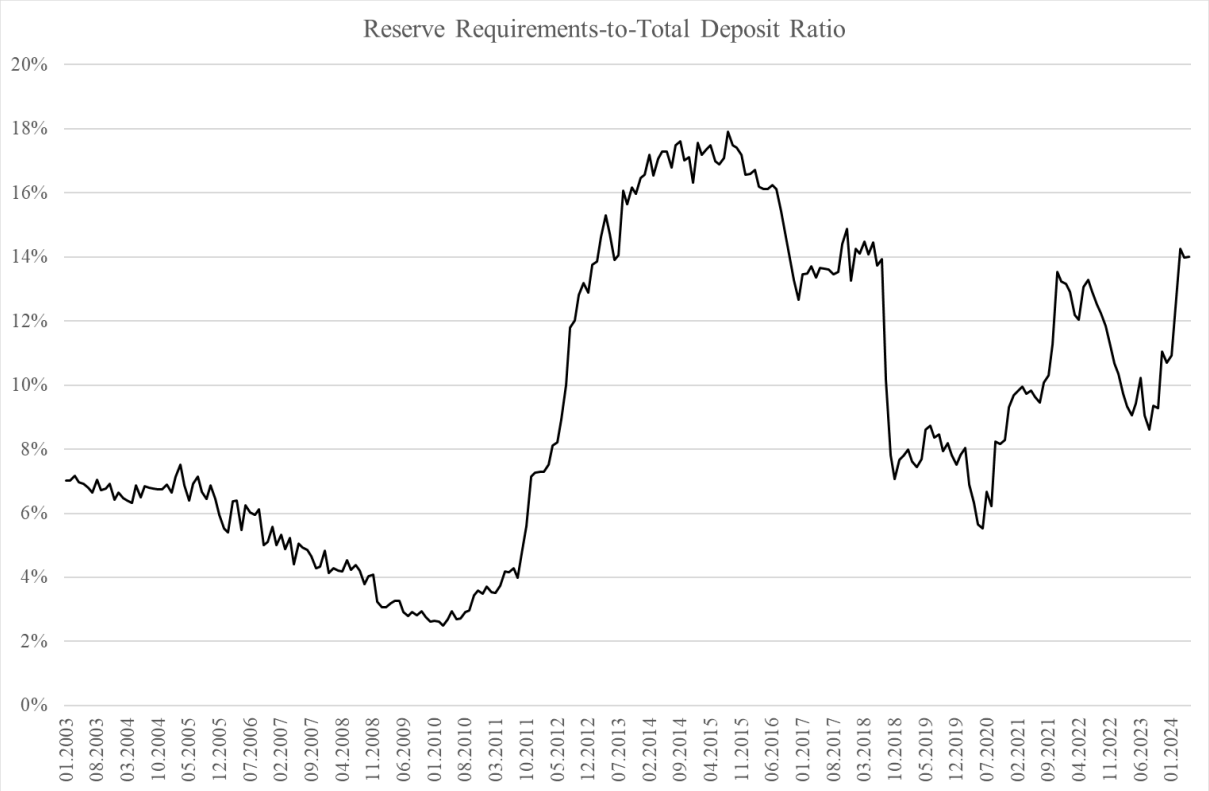
A lower LDR may also reduce the bank's reliance on a single source of financing and help it navigate deeper into the market constraints (Chun & Ardaaragchaa, 2024). While a low LDR may reflect a safer liquidity position due to a conservative lending approach or lower loan demand, it could also suggest missed opportunities for generating income, potentially affecting the bank's profitability and competitiveness. The LDR is also a key regulatory measure. Regulators often set minimum LDR requirements to help banks balance aggressive and conservative lending practices. A well-managed LDR provides financial stability, ensuring banks maintain enough liquidity to operate effectively while remaining profitable. Additionally, the LDR plays a significant role in financial accelerator mechanism, money multipliers, and monetary policy efficacy. The financial accelerator mechanism, for instance, suggests that a high LDR can worsen market conditions, increase the cost of external financing, raise operational costs, and eventually even limit loan availability, Bernanke et al. (1996).

2.5. Reserve Requirements

LDR is closely linked to another major policy instrument, the reserve requirements, a key regulatory tool central banks use often (Bağış, 2017). Central banks set reserve requirements to ensure that commercial banks maintain adequate liquidity, aligning with the core banking principles of security, liquidity, and profitability. Banks meet this liquidity requirement by holding reserves, which can be liquidity within their vaults or their deposits (reserves) with the central bank (Shubbar, 2023).

Reserve requirements help ensure maintaining stability within the banking system. By requiring that banks hold a portion of their deposits in reserve, policymakers help mitigate the risk of bank runs, where a sudden surge in withdrawals could lead to insolvency and a potential collapse (Diamond & Dybvig, 1983; and Bağış, 2023).

Graph 2.6. Reserve Requirement–to–Deposits Ratio



Source: Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

The graph plots the monthly changes in the Reserve Requirements-to-Deposits ratio in Türkiye from January 2003 to July 2024.

Graph 2.6 illustrates the relationship between reserve requirements and deposits, highlighting how changes in the reserve ratio often reflect banks' adjustments to regulatory shifts. As deposits grow, banks may need to increase their reserves to meet higher reserve requirements and comply with regulatory standards.

The Reserve Requirements-to-Deposits ratio is a key metric directly affecting a bank's lending capacity. A higher ratio means banks will need to keep a bigger share of their deposits in reserves, limiting funds available for lending and tightening credit conditions. Conversely, a lower reserve ratio allows banks to lend more deposits, stimulating economic activity by increasing credit availability. From a monetary policy perspective, reserve requirements is a key instrument to manage money supply. By readjusting these requirements, policy institutions can influence how much money banks may create through lending. In that line, lowering reserve requirements might increase money supply, encourage borrowing and spending, and support economic growth. On the other hand, raising reserve requirements helps cool an overheating economy by reducing the lending capacity and easing inflationary pressures.

