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Occasional discrepancies between constituent figures and totals as well as percentage changes are due to rounding.

There are no references to sources in tables and charts originated in the Banco Central do Brasil.

Financial Stability Report

Preface

The Financial Stability Report (FSR) is a semiannual publication issued by the Banco Central do Brasil (BCB) that presents an overview of recent developments and the outlook on financial stability in Brazil, focusing on the main risks and on the domestic financial system resilience, as well as conveys the Financial Stability Committee (Comef) view on the policies and measures to preserve financial stability.

The BCB defines financial stability as the regular operation, over time and in any economic scenario, of the system responsible for the financial intermediation among households, non-financial corporations, and the government.

The Report consists of two chapters. Chapter 1 – Assessment of the National and International Financial Systems – presents an overview of the international financial system; of the National Financial System (SFN) – with analyses of the risks related to liquidity, credit, profitability, and solvency; of capital and liquidity stress tests and their effects on institutions' solvency; – of the Financial Stability Survey (FSS); and of the operation of systemically important financial market infrastructures (FMIs). Chapter 2 – Selected Issues – discusses relevant and not necessarily recurrent topics that may have implications to financial stability in Brazil.

As of 2025, the FSR will disclose, in the first edition of each year, the breakdown of the cost of credit and the spread, as well as the SFN concentration indicators, previously published in the Banking Report, which was discontinued in accordance with Resolution BCB 460, of March 25, 2025.

The Statistical Annex shows charts and tables underlying data and can be found on the FSR website, https://www.bcb.gov.br/en/publications/financialstabilityreport, as well.

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Executive Summary

The external environment remains uncertain, as the implications of the repositioning of global trade policies are not yet fully understood. Despite the conclusion of trade agreements and the entry into force of reciprocal and sectoral tariffs announced by the United States, uncertainty persists and is likely to remain elevated. This uncertainty consolidates in a period in which the disinflation process in leading economies remains incomplete and progresses slowly, and economic activity shows signs of slowing down.

Domestically, economic activity ended the semester slowing down, as expected. The labor market remains dynamic. The slowdown in the second quarter was concentrated in the less cyclical sectors of the economy. The unemployment rate continued its downward trend and reached a historical low, with formal employment standing out. The average labor income continues to grow strongly in real terms, accelerating at the margin.[1]

The Banco Central do Brasil (BCB) considers that there is no relevant risk to financial stability. The National Financial System (SFN) remains with comfortable capitalization and liquidity positions, and adequate provisions to the level of expected losses. Furthermore, capital and liquidity stress tests demonstrate the soundness of the banking system.

Financial market confidence in the stability of the SFN remains close to its all-time high. In a survey in which the BCB consults the market about its perceptions regarding the stability of the SFN, 80% of financial institutions (FIs) expressed high or total confidence in the resilience of the SFN. In mentions of risks, concerns stand out regarding fiscal risk, international scenario risk, and default and activity risk. In addition, references to operational/cyber risk in an increasingly digitized financial system are on the rise.

Financing to the real economy slowed down, in line with tighter financial conditions and moderation in economic activity growth. Credit cooled at the margin in almost all modalities for households and company sizes. Lower growth also occurred in the capital markets, which, however, continues to grow at high rates and gain representation in corporate financing.

FIs reduced their risk appetite. The slowdown in credit growth was accompanied by an improvement in granting standards in most credit modalities both for households and for company sizes. However, non-payroll deducted credit still maintains a high growth rate, with a significant share of unsecured loans. Prospectively, the Quarterly Credit Conditions Survey (PTC) indicates that credit supply remains restrictive for real estate financing and corporate credit. Some supply factors should also remain restrictive for consumer credit to households.

The caution identified in the PTC is consistent with the challenging payment capacity of companies and households. Indeed, the environment demands prudence in granting standards due to risks related to households' debt service-to-income and indebtedness of households and smaller companies. Even with the recent dynamism of the labor market, with consistent income gains and significant reduction in unemployment, households' debt service-to-income is historically high and rising. In the case of companies, payment capacity showed positive signs, but indebtedness itself and its cost tend to pressure balance sheets, especially in a scenario of cooling activity and high leverage.

1 The first two paragraphs of this Executive Summary were taken from the September 2025 Monetary Policy Report, available at https://www.bcb.gov.br/content/ri/inflationreport/202509/rpm202509i.pdf.

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Regardless of the metric, risk materialization deteriorated and should remain under pressure in the short term. Even disregarding the increase in defaults caused by the new treatment of Resolution 4,966, of 2021 for write-offs, problem assets (PAs) increased in almost all credit portfolios for households, especially rural, and among micro, small, and medium-sized enterprises (MSMEs). For the near future, the trend is that PAs will remain under pressure.

Despite the increase in expected losses, the SFN remains with adequate provisions. As anticipated in the previous FSR, the rules in force since January 1, 2025, require provisioning for expected losses for an expanded scope of financial instruments, and regulatory levels of provisioning for incurred and expected losses. Thus, both the BCB and FIs already anticipated the increase in expected loss estimates. Still, provisions set up by entities are compatible with provisions estimated by the BCB.

The SFN's profitability grew and is robust enough to face possible scenario changes or adversities. The improvement was supported by results from credit operations and net gains from fair value adjustments (AVJ) and exchange rate variation of financial instruments. For upcoming periods, further advances are expected to be limited by restrictive financial conditions and moderation in economic activity, which lead to more moderate growth in operating revenues and may favor an increase in defaults.

The banking system remains sound enough to underpin the regular operation of financial intermediation. Capital levels increased slightly even with the implementation of restrictive regulatory standards. The various changes in prudential regulation that took place in 2025 did not produce a significant net effect on the Capital Ratio. It is worth noting that most of the impact of new methodologies for provisioning and for calculating capital required for operational risk under the standardized approach will occur between 2026 and 2028. The system has sufficient capital margin to continue expanding credit supply.

The banking system remains resilient, as evidenced by risk analyses and capital and liquidity stress tests. Stress test results indicate adequate capital levels and resilience in all simulated scenarios. Capital levels increased slightly, and profit retention remained the main driver of capital expansion. System resilience and depositor protection were reinforced by improvements in the additional contribution mechanism to the Credit Guarantee Fund (FGC). Liquid assets would be sufficient to absorb potential losses, even in stressed scenarios, and comply with current regulations.

The financial market infrastructures (FMIs)[2] contributed to the safe and efficient operation of markets. The financial system held enough intraday liquidity to ensure seamless transactions in the Brazilian Payment System (SPB). Pix continues to increase its relevance in the SFN and SPB and already represents around 27% of total retail payments. Interbank market settlements took place without any significant incidents and there was no risk of lacking resources. Credit and liquidity exposures were adequately managed by the central counterparty (CCP) every single day of the period.

BCB research shows that the use of artificial intelligence (AI) in the SFN reflects technological maturity and institutions' investment capacity. While AI use is widespread among larger banks, adoption of this technology is low among credit unions and payment institutions (PIs). The research also revealed that, although formalization of policies

2 The FMIs refer to the set of rules, procedures, and operational structure aimed at enabling the exercise of settlement activities, centralized deposit, registration of financial assets or a combination of these activities. The systems and their functions are available at https://www.bcb.gov.br/en/financialstability/financialmarketinfrastructures.

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and procedures for AI use is limited, there are practices to monitor AI performance, such as continuous monitoring, data validation, and systematic testing as control mechanisms. Institutions' perception of AI risks is in line with the international debate, highlighting legal, operational, and data quality issues. The research aims to anticipate understanding of practices and risks and support formulation of potential specific regulations.

Recent incidents showed that cyber risk materialization can have implications for financial and payment institutions. The incidents (i) generated financial losses in some cases; (ii) demonstrated weaknesses related to essential controls in institutions and their service providers; (iii) indicated that a reasonable set of SFN participants do not have adequate mechanisms to manage services provided through Application Programming Interface (API); and (iv) showed that criminal groups have advanced knowledge of SFN operations and co-opt employees of FIs, PIs, or service providers hired by these institutions. Beyond the measures adopted so far, the BCB continues to monitor and act on relevant cyber incidents that may impact on the regular operation of the SFN.

Climate stress test focusing on the intensification of the *El Niño* phenomenon indicates limited impact on FIs' capital. Most institutions would have capital to absorb potential losses in the stressed climate scenario used. Results indicate a maximum increase of 1.5 p.p. in the system's AP in the stressed climate scenario compared to the baseline scenario. The increase would be 2.4 p.p. in the stressed climate scenario combined with a confidence crisis scenario.

The BCB ushered in individual prudential requirements to complement and strengthen the consolidated supervision of prudential conglomerates. Prudential regulation now considers, in addition to the consolidated view, individualized or subconsolidated approaches in specific situations to ensure adequate resource distribution among conglomerate institutions. This change expands the supervision reach by introducing requirements related to risk, liquidity, and capital management. The new rules aim to mitigate risks associated with barriers to resource transfer among conglomerate entities, especially in financial stress scenarios, and are aligned with the guidance of the Basel Committee on Banking Supervision (BCBS), which recommends prudential supervision both on a consolidated and individual basis.

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Decisions of the Financial Stability Committee on the Countercyclical Capital Buffer

At its 61st and 62nd regular meetings, on May 27-28 and August 19-20, 2025, respectively, the Financial Stability Committee (Comef) decided to hold the Countercyclical Capital Buffer for Brazil ($ACCP_{Brasil}$) at 0% (zero percent).[3]

The Committee deems the National Financial System (SFN) prepared to face credit risk materialization. Banks' loan loss provisions, liquidity and capital levels remain adequate. Given reduced exchange rate exposure and low dependence on external funding, the SFN's exposure to financial fluctuations originated abroad is low.

Credit growth slowed both in the financial system and in the capital markets, in line with the moderation in growth observed in economic activity. However, the pace of credit growth remains historically high, despite tighter financial conditions.

In the Committee's view, the scenario, characterized by a contractionary basic interest rate and current levels of default, household debt service-to-income and indebtedness, as well as corporate indebtedness, calls for additional caution and diligence in credit granting, both in loan quality and risk appetite. Comef recommends that supervised entities persist with prudent capital and liquidity management policies in light of economic uncertainties and context.

Comef monitors international financial conditions, with particular attention to the consequences of the path of monetary and fiscal policies in advanced economies, the repositioning of trade policies, global financial asset repricing movements, and geopolitical events.

Therefore, considering financial conditions, asset prices, and expectations regarding credit market behavior, at its 61st and 62nd regular meetings, Comef considered appropriate to hold $ACCP_{Brasil}$ at 0% (zero percent). If Comef increases $ACCP_{Brasil}$, FIs have twelve months to comply; if Comef reduces it, institutions may use the freed-up capital immediately. These decisions were made by Comef in carrying out its duties provided for in the regulation attached to Resolution BCB 173, of December 9, 2021, and followed the principles and objectives described in Communiqué 30,371, of January 30, 2017.

3 Communiqués 43,228, of May 28, 2025, available, in Portuguese, at https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=43228, and 43,714, of August 20, 2025, available, in Portuguese, at https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=43714.

I

Assessment of National and International Financial Systems

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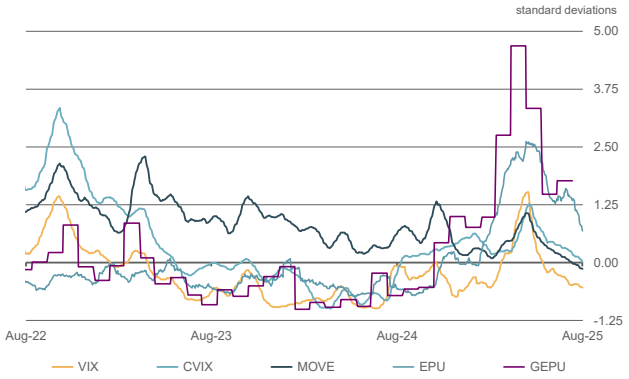
1.1 International Financial System

The international financial system continues to demonstrate resilience. It remains functional and shows no significant signs of stress, despite historically high levels of uncertainty regarding economic and trade policies, episodes of volatility in certain asset classes, and the steepening of the yield curve driven by term premium. Credit impulse remains subdued, consistent with moderate activity in advanced economies. Global liquidity remains abundant, supporting asset prices and funding needs, despite elevated interest rates and the orderly contraction of central banks´ balance sheets. Bank capitalization in major economies remains strong. Investment allocation continues to be concentrated in specific asset classes and markets, in some cases reaching record levels. Global financial conditions have eased since the previous Financial Stability Report (FSR).[4] However, the mismatch between risk appetite and persistent uncertainty related to the repositioning of global trade policies may increase financial vulnerabilities and warrants close monitoring.