The Reserve Requirements-to-Deposits ratio also plays a vital role in bank risk management. It ensures that banks maintain a sufficient buffer of cash to meet unexpected liquidity demands, preserving depositor confidence and financial stability, particularly during economic uncertainty (Bağış, 2023). This ratio enables policy-makers to monitor individual banks' and the broader banking system's health, allowing for timely interventions to prevent potential crises. Understanding the role and impact of reserve requirements is thus critical in grasping how central banks manage domestic monetary policy and maintain broader financial stability.

With that all in mind, reserve requirement ratios can vary based on the type of currency and term structures too, as noted by the CBRT (2024) and Alper et al. (2013).

2.6. Reserve Option Mechanism

ROM (Reserve Option Mechanism) is an unconventional policy measure introduced by the CBRT to provide flexibility in the traditional requirement of maintaining higher local currency deposits to support lending. The ROM was introduced as a new measure against the financial uncertainties following the 2008-09 global financial crisis, aiming to ensure solvency of the banking sector.

In November 2010, the Turkish Central Bank adopted a new framework, called the policy mix, to address rising financial instability. As part of this strategy, the ROM allowed Turkish banks to keep a portion of their reserves in reserve currencies or gold, rather than exclusively in local currency (Oduncu et al., 2013). The mechanism was designed to mitigate the negative impact due to excessive volatility (in financial flows) on macro-financial stability (Mahmutoğlu & Ardor, 2019).

Under the ROM, Turkish banks can allocate a specified portion of their Turkish lira reserve requirements to reserve currencies or gold. The Reserve Option Ratio determines the share of reserves that can be held in these alternative assets. The Reserve Option Coefficient, on the other hand, specifies the amount of reserve currencies or commodity that could be held per unit of Turkish lira (Alper et al., 2013). The system offers banks more flexibility in managing their reserve assets, allowing them to hold reserves in either of local currency, other reserve currencies or gold. Thus, banks can free up a portion of their Turkish lira reserves for additional lending by leveraging fluctuations in currency values and gold prices.

This increased lending capacity is particularly valuable in an emerging market like Türkiye, where credit demand can be unpredictable. By expanding credit availability to domestic businesses, the ROM supports economic activity and helps reduce the risk of liquidity shortages. Furthermore, the ROM encourages banks to increase their holdings of term deposits, i.e. funds locked in for a specified period, over more liquid demand deposits. This strategy ensures that banks are better prepared to meet their longer-term obligations, contributing to overall financial stability.

Additionally, the ROM has proven effective in reducing the volatility of the local currency over the analyzed period. By increasing the CBRT's foreign exchange reserves and improving liquidity management, the ROM helps cushion the negative impacts of excessive capital flow volatility, ultimately reinforcing Türkiye's financial stability (Oduncu et al., 2013).

2.7. Interest Rate on Deposits

Interest rates, particularly inflation-adjusted real rates, play a major role in the growth of existing deposits and significantly influence decisions related to saving, consumption, investment, and even loan demand. Deposit interest rates are critical in shaping depositor behavior and maintaining overall macroeconomic stability. Competitive interest rates encourage individuals and businesses to save more of their income rather than spending. This savings accumulation gives banks the capital necessary to lend, supporting business growth, infrastructure development, and consumer spending—all essential drivers of economic expansion.

Interest rates also serve as a primary tool for implementing monetary policy. Central banks adjust (or influence) deposit interest rates to either stimulate or slow economic activity. For example, they might lower policy rates during a recession to encourage borrowing and spending. Raising rates, on the other hand, can help combat inflation by discouraging excessive borrowing, demand and promoting savings.

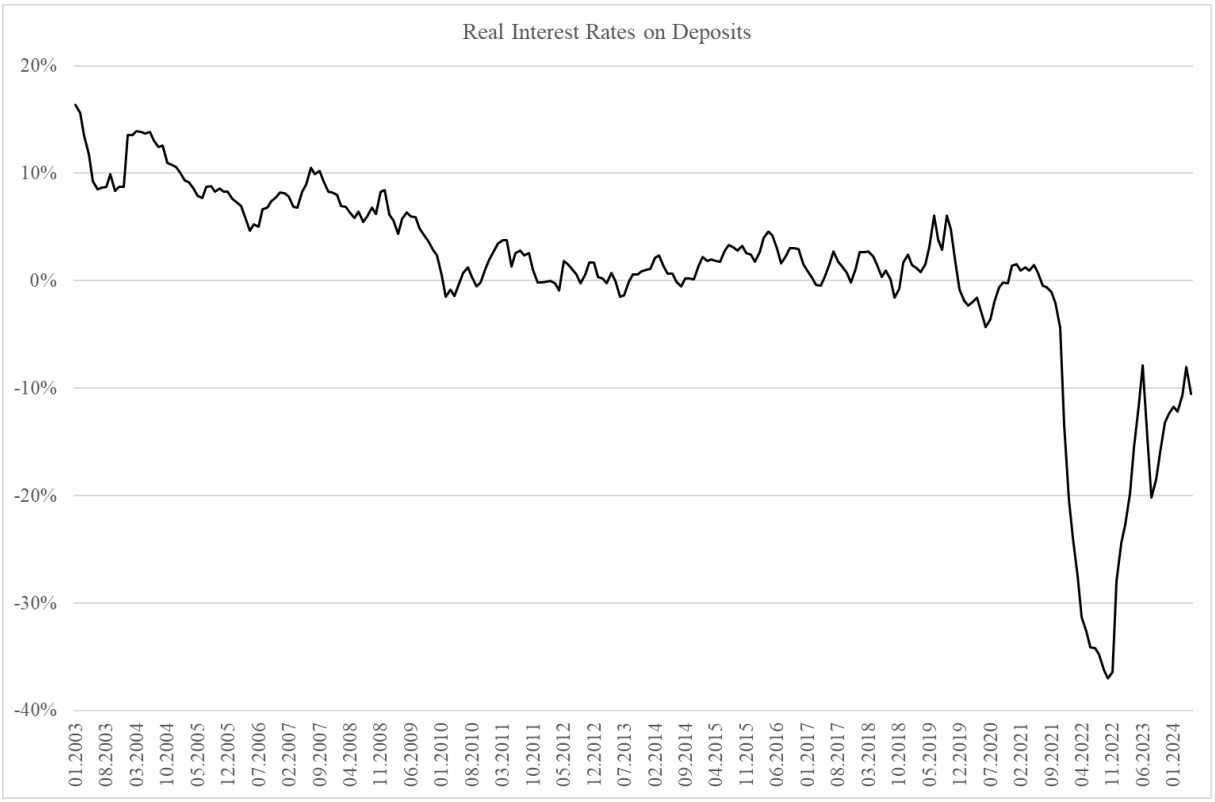
Maintaining competitive deposit rates provides financial stability for the banking system. By attracting more deposits, banks can ensure sufficient liquidity to manage daily operations and meet the withdrawal demands without relying on costly external borrowing (Diamond and Dybvig, 1983). A strong deposit base also minimizes the risk of a bank run, where sudden withdrawals due to concerns about a bank's stability could threaten its solvency.