Asset price volatility has declined to levels lower than those observed during the reference period of the previous FSR. In April, financial assets experienced heightened stress, with price corrections and the breakdown of some historical correlations. The definition or postponement of trade tariffs helped mitigate uncertainty regarding the net effects of trade repositioning, reducing implied volatility to lower levels. Financial markets navigated this stressful episode while maintaining functionality and without significant central bank interventions. Nonetheless, risks persist, as uncertainty surrounding the economic policies of major economies remains elevated (Chart 1.1.1).

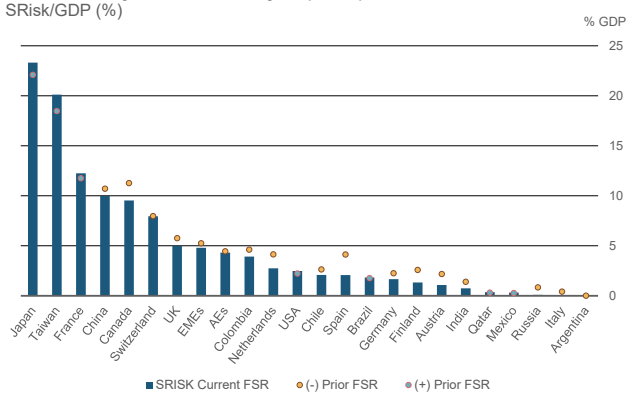
Chart 1.1.1 – Uncertainty and volatility measures*



* normalized since 2018
Source: Policy Uncertainty, Bloomberg.

Systemic risk (SRisk)[5] has decreased in most countries since the previous FSR. Among the exceptions, countries with high exposure to the United States—such as Japan, Taiwan and France—stand out. In most advanced economies (AEs) and emerging market economies (EMEs) analyzed, the increase in the market value of financial institutions and the reduction in volatility contributed to the decline in SRisk, which is estimated at 4.3% of GDP for AEs and 4.8% of GDP for EMEs (Chart 1.1.2).

Chart 1.1.2 – Systemic Risk Analysis (SRisk)
SRisk/GDP (%)



Sources: Bloomberg, BCB staff calculations.

4 In this chapter, the date used for comparison with the previous issue of the FSR is February 19, 2025. The chapter reflects information available as of August 19, 2025.

5 Indicator that measures the capital shortfall of financial institutions in a global stress event, as discussed in the April 2021 FSR.

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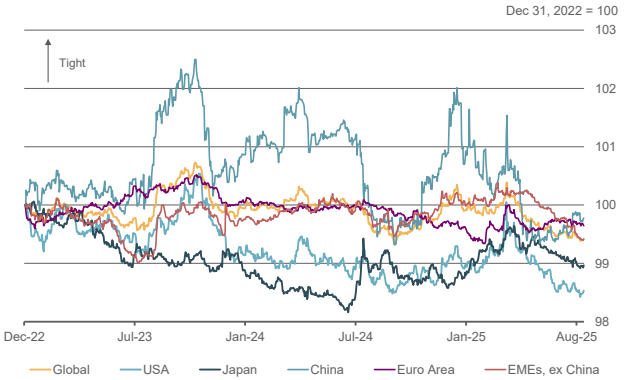
The profitability of most Global Systemically Important Banks (G-SIBs) has remained at historically high levels. In absolute terms, the distribution of Return on Equity (RoE) among G-SIBs in the second quarter was less dispersed than in previous quarters, indicating that G-SIBs have managed to preserve profitability despite a more challenging environment. Bank credit to non-bank financial institutions has been concentrated among the largest banks, particularly credit extended to hedge funds. This credit partly underpins leverage strategies employed by these funds.

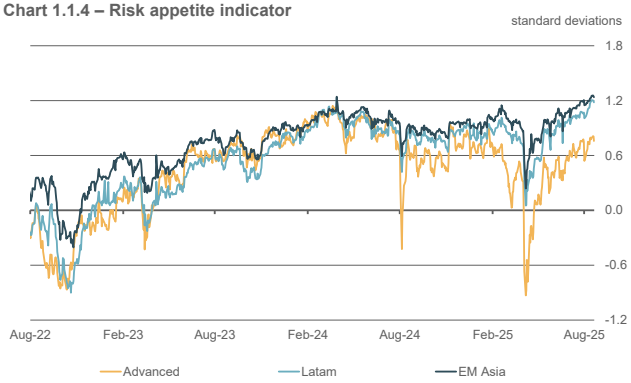
Financial conditions in major economies have improved since the last FSR. This trend has strengthened since April and primarily reflects positive equity market performance, narrowing credit spreads, and U.S. dollar depreciation. The improvement was widespread across major economies, despite the volatility spike observed during the interim period since the last FSR (Chart 1.1.3). Factors explaining this movement include monetary easing implemented by some major central banks; the resumption of monetary accommodation by the Federal Reserve; the assumption that tariff effects will be transitory; and greater clarity regarding U.S. economic policy measures. Although the high and persistent uncertainty reduces predictability regarding future prices and financial flows, risk appetite has remained elevated for both AEs and EMEs (Chart 1.1.4).

Chart 1.1.3 – Financial Conditions Index



Source: Bloomberg.

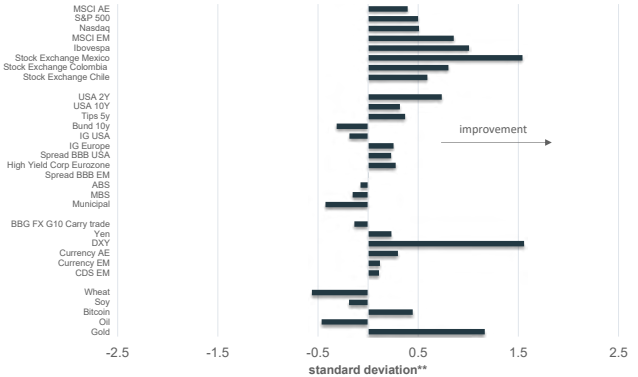
Chart 1.1.4 – Risk appetite indicator



Advanced: USA, Euro Area, Japan
Latam: Brazil, Chile, Colombia, Mexico, Peru
EM Asia: China, Korea, Philippines, India, Indonesia, Malaysia
Sources: Bloomberg, Reuters, Fed St Louis, and BCB staff calculations.

Risk appetite was reflected in the positive performance of equity markets across both AEs and EMEs during the period (Chart 1.1.5). EMEs stood out, posting larger gains compared to AEs. This signals a reversal of the downturn triggered by concerns over global trade policy adjustments introduced earlier in the year. U.S. equity markets reached new record highs, while the Shanghai Stock Exchange regained its 2022 level. Gold reached new highs in both nominal and real terms, as did Bitcoin. Spreads on higher-risk corporate debt remained historically compressed. The U.S. dollar, which temporarily lost its historical correlation with U.S. interest rates during the financial stress episode in April before subsequently regaining it, continued its depreciation trend against other currencies, particularly those of AEs. Hedging against the dollar increased significantly, partly explaining its recent depreciation.

Chart 1.1.5 – Assets Performance since last FSR *



*Up to August 20th. Last FSR: February, 20th, 2025.
**normalized to the days range in each analysis window.
Sources: Bloomberg, Refinitiv, Fed. St Louis.

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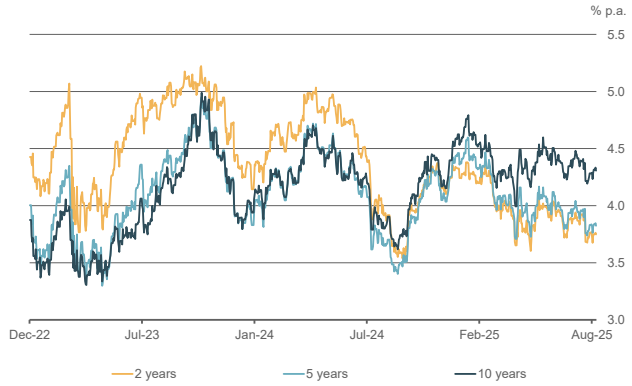
U.S. long-term interest rates have remained elevated since the previous FSR (Chart 1.1.6), fluctuating due to ongoing uncertainty and shifting expectations about monetary policy. Since February, short-term rates have declined, largely reflecting market expectations of the resumption of the monetary easing cycle. Long-term rates exhibited greater volatility in April, coinciding with the initial announcement of tariff increases, but returned to a relatively stable trajectory as bilateral commercial negotiations progressed and economic implications of tariffs became clearer. However, the estimated contribution of the term premium has risen to levels previously observed in 2014. As a result, yield curves have steepened, with the 30-year yield standing out. This movement signals higher long-term borrowing costs going forward.

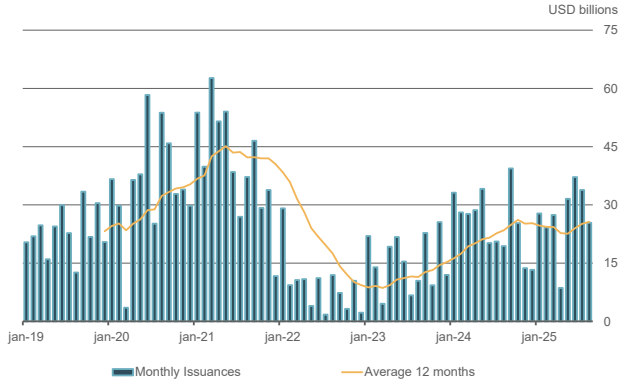
Chart 1.1.6 – US: Long term rates



Source: Bloomberg.

The issuance of higher-risk corporate bonds in the U.S. market, along with international sovereign and non-financial corporate bonds, has remained elevated. Despite a decline in U.S. corporate issuance in April—driven by reduced risk appetite following the announcement of trade tariffs—issuance has since accelerated, reaching levels comparable to those observed in 2024 (Chart 1.1.7). Demand for these bonds, including from international investors, has grown at an even faster pace. Consequently, spreads on lower-quality corporate credit relative to higher-quality credit have remained historically compressed during the period.

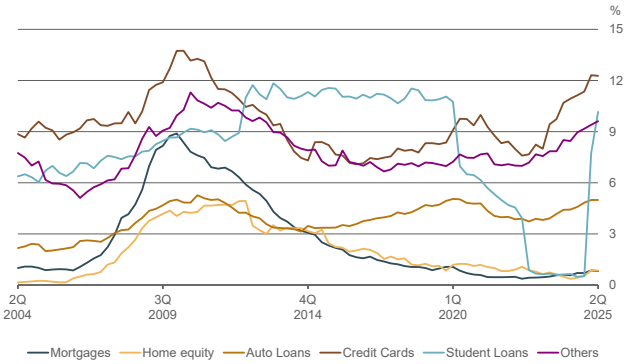
Chart 1.1.7 – US: high-yield issuances



Source: Sifma.

In the U.S., aggregate levels of indebtedness and debt service remain well below those prevailing during the 2008 financial crisis and broadly unchanged from the pre-pandemic period. Household savings rates remain low, as does liquidity availability. Delinquency rates continue to rise, especially in credit card and auto loan segments (Chart 1.1.8), while remaining contained in mortgage lending. With the expiration of debt relief programs, student loan defaults have also increased, reaching levels close to those observed before the pandemic. Leverage in the real sector remains historically low; however, financial pressure is disproportionately concentrated among lower-income households, which may give rise to localized vulnerabilities.

Chart 1.1.8 – US: Loans to households, 90 days past due
Share of Total Loans



Source: Fed NY.