Deposit interest rates have a direct influence on the cost of funds, thereby impacting the interest rates banks set on loans. When deposit rates are low, banks can offer loans at reduced rates, increasing borrowing and economic activity. Conversely, higher deposit rates can increase loan rates, discouraging borrowing and slowing economic activity. For savers, the deposit interest rate determines the return on their savings. When the rates are low and inflation outpaces the interest earned, the real value of savings tend to decline, often prompting individuals towards riskier investments with higher returns. Stock exchange markets or real estates are two alternative examples.

As of August 2024, Turkish banks hold approximately 17 trillion Turkish lira in deposits and over 14 trillion Turkish lira in loans. However, concerns about deposit growth persist due to high inflation and low real interest rates, which can erode the real value of deposits relative to the loans they support. If value of banking deposits or funds continues to decrease over time, then availability of loans could also shrink. Furthermore, if real interest rates remain negative, the growth of loans and deposits may not keep pace with inflation, leading to a decline in their real volume. This scenario could result in reduced investment, lower economic activity, and job losses, putting additional pressure on economic activity.

Nominal interest rates do not usually immediately impact inflation, which can moderate the observed correlation between the two. Therefore, real interest rate dynamics become a major factor in deposit growth. When nominal interest rates fall well below the inflation rate, for instance, the real value of deposits tend to decline. This is indeed the mechanism that can result in reduced loan availability and create financing deficits, potentially necessitating external financing and posing risks to overall financial stability. Persistently negative real interest rates can also discourage domestic savings and the growth of new bank deposits, further jeopardizing financial stability.

Graph 2.7. Real Interest Rates on Deposits



Source: Central Bank of the Republic of Türkiye, https://evds2.tcmb.gov.tr/index.php?/evds/portlet/K24NEG9DQ1s%3D/en

Turkish Statistical Institute, https://data.tuik.gov.tr/Bulten/Index?p=Consumer–Price–Index–July–2024–53616&dil=2

The graph plots the monthly changes in real (inflation adjusted) deposit interest rates in Türkiye, covering the period from January 2003 to July 2024

Graph 2.7 demonstrates a strong negative correlation (-0.830) between deposit real interest rates and inflation, indicating that real interest rates decline as inflation rises. This is because nominal interest rates often do not keep up with rising inflation (hence the debate between strict policy rules and more discretionary approach, due first to Kydland and Prescott, 1977), reducing the real return on deposits. Even if nominal rates remain stable or increase slightly, high inflation could erode purchasing power of even the interest earned, leading to lower real interest rates.

2.8. Net Interest Margin

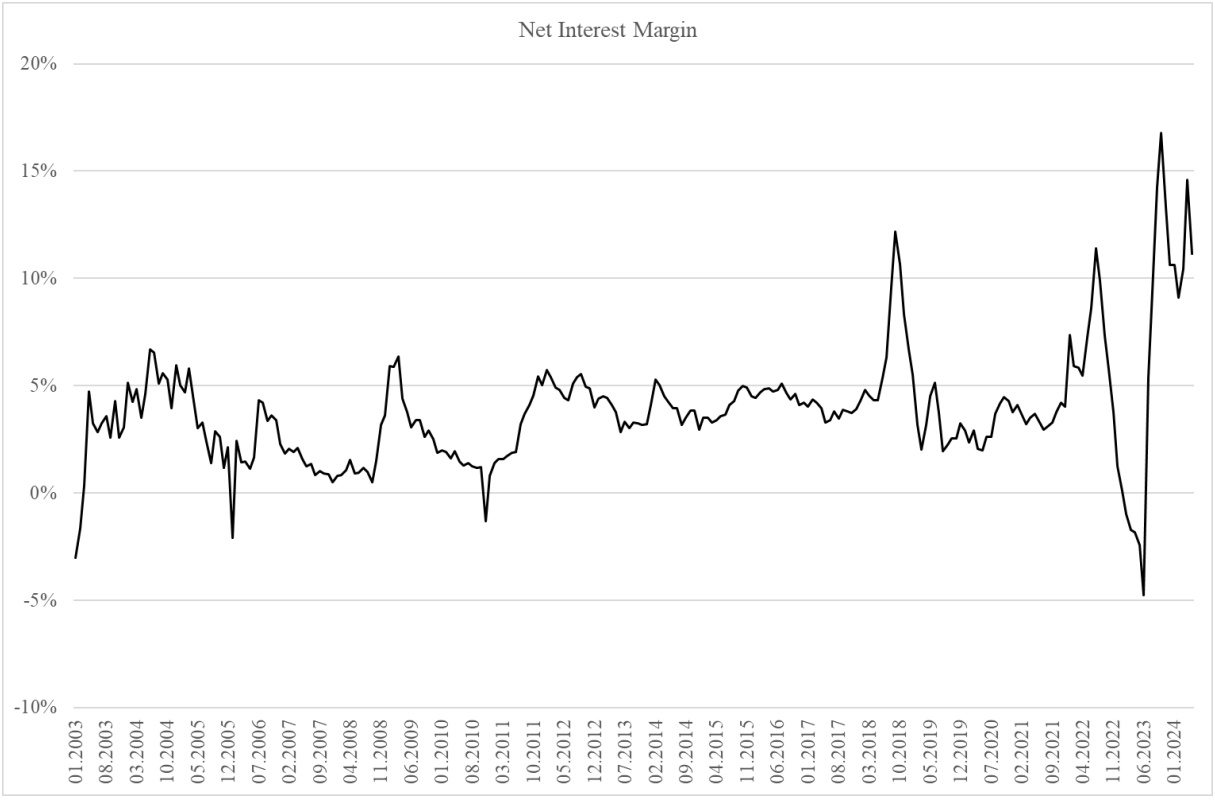
NIM is a pivotal bank metric representing the spread between the interest rate on loans and that on deposits. It is vital to assess a bank's profitability from its lending activities. The interest rate corridor, for instance, with the upper bound as a benchmark for setting loan prices (Alper et al., 2013), can influence the NIM. And a higher NIM indicates that banks earn more from their loans than they pay on deposits, increasing their profit margins.