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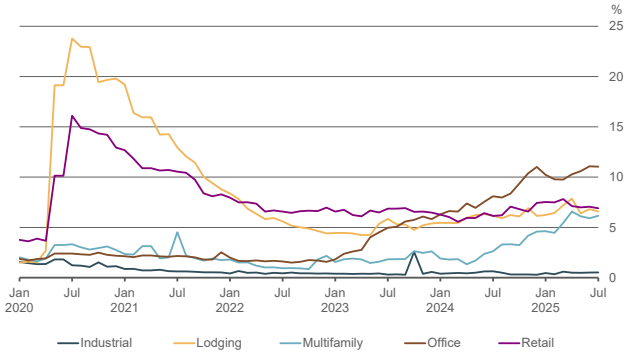
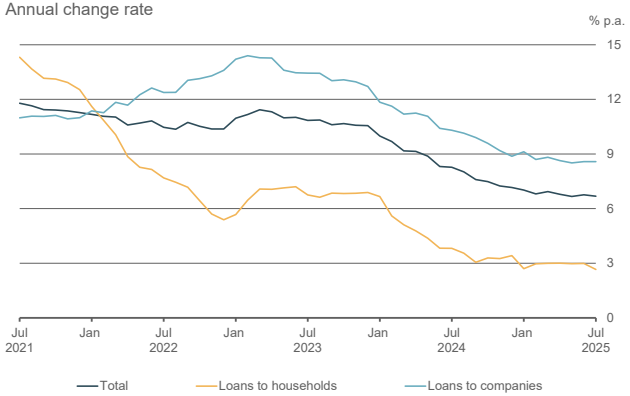
Commercial real estate credit in the U.S. concentrates the main vulnerabilities within the corporate credit segment. Structural changes in the sector since the onset of the pandemic have resulted in lower demand, reduced occupancy rates in certain segments, and declining prices, which are typically pledged as collateral for such credit lines. While materialization of risks remains limited, delinquency rates continue to show moderate increases (Chart 1.1.9). On one hand, this raises the likelihood of a more prolonged price correction, with potential adverse effects on investors and intermediaries. Banks have managed problematic exposures through short-term extensions, yet vulnerabilities persist as new maturities approach – particularly for institutions with weaker capitalization and larger credit exposures. On the other hand, the resumption of monetary easing could help alleviate pressures on the sector, especially by improving refinancing windows and transaction flows. The share of non-bank entities in credit provision continues to grow, alongside increasing cross-dependencies in funding between banking subsidiaries and non-bank affiliates.

Chart 1.1.9 – US: Commercial mortgage backed securities 30 days past due
Share of total



Source: Trepp.

Chart 1.1.10 – China: Financing to the economy
Annual change rate

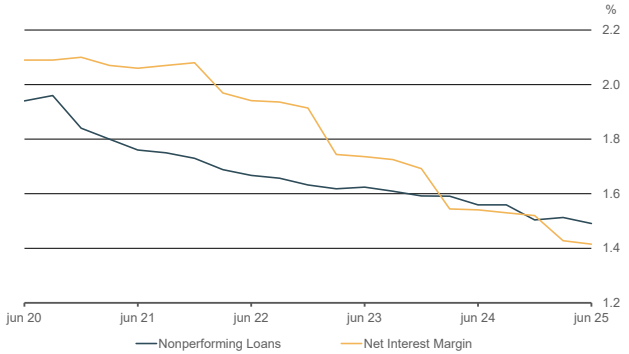


Source: Bloomberg.

In China, growth in real-sector financing has steadied since early this year, marking the end of a four-year period of deceleration. This stabilization reflects sustained bank lending and a sharp increase in government bond issuance, linked to economic stimulus measures introduced in September 2024. Households, however, remain hesitant to take on additional debt, despite recent initiatives aimed at boosting consumption. In July, household loans reached its lowest growth rate in a decade (Chart 1.1.10). Credit extended via shadow banking instruments has continued to decline in nominal terms since July 2022, reducing systemic vulnerabilities within the financial system.

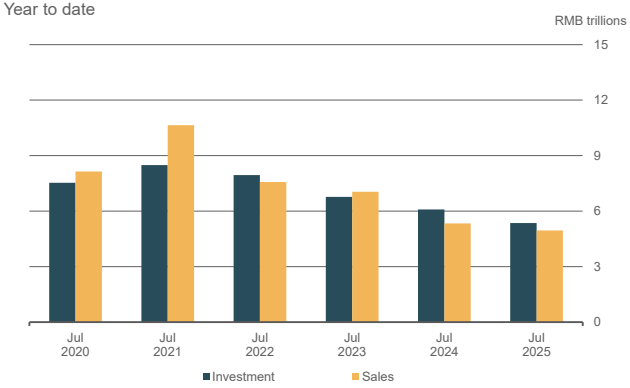
China's financial system signals strength and resilience. Capital adequacy indicators in the banking sector remain stable and elevated, liquidity ratios have trended upward, and banks have increased their provisioning coverage ratios. The share of non-performing loans (NPLs) has gradually declined (Chart 1.1.11), although part of the improvement reflects write-offs and extensions of payment terms. Profitability indicators, however, continue to deteriorate. Return on Assets (RoA) and net interest margins in the banking system have fallen to their lowest levels since 2011. Smaller banks generally exhibit weaker indicators compared to medium and large institutions.

Chart 1.1.11 – China: Nonperforming Loans (%) and net interest margin (% p.a.)



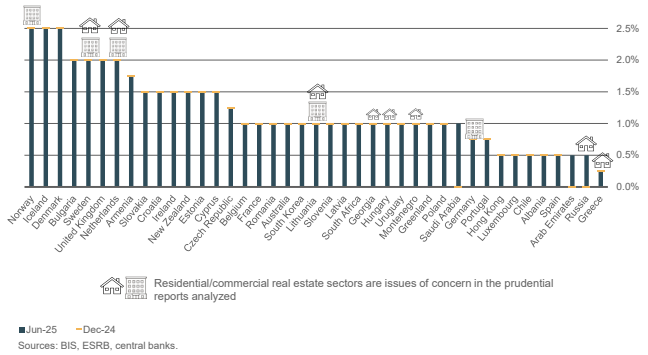
Source: PBC.

Chart 1.1.12 – China: real estate development
Year to date



Source: NBS.

Chart 1.1.13 – Countercyclical Capital Buffer (CCyB)



Sources: BIS, ESRB, central banks.

The ongoing structural contraction in China's property development sector remains the economy´s main vulnerability. Property transaction values in the first half of the year are less than half of those recorded during the same period in 2021 (Chart 1.1.12). Consequently, investment, new project launches, and built-up area have declined, while inventories of completed but unsold units have accumulated. Residential property prices – both new and existing – continue to fall across all city tiers. The central government's program to support overdue debt payments and replace liabilities of Local Government Financing Vehicles (LGFVs) through the issuance of local government bonds is progressing. However, structural factors affecting the solvency of these entities remain: declining revenues associated with the broader economic slowdown and reduced public land sales.

Most jurisdictions have kept their countercyclical capital buffers unchanged since the last FSR. However, some have announced increases or signaled the possibility of raising them. There is growing momentum among jurisdictions to establish a positive neutral buffer, thereby strengthening the resilience of the financial system in an environment that continues to exhibit an accumulation of global financial risks, geopolitical tensions, and domestic economic uncertainties (Chart 1.1.13).

The global outlook continues to present risk factors that could lead to extreme repricing scenarios in financial assets. Key risks include: uncertainty about the future dynamics of major macroeconomic variables, particularly those signaling cyclical slowdown or tariff pass-through to inflation; doubts regarding the adequacy of policy measures, especially those tied to global trade realignment; reductions in trade and capital flows, which could spark abrupt repricing and liquidity reallocation; long-term equilibrium interest rates and pressures stemming from interest rate differentials across currencies; concerns over debt sustainability, particularly sovereign debt; potential disappointments with corporate earnings, which could prompt sharper corrections given record valuations; and the accumulation of vulnerabilities in both banks and non-bank financial institutions, coupled with growing interconnectedness between them. The current recovery remains fragile, and financial and fiscal vulnerabilities may become more pronounced. Turbulence or disruptions driven by economic, geopolitical, or climate-related factors could affect capital costs, financing capacity, and

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the solvency of weaker entities. Overall, EMEs have demonstrated resilience amid external uncertainty, though risk factors persist. In this context, efficient management of risk, capital, and funding remains critical – and disproportionately more complex for smaller intermediaries or those specialized in highly exposed segments.

The BCB remains vigilant regarding developments in the international environment and assesses that the domestic financial system's exposure to exchange rate risk is low, and reliance on external funding is limited. The BCB stands ready to act as needed to mitigate any disproportionate spillover effects on local asset prices.

1.2 National Financial System[6]

1.2.1 Liquidity

The banking system holds enough liquid assets to withstand potential losses, under stressed scenarios, and to comply with current regulations. The FIs in the S1 segment maintained a comfortable margin to minimum regulatory requirements, and the wide majority of FIs (S2-S4) continue to hold adequate liquidity buffers, sufficient to preserve financial stability and safeguard the regular functioning of the financial system. Funding continued its upward trajectory, albeit at a slower pace. Capital structure and longer-term funding remained adequate, with no relevant maturity mismatches, indicating the banking system's structural resilience.

Domestic and foreign funding

In the period tax-exempt instruments grew significantly although funding growth slowed pace. In the first half of 2025, time deposits grew in nominal terms, the highlight being the significant growth in tax-exempt instruments. In the semester, we observed the maintenance of similar rates practiced by various segments. External funding supply remained sufficient to meet the demand for export financing and represented 9% of total funding in June 2025.

Real Estate (LCI) and Agribusiness Credit Bills (LCA) represented the main source of funding in the semester in a scenario of decelerating funding. Funding growth in the period from June 2024 to June 2025 was lower than the observed in the preceding twelve months, both in nominal terms (a change of BRL 688.3 billion compared to BRL 987 billion) and in percentage rate (9.1% compared to 14.9%). There was also lower annual growth in aggregate net funding[7] compared to the previous period (9.3% compared to 14%). Tax-exempt instruments increased in the semester: LCA (13% in the current period against 9% in the previous period) and LCI (16% in the current period against 10% in the previous period). In particular, CMN Resolution 5,168 of 2024 positively impacted LCIs issuance, equalizing the smallest maturity among letters of credit. The persistent decline in savings accounts (a 1% drop in the first half of the year) remains a point of concern for real estate credit funding (Charts 1.2.1.1.a, b, and c).

6 The *Liquidity* section and the *Liquidity Stress Testing* subsection analyze the banking system, i.e. conglomerates comprised by at least commercial, multipurpose, savings, foreign exchange, or investment banks. The *Credit*, *Solvency*, and *Profitability* sections analyze all SFN segments, including non-banking conglomerates. At last, the *Liquidity* section and the *Liquidity Stress Testing* subsection narrow their analyses to the financial conglomerate, while the *Profitability*, *Solvency*, and *Credit* sections and the *Macroeconomic Stress Test* subsection employ information from the prudential conglomerate in their analyses.
The *Macroeconomic Stress Test* subsection includes development banks, in addition to the aforementioned.

7 The estimate of net funding and stock is made by excluding the appropriation of interest, based on the estimated average rates of the funding stock. For this calculation, funding with the following instruments was excluded: loans and transfers, subordinated debt not registered in custody centers, external funding, and funding instruments eligible for principal or supplementary capital (IECI and IECP).