Since interest income makes up a large portion of a bank's revenue, NIM is a key indicator of its financial health. In addition to profitability, the NIM also reflects how effectively a bank manages its assets and liabilities. A stable or rising NIM suggests that the bank is successfully managing interest rate risks, demonstrating its ability to mitigate the potential negative effects of interest rate fluctuations on its

income. Banks with a strong NIM are better positioned to handle market challenges and maintain profits, even during economic downturns.

A robust NIM enhances a bank's ability to expand its lending activities. The margin between income from loans and the cost of deposits provides additional resources for reinvestment, increasing credit availability for businesses and consumers, thereby stimulating economic growth. NIM also indicates broader economic conditions and competition within the banking sector. In a low-interest-rate environment, NIMs often shrink as banks struggle to maintain a significant spread between loan and deposit rates. This narrowing margin can impact profitability, leading banks to seek alternative revenue sources or cut costs to stay viable. Conversely, in a high-interest environment, NIMs may expand. However, still, higher rates can also deter borrowing, potentially slowing economic activity.

Graph 2.8. Net Interest Margin in Turkish Banking System



Source: Central Bank of the Republic of Türkiye, https://evds2.tcmb.gov.tr/index.php?/evds/portlet/K24NEG9DQ1s%3D/en

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The graph plots the monthly changes in NIM from January 2003 to July 2024.

Graph 2.8 highlights periods of negative NIM and sharp fluctuations. A negative NIM can occur when loan interest rates do not adjust as quickly as deposit rates. If deposit rates rise faster than loan rates—due to rapid changes in central bank policy or competitive pressures—the cost of deposits may temporarily exceed the income generated from loans, resulting in a negative NIM (see e.g. Bağış, 2023). This issue is further complicated when banks hold fixed-rate loans, as their interest income remains unchanged until the loans are renegotiated, or new ones are issued.

Sudden fluctuations in the NIM reflect banks' attempts to adapt to changing deposit costs or to realign their profitability. For instance, banks might keep loan rates low to attract borrowers, even as deposit costs increase. However, they may later raise loan rates to increase profitability, leading to a sharp rise in NIM as the gap between interest on loans and that on deposits widens.

Inflation might also significantly impact a bank's NIM, though the exact effect depends on the broader economic context and the bank's specific circumstances. More specifically, in inflationary cases, central banks tend to raise interest rates to control price levels, prompting banks to raise loan rates. If loan rates rise faster than the deposit rates (in that case), the bank's NIM can widen, increase profitability as the bank earns more from loans while effectively managing deposit costs.

However, the relationship between inflation and NIM is still a complex one. Rapid inflation may force banks to raise deposit rates quickly to retain depositors. If deposit rates increase faster than the loan rates, the NIM may narrow, reducing profitability. Additionally, surging inflation erodes real value of fixed-rate loan repayments, further squeezing the NIM.

Inflation also introduces uncertainty and might influence borrower behavior. As the cost of living and business expenses rise, the risk of loan defaults may increase, leading to higher credit losses and negatively affecting the NIM. Moreover, inflation can shape how banks manage their assets and liabilities. Banks may prefer shorter-term or variable-rate loans in an inflationary environment to better manage interest rate risk. Depending on the bank's asset and liability mix, these adjustments may also impact NIM differently, potentially altering the spread between loan and deposit rates.

2.9. Inflation rate

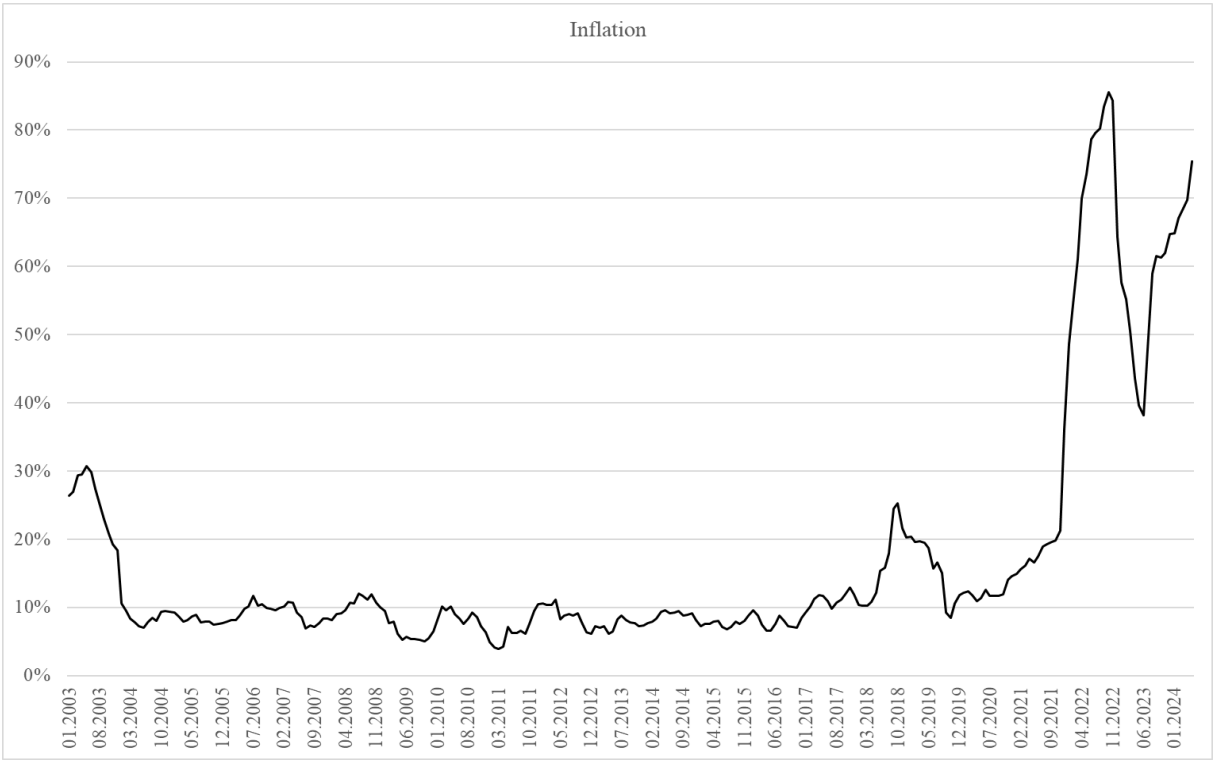
Inflation, as measured by CPI (Consumer Price Index), directly affects the real value of deposits. More specifically, as inflation rises, purchasing power of deposits wanes, meaning the same amount of money might buy fewer goods and services over time. This decline is a significant concern for depositors. Accordingly, if the interest earned on deposits keeps up with inflation, the real value of their savings will remain high. However, when nominal interest on deposits is below the inflation rate, depositors experience a negative real return, effectively reducing the value of their savings in real terms.

This dynamic has a substantial impact on depositor behaviors. Respectively, during periods of high inflation, depositors often move their funds from traditional deposit accounts to alternative investments such as real estate, stocks, or even commodities, generally seen as better at preserving or increasing value of their deposits in real terms. This shift can lead to a decline in bank deposits, affecting banks' liquidity and even its lending capacity.

Inflation also influences the interest rate that banks offer on deposits. During times of high inflation, banks may need to raise deposit rates to retain depositors, which increases their funding costs and may result in higher loan interest rates. If banks cannot offer rates that keep pace with inflation, they risk losing depositors to more profitable investment options, potentially undermining their financial stability.

Therefore, expectations about inflation play a critical role in shaping the decisions of both depositors and banks. If people expect inflation to rise, depositors may seek higher returns to compensate for anticipated losses in purchasing power. At the same time, banks may become more cautious in lending due to increased funding costs and a higher risk of default. As rightly pointed out by Lucas (1987), rational expectations about inflation are critical in this dynamic.

Graph 2.9. Inflation in Türkiye



Source: Turkish Statistical Institute, https://data.tuik.gov.tr/Bulten/Index?p=Consumer–Price–Index–July–2024–53616&dil=2

The graph plots the monthly changes in Türkiye's inflation rate from January 2003 to July 2024.

3. Model and Analysis

Following upon the correlation and covariance relations underlined in section two, we provide a basic time series analysis of deposit growth dynamics in this section and aim to understand the causalities. Accordingly, the deposits, loans, economic growth, and the interest rate nexus in the Turkish financial system is emphasized here. The sample table for the factors included in our analysis is provided below.

Table 3.1 Factors included in our causality analysis

Variable	Acronym	Variable type	Source
Local Currency Deposits	LCD	Dependent	BRSA
GDP Growth	GG	Independent	Turkish Statistical Institute
Deposits-to-GDP Ratio	DGDP	Independent	BRSA & Turkish Statistical Institute
Loans to Deposit Ratio	LDR	Independent	BRSA
Real Interest Rate	RIR	Independent	CBRT & Turkish Statistical Institute

Utilizing the relevant literature, our correlation analysis and the empirical evidence; we build the following empirical model to run the causality analysis:

$$\Delta lLCD_t = \alpha_0 + \alpha_1 \Delta RIR_t + \alpha_2 \Delta LDR_t + \alpha_3 \Delta DGDP_t + \alpha_4 \Delta GG_t + u_t$$

Where, the term lLCD (the dependent term) denotes log local currency deposit holdings, all other independent terms are listed and explained in Table 3.1. Δ stands for differences, t represents the time trend, α_0 is a constant or intercept, u is random error term and n will be the optimum number of lags in the independent variables (for our analysis later on). α_1 to α_4 are coefficients of independent variables.

We first checked for correlation between different variables in question, in section two. Once strong correlation is evident, we then use these variables in our model analysis. Connectivity between different variables can be analyzed via standard time series methods such as Granger causality, cointegration tests and the vector error correction tests.

Meanwhile, deposit holding and GDP type of variables have strong autocorrelation issue that leads to non-stationarity (Augmented Dickey Fuller test), and hence a spurious regression risk. To deal with the unit root issue and to ensure stationarity, we use log and lagged variables (logarithmic differences). As a matter of fact, data shows that all variables in question are indeed stationary at their first differences.