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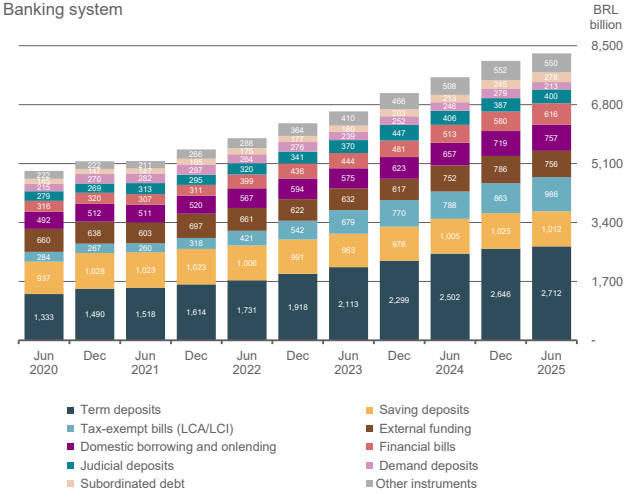
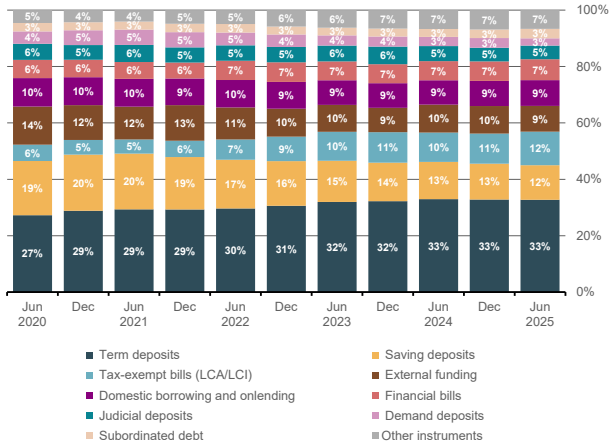
Chart 1.2.1.1.a – Funding profile by instrument
Banking system



Sources: BCB, [B]³, CRT4, CERC, CSD-Br.

Term deposits: certificates of deposit, receipts of deposit, time deposits with special guarantee by the Credit Guarantee Fund (Fundo Garantidor de Crédito – FGC). Subordinated debt: subordinated certificates of deposit, subordinated financial letters and other capital instruments. Other instruments: structured notes, bills of exchange, mortgage notes, box spread strategies with options, guaranteed real estate credit bills (LIG), interbank deposits, repurchase agreements (repo) collateralized by private-issued securities.

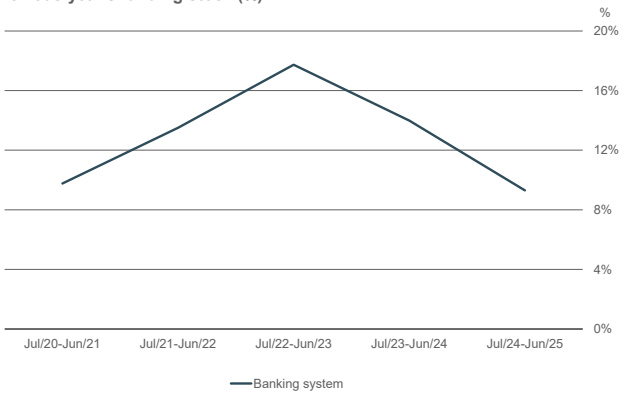
Chart 1.2.1.1.b – Funding profile by instrument
Banking system – % of total



Fontes: BCB, [B]³, CRT4, CERC, CSD-Br.

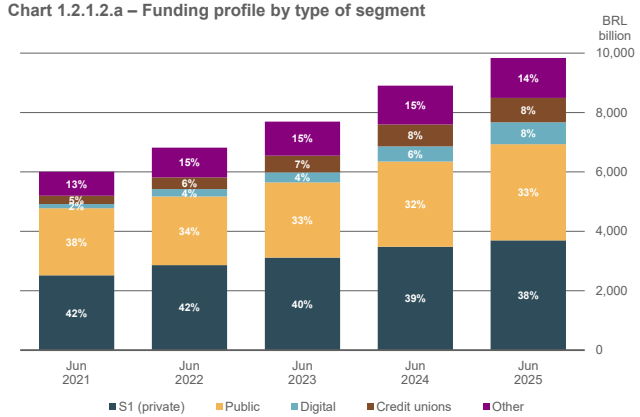
Term deposits: certificates of deposit, receipts of deposit, time deposits with special guarantee by the Credit Guarantee Fund (Fundo Garantidor de Crédito – FGC). Subordinated debt: subordinated certificates of deposit, subordinated financial letters and other capital instruments. Other instruments: structured notes, bills of exchange, mortgage notes, box spread strategies with options, guaranteed real estate credit bills (LIG), interbank deposits, repurchase agreements (repo) collateralized by private-issued securities.

Chart 1.2.1.1.c – Net accum. funding on year (estimated) / previous year's funding stock (%)



Financial system[8] fierce competition for funding remained in the period. On one hand, Private S1 banks' funding share decreased, while public banks have remained stable in recent years. On the other hand, digital FIs share increased during the period, driven by the expansion and reach of digital channels, as well as the greater use of distribution platforms. In a longer time horizon, the estimated annual net funding[9] for digital FIs consistently surpassed that of private S1 and public financial institutions. Meanwhile, funding by type of investor remained stable during the period (Charts 1.2.1.2.a and b and 1.2.1.3).

Chart 1.2.1.2.a – Funding profile by type of segment



8 The information produced in the paragraph considers the whole National Financial System (SFN), and not only institutions in the b1 and b2 banking segments.

9 Expressed as a percentage of the net stock on the last business day of the previous year. Estimate of net funding and stock according to the methodology described in footnote 7.

Chart 1.2.1.2.b – Net accum. funding on year (estimated) / previous year's funding stock (%)

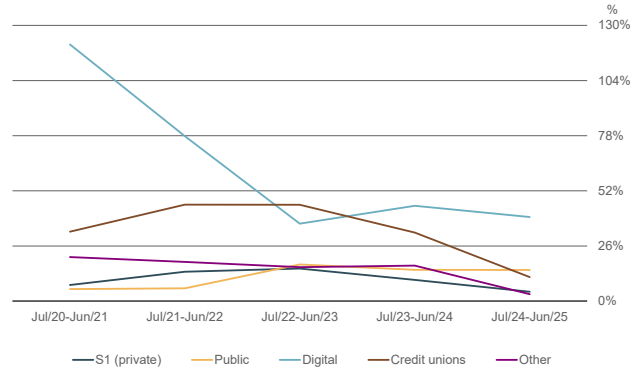
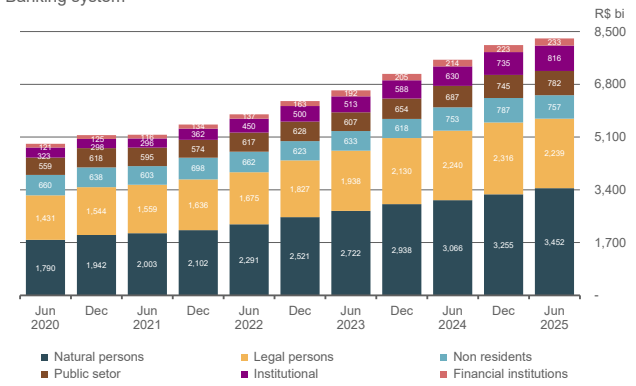


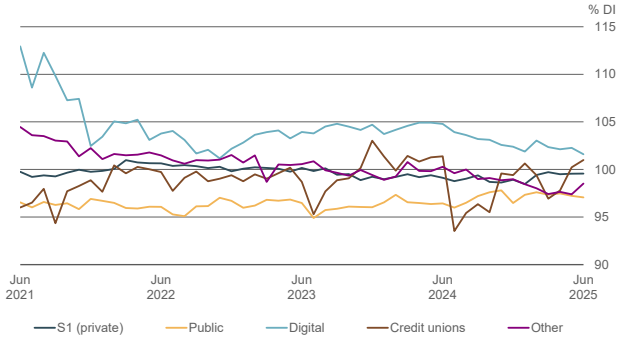
Chart 1.2.1.3 – Funding profile by type of investor
Banking system



Sources: BCB, [B]³, CRT4, CERC, CSD-Br.

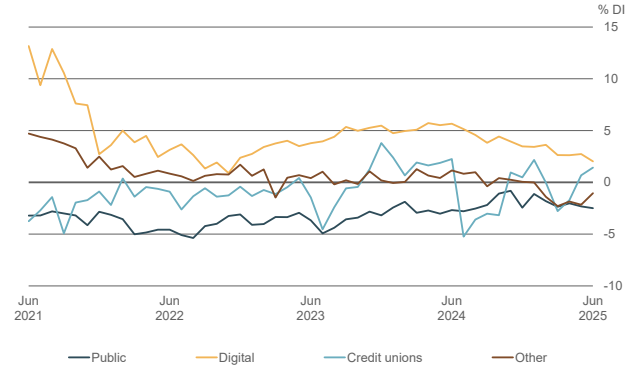
Funding rates[10] practiced by the various segments remained close in the period, with an observed decrease for the Digital segment. Funding rates spread between Interbank Deposit (DI) rate practiced by private and public S1 segments increased slightly when compared to the end of the semester, while those for the Digital and other FI segments decreased slightly. After a significant drop in the previous semester due to the extension of rural credit operations offered considering the Rio Grande do Sul floods, spread for the cooperative segment increased again by almost the same proportion in the current semester, resulting in a slight decline over the last twelve months (Charts 1.2.1.4 and 1.2.1.5).

Chart 1.2.1.4 – Monthly average funding rates (*)



(*) Weighted average rate of these instruments: bank deposit certificates, bank deposit receipts, time deposits with special guarantee from the Credit Guarantee Fund (FGC), interbank deposits, agribusiness credit bills; real estate credit bills, financial letters (including with subordination clause), guaranteed real estate bills Rates below the 1st percentile and above the 99th percentile were excluded from the calculation

Chart 1.2.1.5 – Difference in monthly average funding rates compared to the S1 (private) segment



Despite market concentration on a few players, investment platforms remain an important distribution channel for smaller institutions, intensifying competition and pressuring rates. This type of operation remains the primary source of funding for a group of smaller institutions, many of which are part of the "Digital" and "Other FIs" segments, and help explain a competition increase and rates reduction charged by non-S1 segments in recent semesters. The public segment has been expanding its use of platforms, seeking specific customer groups. On one hand, investment platforms

10 Charts 1.2.1.4 and 1.2.1.5 are generated considering the last registration position of each FI, which makes it possible for the rates of the same segment and for the same date to vary in versions of this Report generated at different times (an FI may have been reclassified from one segment to another, or may have been acquired or incorporated by another FI from a different segment, for example).

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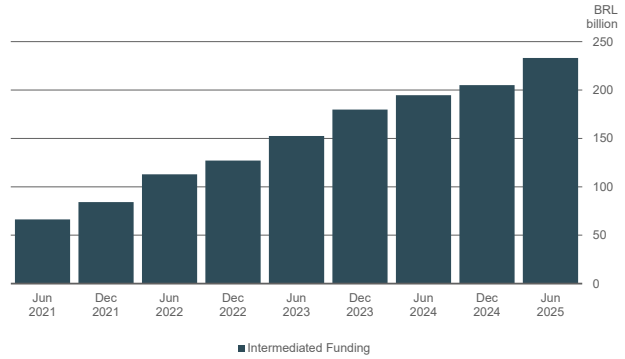
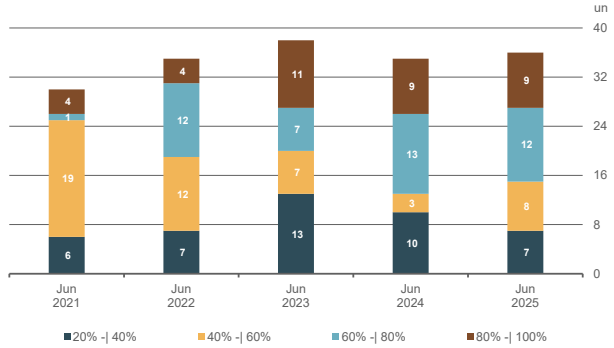
continue to expand the funding capacity of FIs and pressure on rates, by increasing competition between FIs and other investment options; on the other hand, the investment platforms' market remains highly concentrated in six big players, indicating a dependence on distribution channels, despite the steady increase in other platforms' shares (Charts 1.2.1.6 to 1.2.1.11).

Chart 1.2.1.6 – Changes in the stock of intermediated funding (*)



(*) Excluding financial institutions whose intermediated funding estimated dependence is below 20% of their total funding.

Chart 1.2.1.7 – Intermediated funding – Number of Financial Institutions by dependence of issuer on total funding – Banks[1/]



1/ The values on the bars refer to the number of financial institutions belonging to the corresponding interval.
Sources: BCB staff calculations, [B][3].

Chart 1.2.1.8 – Intermediated funding stock by segment

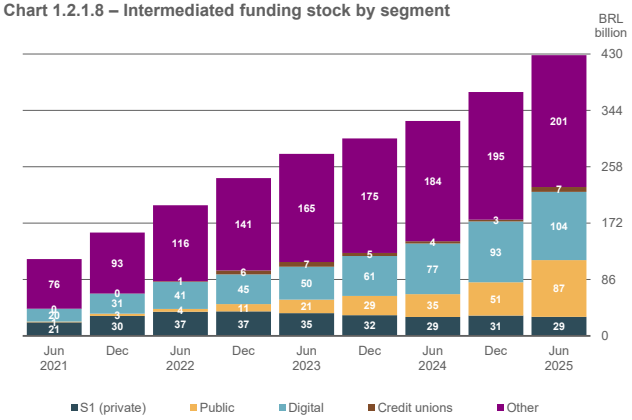


Chart 1.2.1.9 – Intermediated funding stock by segment (% of total)

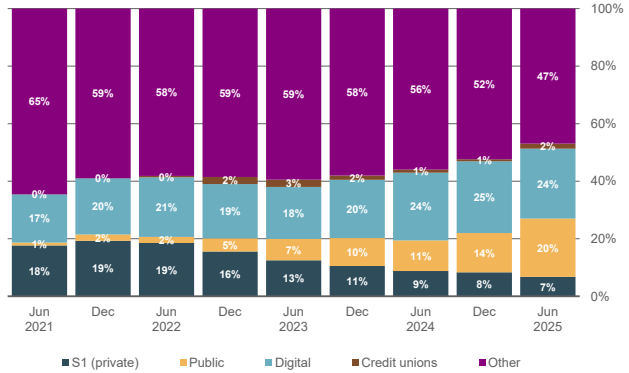


Chart 1.2.1.10 – Net accumulated intermediated funding by segment

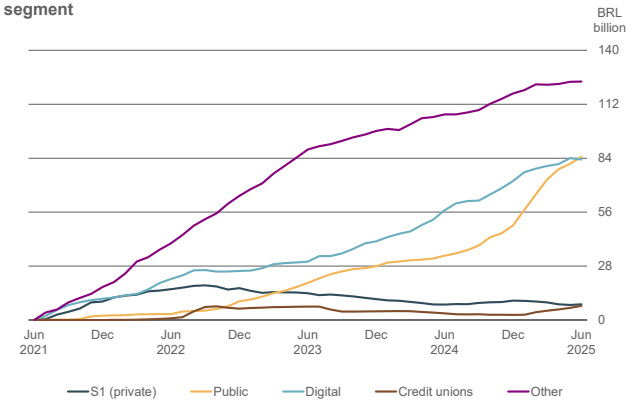


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Chart 1.2.1.11 – Intermediated stock funding by platform

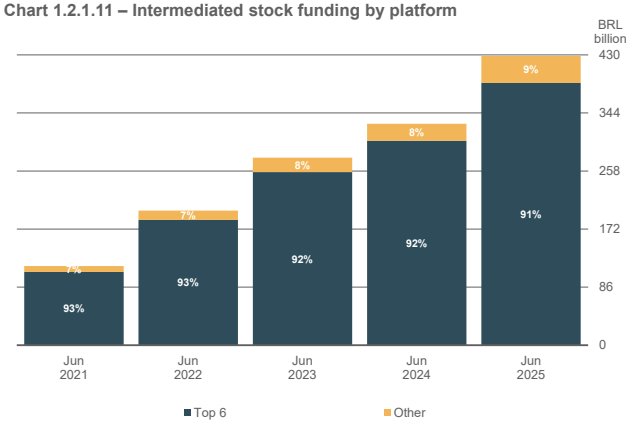


Chart 1.2.1.12 – FGC indicators and rules (VR and CR)

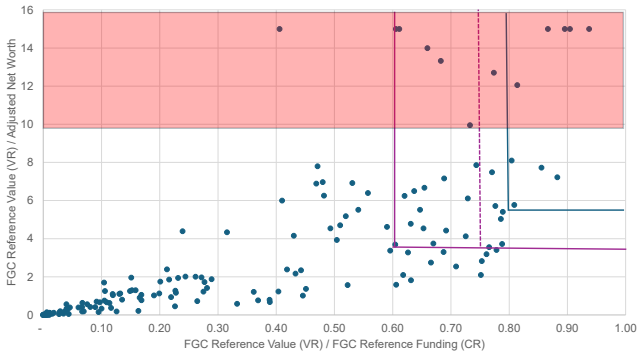
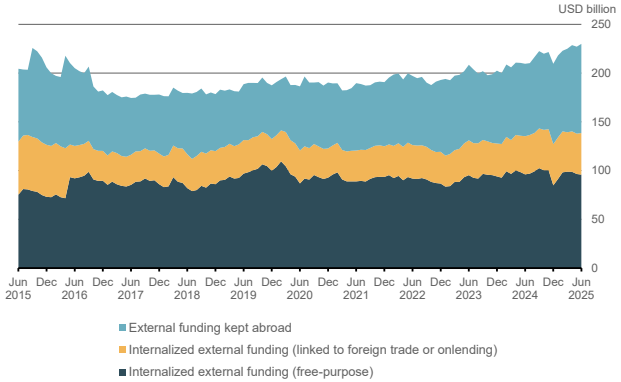


Chart 1.2.1.13 – Profile of external funding
Monthly outstanding principal



Recent measures have reinforced system resilience to protect depositors. CMN Resolution 5,238, as of August 1, 2025, with effects from June 2026, established improvements to the FGC's additional contribution mechanism aiming to mitigate incentives for member institutions to take excessive risks, preserving the FGC's essential role in protecting deposits and contributing to the stability of the National Financial System (SFN). Based on a simulation applied to approximately 250 institutions, the number of entities subject to an additional contribution would increase from 12 to 28. Furthermore, six institutions would be required to allocate resources in government securities, due to their leverage levels (Chart 1.2.1.12).

The share of external funding in the total funding of the National Financial System (SFN) decreased. The 0.5 percentage point reduction was due to the 11.9% depreciation of the U.S. dollar against the Brazilian real. The stock of external funding (measured in U.S. dollars) increased by 9.8% (Chart 1.2.1.13). Although this increase was higher than that of total funding (measured in reais), the dollar depreciation was sufficient to reduce the share of external funding to 14.1% (Chart 1.2.1.14). The cost of export-linked external credit lines declined during the semester, with a slight increase in the spread over the six-month Secured Overnight Financing Rate (SOFR) (Chart 1.2.1.15). There is no indication of a significant change in funding costs for the coming months.

Chart 1.2.1.14 – Profile of external funding
As a percentage of total funding

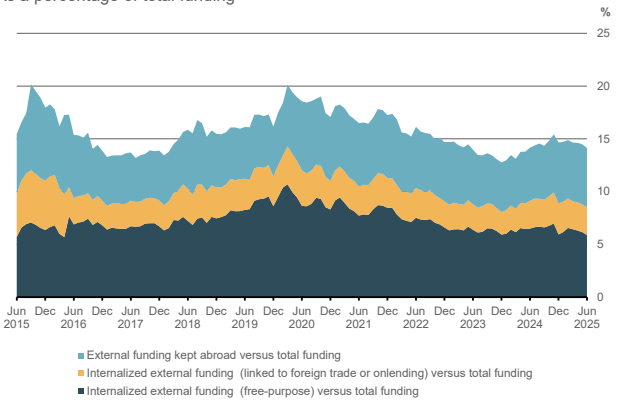
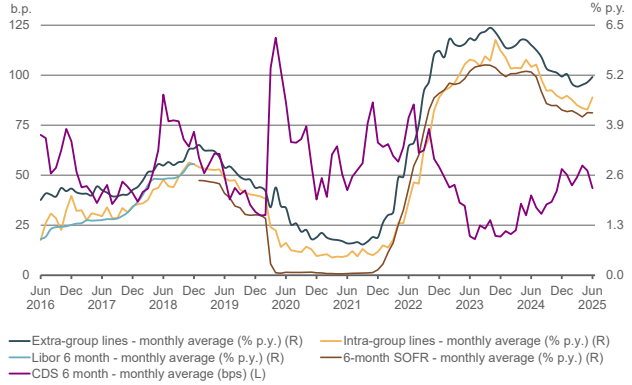


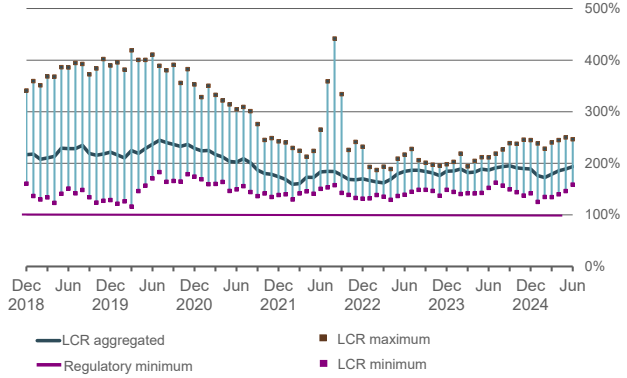
Chart 1.2.1.15 – Export-linked external credit lines
Cost x reference rates



Short-term liquidity

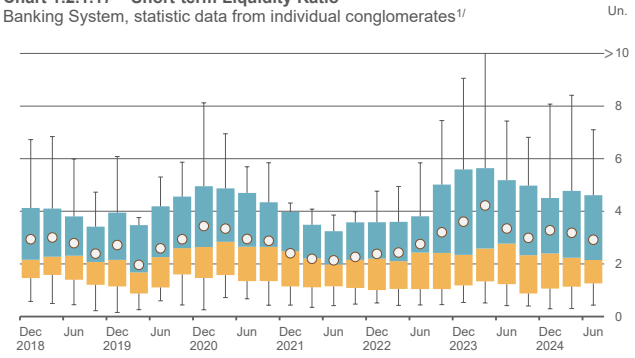
The banking system's liquidity remains comfortable for the regular functioning of the intermediation system. The liquidity buffer remains stable, reflecting the slowdown of lending growth and a more moderate rhythm of rollover and issuance of new funding. The FIs in the S1 segment exhibit regulatory liquidity ratios (LCR)[11] significantly higher than the minimum requirement, indicating their strong capacity to meet their short-term obligations. These factors indicate that FIs' liquidity management remains conservative and adequate to ensure the safeguard of financial stability (Chart 1.2.1.16). Applying another approach[12] encompassing all individual FIs – considering the effects of stressed scenarios and bank runs – it is possible to observe an increase in the liquidity cushion of the FIs with lower liquidity ratios, indicating the resilience of the banking system as a whole (Chart 1.2.1.17).

Chart 1.2.1.16 – Liquidity Coverage Ratio (LCR)
High, low and aggregated[1/]



1/ LCR data series comprises institutions classified in the prudential segment S1 (currently 6 banks).

Chart 1.2.1.17 – Short-term Liquidity Ratio
Banking System, statistic data from individual conglomerates[1/]



1/The Short-term Liquidity Index is capped at the level of the 80th percentile in each month, after capping each index the statistics are calculated. The values along the box and whiskers refer to the percentiles 10%, 25%, 50%. 75% and 90% respectively. The mean is represented by the circles.

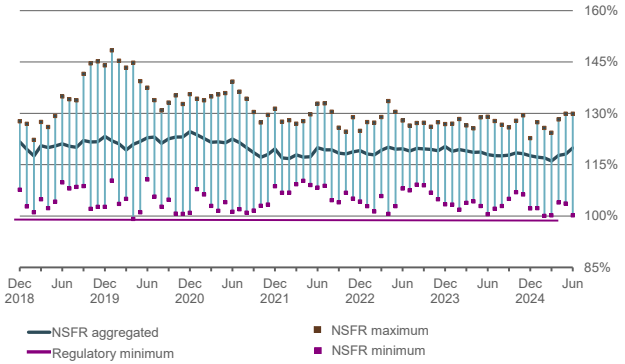
11 The Liquidity Coverage Ratio (LCR) is a ratio whose compliance is mandatory for all FIs belonging to the S1 segment, pursuant to art. 2 of Resolution CMN 4,553, of January 30, 2017. The indicator requires institutions to maintain High-Quality Liquid Assets (HQLAs) to support net cash outflows in the next 30 days, considering the stressed scenario defined by the Basel Committee on Banking Supervision (BCBS) (www.bis.org/publ/bcbs238.htm). See domestic regulation – Resolution CMN 4,401, of February 27, 2015, and Circular BCB 3,749, of March 5, 2015.