The log and first difference transformations lead to data stationarity and normal distribution. We also do the transformation to ensure we compare apples to apples. Heteroskedasticity is also removed by logarithmic transformation of the data (Breusch-Pagan Test). Extremely low probabilities from the Chi-Square tests lead to rejection of Homoskedasticity null hypothesis. Multicollinearity issue (whether two or more of the independent variables have any direct relationship) should also be dealt with. Variance inflation factor model helps assess this issue.

Another key aspect of the causality analysis is cointegration. We look for long-run cointegration in order to do the long-run causality analysis. Accordingly, if two variables move together over time, then they are considered cointegrated. Therefore, we run a Johansen cointegration test for the long-run drivers of bank deposits. The Johansen test shows long-run cointegrating equations at 5% significance level.

Due to non-stationarity of some variables at levels, we also employ ARDL method for our analysis. As pointed out by Pesaran et al. (2001), and Pesaran and Shin (1998), the ARDL method could be implemented if variables are stationary at level or at their first differences. The model has certain perks over the other cointegration tests. Model variables may take different lags under the ARDL. It can also be used no matter if we deal with stationarity at level or first difference or at both.

The F-test statistics from the F-bounds test with the error correction demonstrate longer-term connectivity between deposits and other macro-financial variables. Therefore it passes the cointegration test, at all levels of significance.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	19.54420	10%	2.45	3.52
k	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Once a one-period lag error-correction-term is added to the model, it proves statistically significant and has an almost 87% adjustment from short-term towards longer-run (less-than one and negative). The R^2 of 60% is a relatively high goodness-of-fit and an F statistic (overall significance) of almost 36 is also quite high.

CointEq(-1)*	-0.867781	0.087040	-9.969884	0.0000

In the longer-term form of this model, though, the F-test statistics from the F-bounds test also demonstrate longer-run nexus between deposits and other independent variables in question.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	19.54420	10%	2.45	3.52
k	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

The direction of causality between variables (and hence whether there is any endogeneity in our analysis) is determined by causality analysis based on an error correction model. We also assume that endogeneity problem is limited in our analysis, due to the log differences. Hence, we first employ the cointegration method (for the long-run relationships), then test the longer-term and short-term nexus with the error correction model, and then the Granger causality test.

Error Correction:	D(LLCD)	D(RIRD)	D(LDR)	D(GG)	D(DGDP)
CointEq1	-0.634923	0.363494	0.303454	-0.054525	-0.053152
	(0.09110)	(0.08820)	(0.07614)	(0.02072)	(0.09032)
	[-6.96946]	[4.12130]	[3.98551]	[-2.63216]	[-0.58850]

To support these relationship findings, an additional causality analysis is conducted. Causality between interest rate, banking sector and other macro variables, and deposit volume is tested using the Granger causality test. This is to understand the drivers of deposit accumulation and to underline factors that forecast these deposit dynamics. Or in other words whether past variations in independent variables are able to explain the current variation in dependent variable of deposit accumulation.

The Granger Causality test hypotheses are as follows:

$H_{o:}$ *X* does not Granger Cause *lLCD.*

$H_{1:}$ *X* does Granger Cause *lLCD.*

Where the X variable stands for independent variables listed on Table 3.1 (i.e. RIR, LDR, DGDP and GG). We deal with monthly data, therefore we choose the lags accordingly.

Table 3.2 Granger Causality Test Results

Variable	**F-statistics**	**Std. errors**	**Prob.**
Real Interest Rate	2,28	1,65	0,047
Loans to Deposit Ratio	3,34	3,04	0,006
GDP Growth	8,89	6,54	0,000
Deposits-to-GDP Ratio	3,26	2,00	0,007

And finally, using the analytical test results from the aforementioned tests, we investigate the impact of or connectivity with banking sector and other macro factors on deposit dynamics (LCDs in particular) over time. Accordingly, at significance level of 5%, we reject all null hypotheses and conclude that all independent variables do indeed Granger Cause deposit accumulation.

Outcome of the causality tests demonstrates that there is indeed a one-way causality from our independent variables towards the deposit accumulation. More specifically, there is positive and statistically significant nexus between deposits, loans, economic growth, and the interest rate.

Overall, our basic time series analysis estimation results indicate that there is indeed significant Granger causality nexus between deposits-to-gdp ratio, gdp growth, loans to deposit ratio and real interest rates in Türkiye. And that depositors mainly respond to these macro-financial variables in their deposit decisions.

CONCLUSION

This paper investigates Türkiye's macro-financial outlook from 2003 to 2024, an era of relative political stability, focusing on how negative or low real interest rates, along with other macro-financial factors, have impacted the growth of domestic deposits. The findings indicate that while overall deposit growth in Türkiye typically correlates with inflation; GDP, foreign currency deposits, inadequate or negative real interest rates have all led to a decline in local currency deposits. This decline, in return, restricts availability of loans, which is indeed vital for economic activity.

Local currency deposits play a key role in macro-financial stability and growth, providing local banks with the liquidity necessary to extend credit to businesses and consumers. Effectively managing these deposits is essential for supporting local industries and encouraging economic development. However, the trend of increasing deposit dollarization also poses significant challenges. With more deposits held in foreign currencies, monetary policy efficacy diminishes, and the banking sector becomes more exposed to currency risks. This situation demonstrates the need for policies to stabilize value of local currency, reduce inflation, and encourage deposits in local currency.

Assuming saving levels remain stable, the growth of bank term deposits largely hinges on the interest income they generate. This is directly related to the real interest payments over the existing deposit holdings. If banks reduce their deposit interest rates, the deposits used as collateral (reflected in the loan-to-deposit ratio, LDR) will decline over time, limiting banks' ability to extend further loans.

The relationship between local currency deposits and key economic indicators like GDP and inflation also illustrates close connectivity between financial and economic stability. While a robust deposit base enhances banks' lending capacity and supports economic growth, recent deposit growth dynamics in Türkiye appears to be primarily driven by inflation rather than genuine increases or real rise in deposits. This raises concerns about the sustainability of such growth and the critical need for effective inflation control to yield real economic benefits.