12 This approach considers an asset loss scenario under market stress, deposits run-offs and the withdrawal of the main depositors (concentration risk) in the calculation of a single indicator. It is named Short-Term Liquidity Ratio (IL), metric that covers the entire financial system and measures whether banks have sufficient liquid assets to cover its short-term cash outflows (subsequent thirty days) under a hypothetical stressed scenario, defined and calibrated by the BCB. These resources outflows arise from the possibility of redeeming funding maturing under the next 30 days or with immediate liquidity, exposures to market risk such as margin calls and daily derivative adjustments and still, other scheduled contractual outflows. For an overarching understanding of the metric, see the Concepts and Methodologies annex.

Long-term liquidity

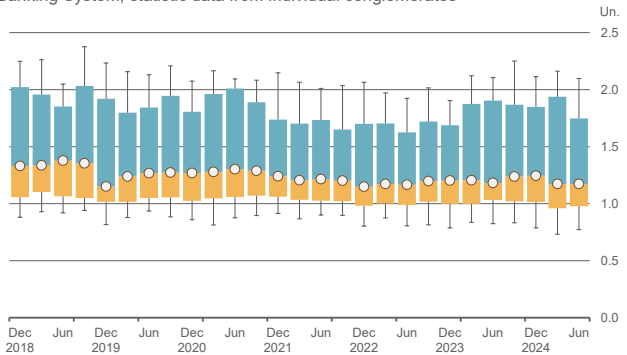
Funding structure remains compatible with financing longer-term assets, indicating there are no relevant maturity mismatches between assets and liabilities. The banking system's structural liquidity refers to FIs' capacity to maintain a sustainable balance between their longer-term assets and liabilities, avoiding excessive dependence on short-term funding sources. The Net Stable Funding Ratio (NSFR)[13] is a regulatory ratio which aims to mitigate those risks (Chart 1.2.1.18). In a simplified NSFR calculation applied to all conglomerates, there was no relevant variation in FIs' capacity to finance their activities, as measured by the Structural Liquidity Ratio (ILE, in its Portuguese acronym)[14] (Chart 1.2.1.19). Despite the slight deterioration in the highest tiers of the ILE's distribution (90th percentile), the balance sheets of the wide majority of FIs are liquid enough to adequately finance lending growth.

Chart 1.2.1.18 – Net Stable Funding Ratio (NSFR)
High, low and aggregated[1/]



1/ NSFR and ILE data series comprise institutions classified in the prudential segment S1 (currently 6 banks).

Chart 1.2.1.19 – Structural Liquidity Ratio[1/]
Banking System, statistic data from individual conglomerates



1/ The Structural Liquidity Index of each FI is capped at the level of the 80th percentile in each month, after capping each index the statistics are calculated. The values along the box and whiskers refer to the percentiles 10%, 25%, 50%. 75% and 90% respectively. The mean is represented by the circles.

1.2.2 Credit[15,16]

Introduction

Financing for the real economy has slowed down, in line with tighter financial conditions and more moderate economic activity growth. Regarding bank credit to households, there was a marginal

13 It was implemented in Brazil by Resolution CMN 4,616, of November 30, 2017, with its methodology given by Circular BCB 3,869, of December 19, 2017, having started its effects from October 1, 2018. It is an indicator that corresponds to the ratio between the amount of Available Stable Funding (ASF) and the amount of Required Stable Funding (RSF). The numerator is composed of regulatory capital and stable funding, and the denominator mainly by the credit portfolio. All FIs classified in the S1 segment must comply with the regulatory minimum requirement of 100%.

14 The Structural Liquidity Ratio (ILE) aims to measure whether banks have sufficient sources of stable funds (numerator) to finance their long-term assets (denominator). Therefore, institutions with a ratio equal to or greater than 1 (or 100%) present smaller long-term maturity mismatches between assets and liabilities, remaining less subject to future liquidity problems. For details on the definition of the metric, refer to the Concepts and Methodologies annex.

15 Throughout this section, when we talk about bank credit or credit portfolio, we are referring to the domestic bank credit portfolio.

16 Regarding bank credit, numbers presented here can differ from those in time series from BCB because the data source is the credit outstanding balance from identified clients in the Credit Information System (SCR).

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slowdown in portfolio growth, except for non-payroll loans. In the case of firms, bank credit slowed down for companies of all sizes, except medium-sized ones. Lower growth was also observed in the capital markets, which, nevertheless, continue to grow at high rates, gaining relevance as a significant source of financing, especially for companies.

The payment capacity of companies and households remains challenging. The labor market has shown strong recent dynamism, with consistent income gains and a significant drop in the unemployment rate. Even in this environment, household debt service-to-income ratios remain historically high and continue to rise. For companies, payment capacity showed positive signs, but the growth in indebtedness – and its cost – is likely to exert additional pressure on balance sheets, especially in a scenario of economic slowdown, given the high level of leverage.[17]

Financial institutions' risk appetite showed signs of marginal reduction. Credit growth slowed for both households and companies, with an improvement in lending quality across certain segments. Signs of risk appetite are still noted in non-payroll personal credit, as it maintains a high growth rate, with a significant share of unsecured operations.

The expectation for the next quarter is for credit supply to remain in a restrictive scenario. Prospectively, the Quarterly Credit Conditions Survey (PTC) indicates credit supply in a still restrictive scenario for real estate financing and credit to companies, while such supply should remain neutral for consumer credit to households.[18] This scenario aligns with an environment that demands caution in the quality of lending given the risks related to household high debt service-to-income ratio and the indebtedness of households and smaller companies.

Regardless of the metric used for measurement, risk materialization has worsened and is expected to remain under pressure in the short term. For households, PAs increased in almost all portfolios, especially in rural credit, which shows no signs of easing in terms of risk materialization. The increase in PAs was also observed among MSMEs, and no clear trend is observed in the evolution of this metric in large companies. PA figures should be viewed with caution, at least at the beginning of the new financial instrument accounting standards, as the series was disrupted due to changes in the proxy used to measure PAs.[19] Additionally, the percentage of loans overdue by more than ninety days is higher partly due to longer delays in the write-off of defaulted operations.[20] However, even considering these effects, marginal analysis – which is less affected by disruptions – suggests an increase in risk materialization, and is expected to remain under pressure in the short term.

At aggregate levels, the provisions made by entities align with expected losses and with the minimum provisioning levels of the credit portfolio. The stock of provisions made is consistent with the provisions estimated by the BCB, which take into account expected losses – calculated using proprietary models of Probability of Default (PD) and Loss Given Default (LGD), applied to data from the Credit Information System (SCR) – and the minimum regulatory provisioning levels.

17 See item 1.3 – Financial Stability Survey.

18 See Quarterly Credit Conditions Survey (PTC) – June 2025 results.

19 See box "Change in the proxy for problem assets".

20 See box *Impact on the delinquency rate resulting from the new accounting rules for financial instruments*, available at September 2025 Monetary Policy Report.

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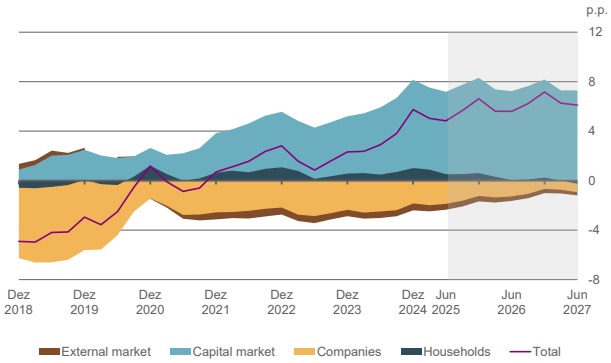
Broad credit and long run trend

The slowdown in broad credit brought the semester's growth pace closer to the long-term trend. The broad credit gap reversed the upward trend that had been observed since 2023, influenced by lower growth in both household loans and the capital markets (Chart 1.2.2.1). Although the capital markets slowed down in the first two quarters of the year, various securities and instruments continue to grow at a pace well above that of bank credit, increasing their share in broad credit, especially for large companies (Charts 1.2.2.2 and 1.2.2.3). For debentures, which are the most significant instruments in the capital markets, the combination of higher demand for private credit securities and reduced supply has helped to keep spreads at low levels, contributing to the market's dynamism.[21]

The projection of the broad credit/GDP gap indicates some increase in the medium term, influenced by the capital markets.[22] Although expectations for broad credit growth indicate a gap at levels lower than those projected in the last edition of this Report, an increase in the gap is projected for the medium term. Despite the slowdown, broad credit continues to grow at a historically high rate, especially in the capital markets, which is expected to remain dynamic in the coming periods. However, even with projected gap values indicating an increase in the coming periods, and despite being the reference indicator proposed by the BCBS to support CCyB decisions, the BCBS itself does not advocate the mechanical use of this indicator due to several limitations of the metric. As discussed in the previous edition of the Report, the recent development of the capital markets is one of the events that can contribute to gap growth, making the signaling function of this metric challenging.[23]

Chart 1.2.2.1 – Broad credit-to-GDP gap
Shaded area: forecast



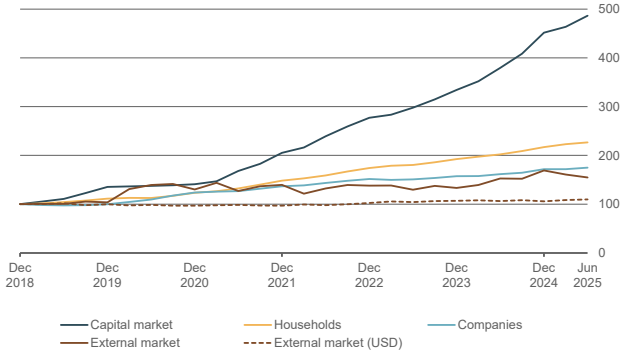
Sources: B3, CERC, BCB, CVM and BCB staff calculations.

21 For Rural Product Notes (CPR), the chart starts at December 2021. The reason is that Resolution CMN 4,927, of June 24, 2021, established a phase-in for the registry of CPRs that only ended in 2023. Even though the CPR series starts in 2021, the information about this period is only available for CPRs whose registry was obligatory. Thus, the increase in the values of the series is due both to the organic growth of the product, as well as to the growth in the registry and availability of the data.

22 The market agents slightly increased their perception of a trend toward stability in the credit-to-GDP gap, even though the current level is still considered high (see item 1.3 – Financial Stability Survey).

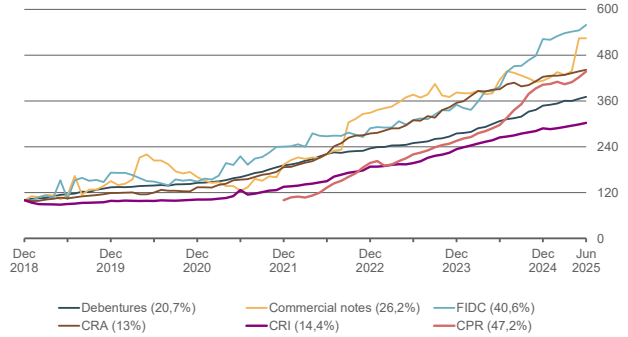
23 April 2025 Financial Stability Report (p. 23): "[...] even with empirical evidence of its predictive power, as this metric shows limitations that are particularly important for emerging economies. There are documented cases, especially in these economies, where jumps due to economic factors or statistical revisions impacted the broad credit-to-GDP gap for long periods (around 10 years), according to simulations made by researchers cited by the BIS. The authors of this paper warn about the impact of these events in the broad credit-to-GDP gap signaling function, which should be understood before the series is used in the context of the countercyclical capital buffer. In this sense, it should be noted that the recent development of capital markets in Brazil after legal and regulatory changes is an event that potentialized the growth of the broad credit-to-GDP gap, either by the expansion and consolidation in the market of instruments like debentures (especially those with tax benefits), or by the possibility of capturing new information for rural bonds (Rural Product Notes – CPRs), for instance".

Chart 1.2.2.2 – Broad credit
Dec/2018 = 100



Sources: B3, CERC, BCB, CVM, and BCB staff calculations.

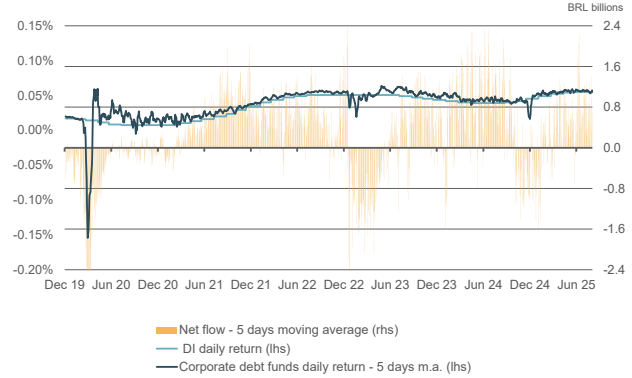
Chart 1.2.2.3 – Capital market[1/]
By instrument – Dec/2018 = 100



1/ Sources: B3, CERC, CVM, and BCB staff calculations. For CPR, Dec/2021 = 100. The number between parentheses after the name of the series represents its YoY growth rate in Jun/2025.

Corporate debt funds have resumed positive inflows and corporate sector financing. Investment funds, or more specifically corporate debt funds, are important holders of domestic corporate debt. These funds had net outflows in the fourth quarter of 2024, with widening spreads and consequent loss of profitability in December. With spreads narrowing subsequently their return has runed above reference rate, which has prompt back the flow of funds. (chart 1.2.2.4).

Chart 1.2.2.4 – Corporate debt funds return and net flow
Exc. infraestruture/incentivized funds



Sources: BCB, CVM.

Companies

Corporate payment capacity exhibited a marginal improvement; however, leading indicators suggest a potentially more adverse outlook. Despite the implementation of contractionary monetary policy and signs of deceleration in economic activity, large corporations reported positive performance in key financial metrics, notably EBITDA and net income, throughout the semester. Consequently, the tightening of financial conditions has not yet materially impacted, at the margin, the consolidated Net Debt/EBITDA ratios or Interest Coverage Ratios (ICR), with profitability maintaining an upward trajectory (Chart 1.2.2.5). Nonetheless, the observed increase in leverage and associated financing costs are expected to exert greater pressure on corporate balance sheets in a scenario of economic cooling, representing a key risk factor for upcoming periods. Furthermore, from a systemic perspective, financial institutions within the National Financial System (SFN) have increasingly perceived corporate leverage levels as elevated.[24]

24 See section 1.3 Financial Stability Survey.

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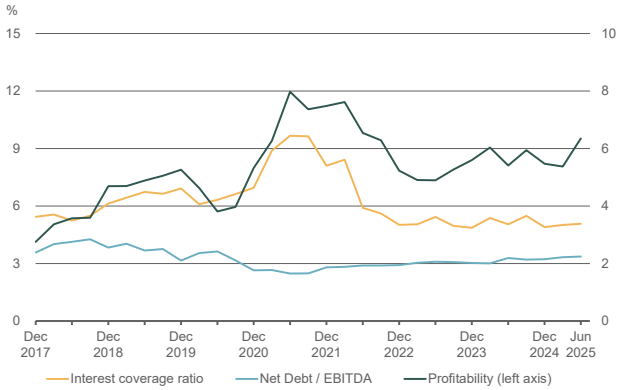
Chart 1.2.2.5 – Financial-economic indicators (medians)
Publicly traded companies



Sources: Economatica, BCB staff calculations.

Bank credit to legal entities decelerated at the margin across all company sizes, except for mid-sized firms. This slowdown was observed only in the second quarter for micro and small enterprises, whereas the deceleration trend was more pronounced among large corporations. In fact, the credit growth figure for June was the lowest since mid-2024 (Chart 1.2.2.6), reflecting a shift toward increased reliance on capital markets as a relevant source of funding. From the perspective of financial institution segments, public banks' corporate loan portfolios showed a more distinct reduction in growth, while S1 Private banks exhibited no clear trend, with a notable decline only in the final month of the period (Chart 1.2.2.7). Together, these two segments account for over 71% of total corporate credit.

Chart 1.2.2.6 – Bank Credit – Year over year growth
By company size

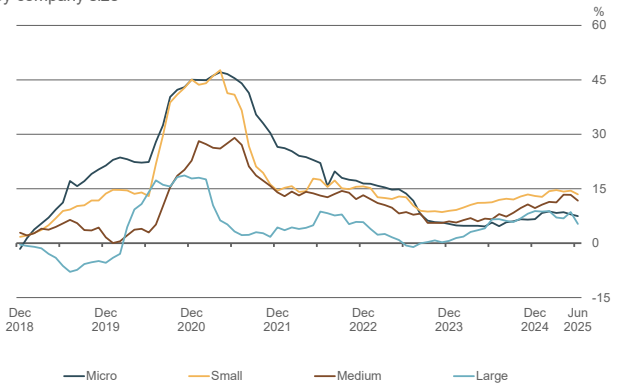
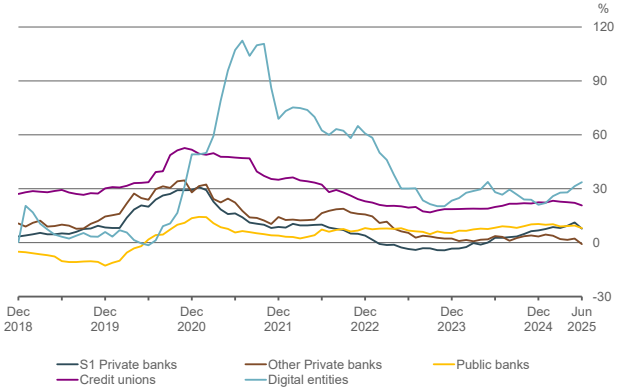


Chart 1.2.2.7 – Bank credit – Year over year growth
By segment



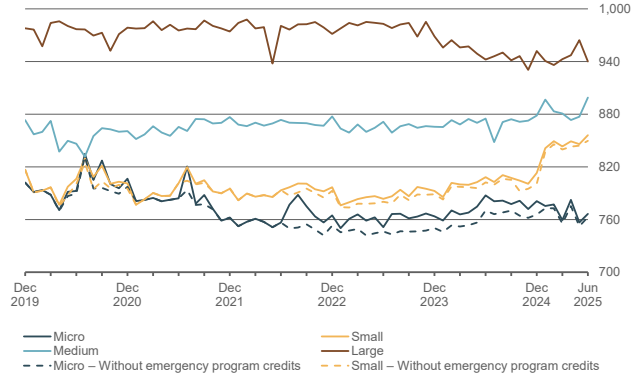
Overall, financial institutions' risk appetite showed signs of cooling during the semester. In addition to the slowdown in credit growth rates, the credit quality of newly originated operations[25,26] improved across all company sizes, with the exception of microenterprises (Chart 1.2.2.8). This environment of lower growth rates and reduced risk appetite in corporate lending is expected to persist in the coming periods, as the Quarterly Credit Conditions Survey (PTC) prospectively indicates a generalized tightening in credit supply conditions across different company segments. For micro, small, and medium-sized enterprises (MSMEs), key restrictive factors include funding costs, market delinquency levels, and institutional risk tolerance. In the case of large corporations, the main constraints are linked to

25 The credit granting average score is a measure that quantifies the credit risk of new granting in the reference month, determined by a proprietary statistical BCB model. Unlike previous editions of this report, in the current edition, a higher score indicates lower risk associated with the operations. For companies, the model is based on borrowers' variables. The scores of micro, small, and medium-sized companies cannot be directly compared, given that different models were used to generate them. For large companies, the variable is the percentage of the credit granting for companies that either are already deteriorated or with a high chance of deteriorate within a period of three months.

26 Due to the incorporation of new data into a key feature of the scoring model, figures related to small enterprises experienced a structural break. As a result, comparisons between current data and those prior to January 2025 are impaired. This discontinuity will also affect the default probability metric.

domestic economic conditions and prevailing market default rates.[27]

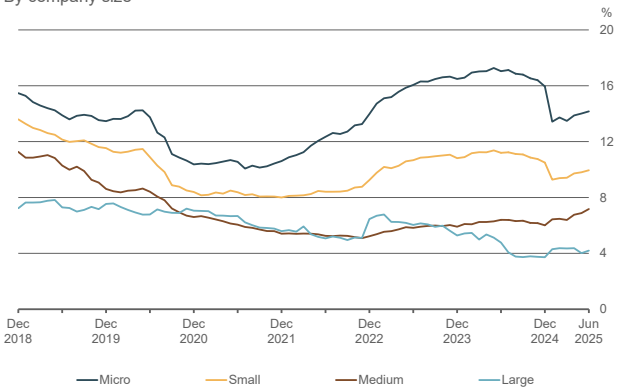
Chart 1.2.2.8 – Credit granting average score
By company size



Credit risk materialization deteriorated at the margin. Despite the structural breaks in the metric[28], second-quarter data analysis indicates an increase in risk materialization among MSMEs, reflected in a general rise in delinquency rates (Chart 1.2.2.9). For large corporations, the percentage of PA fluctuated throughout the semester without a defined trend[29]. From a segmentation standpoint, both public banks and S1 Private banks – the two largest segments – registered a slight uptick in PA during the second quarter, while other segments showed a more pronounced increase. This indicates that, despite some heterogeneity, the rise in credit risk materialization is impacting all types of financial institutions (Chart 1.2.2.10).

Credit risk materialization is expected to remain under pressure in the short term. Prospectively, for large corporations, the default probability[30,31] of the performing portfolio suggests increased pressure on the PA indicator in the upcoming periods (Chart 1.2.2.11). This aligns with financial institutions' own assessments that the deterioration in credit risk and delinquency is likely to persist[32] across the corporate sector. Despite this overall outlook of worsening conditions, the decline in default probabilities within the performing portfolio of MSMEs suggests that risk materialization may ease somewhat for this segment.

Chart 1.2.2.9 – Problem Assets
By company size



27 For expectations of credit supply and demand by company size for the next quarter, see "PTC – Resultados de junho de 2025", available at https://www.bcb.gov.br/content/publicacoes/ptc/202506/RelatorioPTC-Junho2025.pdf

28 For further details regarding these changes, see the box *Change in the PA proxy*.

29 As outlined in the box Changes in the PA proxy, delinquency rates would have increased even under a scenario maintaining previous credit provisioning practices.

30 The probability of default (PD) is a measure that quantifies, for operations in the portfolio that are not problem assets, the percentage that would migrate to default (here defined as entering in PA). This measure is based on the scores of each credit operation, which are used for risk ranking. The default rate for portfolios of the same risk in the recent period is then taken as the default estimate for that risk group. It is therefore a non-conditional estimate on the economic cycle and, by construction, depends on the recent performance of same-risk portfolios.

31 For companies, the calculation is made at the borrower level, considering a 12-month horizon for MSMEs or a short-term PA projection for large companies.