This paper aims to fill in the gap of limited research on determinants of domestic deposit dynamics in Türkiye, particularly for the period from 2003 to 2024. And the paper finds that there is indeed a one-way causality from our independent variables and deposit accumulation. Accordingly, there is a positive and statistically significant nexus between the deposits, loans, economic growth, and the interest rate.

The study also highlights the importance of maintaining a balanced LDR and adequate reserve requirements, which ensure banks have sufficient liquidity to meet obligations while generating income through lending. Proper management of this balance enables financial stability, especially amid high inflation and fluctuating interest rates.

Furthermore, examining the NIM reveals the necessity for banks to balance profitability and liquidity. Although a healthy NIM reflects effective asset and liability management, inflationary pressures and rapid interest rate changes can also significantly affect bank profitability. This very fact emphasizes the need for proactive financial management and robust risk mitigation strategies to navigate economic uncertainties.

In summary, the findings outline the critical role of local currency deposits in Türkiye's financial system. Addressing the challenges related to dollarization, inflation, and liquidity management would be essential for the longer-term stability and growth of the Turkish banking sector. Policymakers and banks must collaborate to implement strategies that foster a stable and resilient financial environment, ultimately supporting sustained economic development.

Consequently, the study provides a comprehensive overview of the efforts undertaken by policymakers, banks, and researchers to navigate the challenges and complexities of Türkiye's evolving financial landscape.

Declaration of competing interests: The authors declare that they have no conflict of interest.

REFERENCES

Alper, K., Kara, H. & Yörükoğlu, M. (2013). Reserve Options Mechanism, *Central Bank Review*, Central Bank of the Republic of Türkiye, Volume 13(1), pages 1-14.

Bagis, B. (2017). Central Banking in the New Era. *Eurasian Journal of Economics and Finance*, 5 (4), 197–225.

Bağış, B. (2017). 'Krizlerle Mücadele Stratejisi ve Ekonomi Politikalarında Yeni Dönem.', in Gür N., Ünay S. & Dilek Ş. (eds) AK Parti'nin 15 Yılı: Ekonomi, pp. 237-265. İstanbul: SETA.

Bağış, B. (2023). '40 Yıllık Bir Banka 36 Saatte Nasıl Batar?', *Sabah*, (18 Mart 2023).

Banking Regulation and Supervision Agency, http://www.bddk.org.tr/BultenAylik/en/Home/Gelismis

Bărbuță-Mișu, N., Güleç, T.C.; Duramaz, S. & Virlanuta, F.O. (2022) Determinants of Dollarization of Savings in the Turkish Economy. *Sustainability*, 12, 6141. doi:10.3390/su12156141

Başçı, E. (2006). Credit growth in Türkiye: drivers and challenges. *BIS Papers*, p. 28. The banking system in emerging economies: how much progress has been made, pp. 363–375.

Bernanke, B., Gertler, M. & Gilchrist, S. (1996). 'The Financial Accelerator and the Flight to Quality' (PDF). *Review of Economics and Statistics*. 78 (1): 1–15.

Bernanke, Ben S., & Alan S. Blinder (1988). 'Credit, Money, and Aggregate Demand,' American Economic Review, Volume 78, *Papers, and Proceedings of the 100th Annual Meeting of the American Economics Association*, May, pp. 435-39.

Bernanke, Ben S., and Mark Gertler (1989). 'Agency Costs, Net Worth, and Business Fluctuations,' *American Economic Review*, Volume 79 (March), pp. 14-31.

Bianchi, J. and Bigio, S. (2014). Banks, Liquidity Management and Monetary Policy, NBER Working Papers 20490, *National Bureau of Economic Research*, Inc. doi:10.3386/W20490

Boivin, Jean, Michael T. Kiley, and Frederic S. Mishkin. 'How has the monetary transmission mechanism evolved?' *Handbook of monetary economics*. Volume 3. Elsevier, 2010. 369–422.

Carroll, C. D., Hall, R. E., & Zeldes, S. P. (1992). The Buffer-Stock Theory of Saving: Some Macroeconomic Evidence. *Brookings Papers on Economic Activity*, 1992(2), 61–156. https://doi.org/10.2307/2534582

Central Bank of The Republic of Türkiye (CBRT) (2021), *Inflation Report* 2021-I.

Central Bank of The Republic of Türkiye (CBRT) (2024), 'Reserve Requirement Ratios,' *CBRT Communique* No: 2024/2

Central Bank of The Republic of Türkiye (CBRT) (2024), *Financial Stability Report*.

Chun, S. and Ardaaragchaa, N. (2024). Analysis of Factors Affecting Banks' Loan Growth with a Focus on Non-Performing Loans. *Journal of Risk and Financial Management*. doi:10.3390/jrfm17050203

Deaton, A. (1991). Saving and Liquidity Constraints. *Econometrica*, 59(5), 1221–1248. https://doi.org/10.2307/2938366

Diamond, D. W. & Dybvig, P. H. (1983). Bank Runs, Deposit Insurance, and Liquidity, *Journal of Political Economy*, 91:3, 401-419

Diamond, D. W. (2007). 'Banks and liquidity creation: a simple exposition of the Diamond-Dybvig model,' Economic Quarterly, *Federal Reserve Bank of Richmond*, Volume 93(Spr), pages 189–200.

Diko, A. (2019). Determinants of Net Interest Margins in Turkish Banking System: A Panel Data Analysis. *Maliye ve Finans Yazıları* (111), 233-266. https://doi.org/10.33203/mfy.474931

Duran, T. and Duran, B. (2017). The Effects of Macroeconomic Factors on Banking Sector Total Deposits: Evidencing Türkiye. *The Journal of International Social Research*. doi:10.17719/jisr.2017.1825.

Ehlers, Torsten, and Agustín Villar. 'The role of banks.' *BIS Paper* 83b (2015).

Eichengreen, Barry, (1992). *Golden Fetters: The Gold Standard and the Great Depression, 1919–1939*. Oxford University Press.

El-Erian, M. A. (2016). *The Only Game in Town: Central Banks, Instability, and Avoiding the Next Collapse*. New York: Random House.

Ferrante, F. and Gornemann, N. (2022). Devaluations, Deposit Dollarization, and Household Heterogeneity, *International Finance Discussion Papers 1336*. Washington: Board of Governors of the Federal Reserve System doi:10.17016/IFDP.2022.1336

Finger, H., & Hesse, H. (2009). Lebanon-Determinants of Commercial Bank Deposits in a Regional Financial Center. *IMF Working Papers*, 2009(195). Retrieved Sep 9, 2024, from https://doi.org/10.5089/9781451873429.001

Friedman, M. (1968). 'The Role of Monetary Policy.' *American Economic Review,* 58 (1): 1–17.

Friedman, M. (1969). 'The Optimum Quantity of Money.' In *The Optimum Quantity of Money*, pp. 1–50. Chicago: Aldine.

Friedman, M. and Schwartz, A. J. (1963). *A Monetary History of the United States*, 1867–1960. Princeton: Princeton University Press.

Garcia-Escribano, M. (2010). Peru: Drivers of De-Dollarization. International Monetary Fund, *IMF Working Papers*. 10. doi:10.5089/9781455201808.001.

Kara, H., Tuger, H. K., Ozlale, U., Tuger, B., Yavuz, D., & Yucel, E. M. (2005). Exchange rate pass-through in Türkiye: Has it changed, and to what extent? (No. 0504).

Kartal, M. T., İbiş, C. and Çatıkkaş, Ö. (2018). Adequacy of audit committees: A study of deposit banks in Turkey, *Borsa Istanbul Review*, Volume 18, Issue 2, Pages 150-165.

Kiyotaki, N. & Moore, J. (1997). 'Credit Cycles,' *Journal of Political Economy*. 105 (2): 211–248.

Kydland, F. E & Prescott, E. C, (1977). 'Rules Rather Than Discretion: The Inconsistency of Optimal Plans,' *Journal of Political Economy*, University of Chicago Press, Volume 85(3), pages 473–491.

Luca, A. & Petrova, I. (2008). What drives credit dollarization in transition economies?, *Journal of Banking & Finance*, Volume 32, Issue 5, Pages 858–869, doi:10.1016/j.jbankfin.2007.06.003.

Lucas, Robert E. Jr. *Models of Business Cycles*. Oxford: Basil Blackwell, 1987.

Mahmutoğlu, M., and Ardor, H. N. (2019). The Effects of the Macroprudential Policies on the Turkish Banking Sector. *Journal of Business Research-Turk*, doi:10.20491/isarder.2019.746.

Markowitz, H. M. 1952. "Portfolio selection." *Journal of Finance* 1, 77–91.

Mishkin, Frederic S. 'Globalization, macroeconomic performance, and monetary policy.' *Journal of Money, Credit and Banking,* 41 (2009): 187–196.

Mishkin, Frederic S. *The economics of money, banking, and financial markets*. Pearson Education, 2007.

Modigliani, F., & Brumberg, R. (1954). Utility Analysis and the Consumption Function: An Interpretation of Cross Section Data, *Post Keynesian Economics.* Franco Modigliani, 1, 388-436.

Oduncu, A. and Akcelik, Y. and Ermisoglu, E. (2013). Reserve Options Mechanism and Foreign Exchange Volatility. *Central Bank of the Republic of Türkiye Working Paper*, No. 13/03, Available at doi: 10.2139/ssrn.2230354

Özen, E., Vurur, N. S., & Grima, S. (2018). Investigation of causality between interest rate and deposit investor's behavior. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 9(4), 177-185.

Parasız, İlker (2016). *Para Teorisi ve Politikası*. Bursa: Ezgi Kitabevi.

Paul, Pascal. 'Banks, maturity transformation, and monetary policy.' *Journal of Financial Intermediation*, 53 (2023): 101011.

Pesaran, M.H. and Shin, Y. (1998). An Autoregressive Distributed-Lag Modelling Approach to Cointegration Analysis. *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, 31, 371-413. http://dx.doi.org/10.1017/CCOL0521633230.011

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(3), 289–326. http://www.jstor.org/stable/2678547

Shubbar, H. H. (2023). Reserve Assets as Sources of Replenishing Resource Base of Banking Sector and Improving Its Stability, *World Economics & Finance Bulletin*, https://www.scholarexpress.net/index.php/wefb/article/download/2193/1888

Torun, Huzeyfe. 'Foreign Exchange Borrowing, Employment, And Firm Growth,' *Uluslararası Yönetim İktisat ve İşletme Dergisi*, 19.3 (2023): 516–526.

Ugur, A., & Erkus, H. (2010). Determinants of the net interest margins of banks in Türkiye. *Journal of Economic and Social Research*. 12 (2), 101.

Urošević, B., & Rajković, I. (2017). *Dollarization of Deposits in the Short and Long Run: Evidence from CESE Countries*. Panoeconomicus, 64 (1), 31–44. doi:10.2298/PAN141230017U

Walsh, C. (1995). Optimal Contracts for Central Bankers. *American Economic Review*, 85(1), 150–167.

Walsh, C., (2010). *Monetary Theory and Policy*. 3rd edition Cambridge, Mass: MIT Press.

Wicksell, K., Interest and Prices: *A Study of the Causes of Regulating the Value of Money* (1898), reprinted New York: Kelley, 1965.

Woodford, M., (2003). Interest and Prices: *Foundation of a Theory of Monetary Policy*. Princeton University Press.

Yakubu, I. N., & Abokor, A. H. (2020). Factors determining bank deposit growth in Türkiye: an empirical analysis. *Rajagiri Management Journal*, 14(2), 121-132.