32 See "PTC – Resultados de junho de 2025", available at htttps://www.bcb.gov.br/content/publicacoes/ptc/202506/RelatorioPTC-Junho2025.pdf

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Chart 1.2.2.10 – Problem assets
By segment

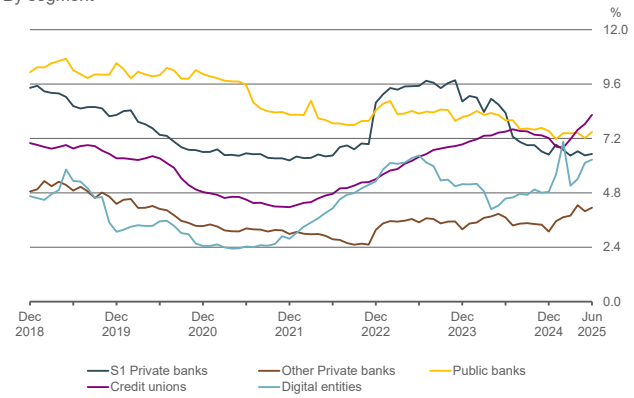
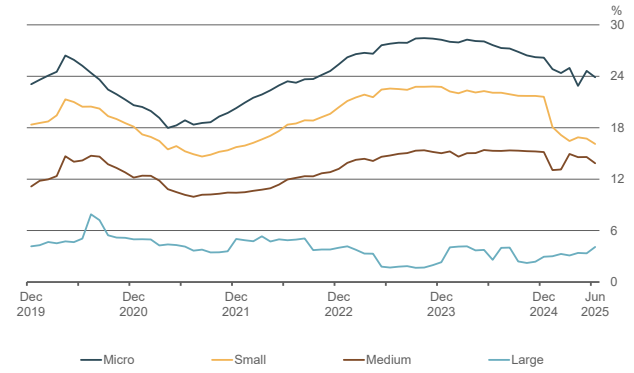


Chart 1.2.2.11 – Credit outstanding – Probability of default
Performing loans – By company size



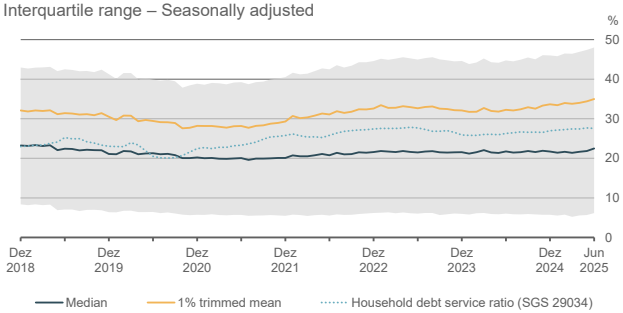
Households

Household payment capacity remains challenging, impacted by the high share of more expensive credit modalities. The distribution of individual debt service-to-income ratio (DSTI)[33] among credit borrowers showed further growth in the first half of 2025 (Chart 1.2.2.12), maintaining historically high levels. There is a marginal influence of increased share of costlier credit types, whose weight in the DSTI has remained high and unchanged since 2022 (Chart 1.2.2.13). The rise in this metric has occurred despite a dynamic labor market with income gains and is likely to continue exerting pressure, given the current monetary tightening cycle combined with some deceleration in economic activity. Regarding household indebtedness, the distribution of individual indebtedness among SFN borrowers remained relatively stable in the first half of the year (Chart 1.2.2.14).[34]

33 As presented in Selected Topic 2.2 "Household debt-to-income and debt service-to-income ratios" from the October 2021 issue of the Financial Stability Report, debt-to-income metrics can be calculated either for the household sector as a whole (in aggregate) or individually, based on data from each credit borrower. The aggregate calculation compares total debt service with the restricted Gross National Disposable Income of Households (see Time Series 29034). For the individually calculated metric, refer to the Concepts and Methodologies annex at the end of this Report. For a better understanding of the differences between the metrics, see notes 1 and 2 of Chart 1.2.2.12.

34 About the individual indebtedness methodology, see notes 1 and 2 of Chart 1.2.2.14.

Chart 1.2.2.12 – Individual debt service-to-income ratio[1,2/]
Interquartile range – Seasonally adjusted



1/ The interquartile range, the median and the 1% trimmed mean refer to the distribution of the individual debt service to-income ratio of SFN borrowers. For this calculation, borrowers with credit outstanding lower than BRL200 or with debt service only in credit card purchases or credit card installments financed by merchants were excluded. For the calculation of debt service, credit card purchases or credit card installments financed by merchants were not included.

2/ The household debt service-to-income ratio, SGS time series 29034 of BCB, is an aggregate measure that compares the debt service of SFN borrowers to the restricted households gross disposable national income. For this measure, credit card installments financed by merchants are included in the debt service.

Chart 1.2.2.13 – Individual debt service-to-income ratio
1% trimmed mean – By credit modality – Seasonally adjusted

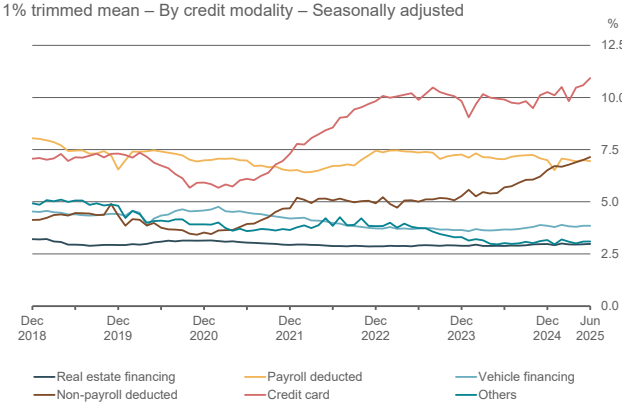
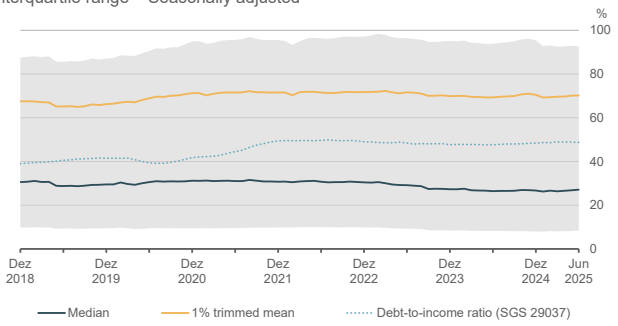


Chart 1.2.2.14 – Individual debt-to-income ratio[1,2/]
Interquartile range – Seasonally adjusted



1/ The interquartile range, the median and the 1% trimmed mean refer to data of the distribution of measures of the individualized debt-to-income of SFN borrowers. For this individualized calculation, all credit of individuals are considered, except rural and corporate operations. The amount of these operations is then compared to the debtor's annual income.

2/ The household debt-to-income ratio, SGS time series 29037 of BCB, is an aggregate measure that compares the debt of SFN borrowers to the restricted households gross disposable national income

Bank credit to households showed signs of marginal slowdown, despite higher growth rates in riskier modalities. There was a moderation in credit to individuals in the second quarter of 2025 across nearly all modalities, except for non-payroll personal loans (Chart 1.2.2.15).[35] In terms of FIs, the deceleration was not observed at the margin only among digital banks and the Credit unions segment (Chart 1.2.2.16). Among digital banks, growth remains significantly above peers, with a strong share of riskier credit types. Looking ahead, according to the June 2025 PTC, consumer credit to individuals is expected to face more restrictive conditions in terms of delinquency levels, cost, and funding availability. In the case of housing finance, general restrictions are expected to persist due to funding costs and availability, FIs' risk tolerance levels, and growing concerns about market delinquency rates.[36]

Chart 1.2.2.15 – Credit outstanding – Year over year growth
By credit modality

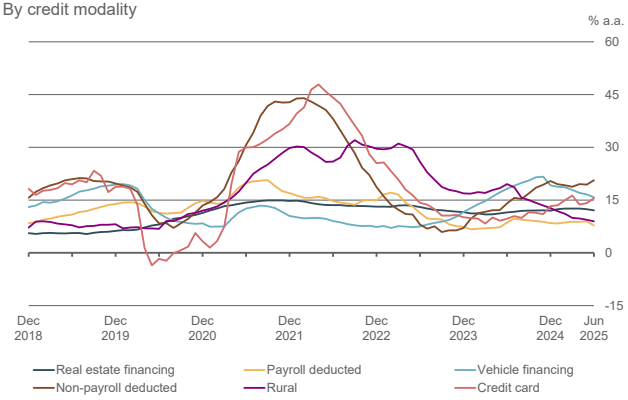
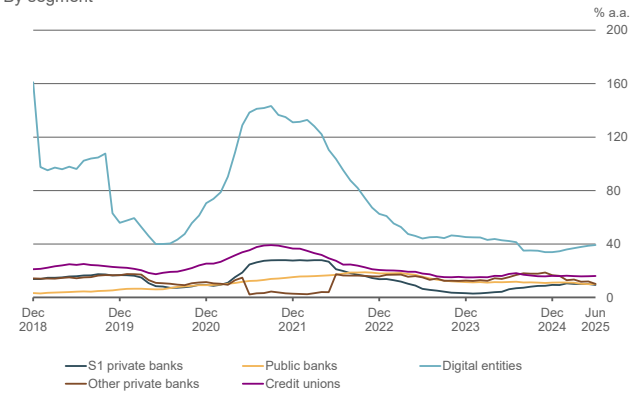


Chart 1.2.2.16 – Credit outstanding – Year over year growth
By segment



FIs' risk appetite shows some signs of reduction, though specific portfolios warrant attention. Regarding the quality of new credit contracts,[37] risk profile varied across modalities: while rural, vehicle, and non-payroll personal loans improved in the second quarter, housing and payroll-deducted loans[38] worsened – particularly the latter, due to

35 These credit modalities may have been impacted by longer delays in write-off recognition. For more details, see the box titled *Impact on the delinquency rate resulting from the new financial instrument accounting rules*, available in the Monetary Policy Report – September 2025.

36 June 2025 PTC.

37 In the case of households, the scoring models are based on borrower variables and specific characteristics of the transactions. Unlike previous editions of this Report, in this edition, the higher the score, the less risky the operations are. The assessment of score evolution presented here compares the first and second quarters of 2025, to avoid comparisons that could be affected by the change in the AP proxy that occurred at the turn of the year (see box "Change in the proxy for Problem Assets").

38 Comparison between average credit granting scores of the first and second quarters of the year.

loans under the new regulation for private sector payroll-deducted credit[39] (Chart 1.2.2.17). In the case of non-payroll loans, unsecured operations continue to gain share in portfolios (Chart 1.2.2.18),[40] with digital banks contributing significantly (Chart 1.2.2.19). However, despite the higher risk involved, non-payroll operations generally show interest rates compatible with their collateral structures. In summary, the marginal slowdown in portfolio growth and credit origination overall, combined with improved contract quality in specific modalities, indicate signs of reduced risk appetite among FIs in household lending.

Chart 1.2.2.17 – Average credit granting score
By credit modality

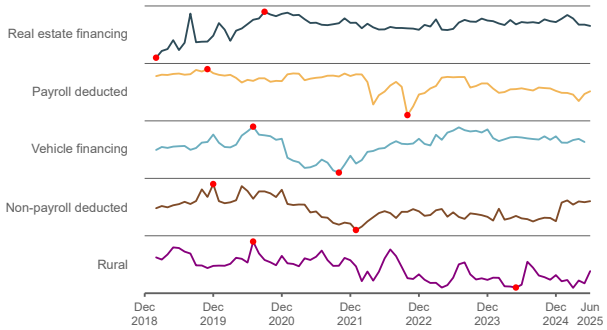


Chart 1.2.2.19 – Non-payroll deducted credit – Decomposition of year over year growth
By segment

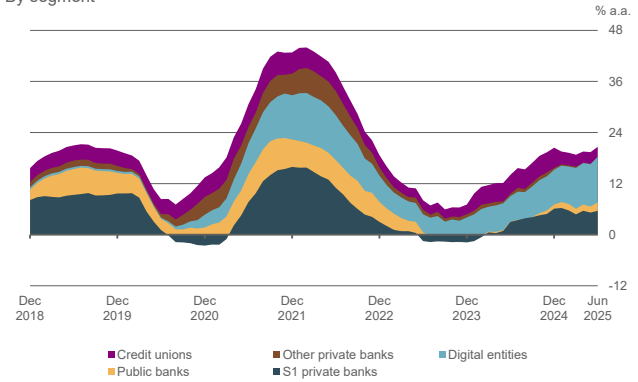
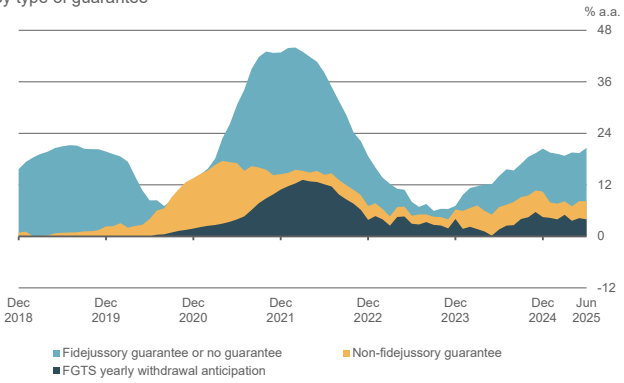


Chart 1.2.2.18 – Non-payroll deducted credit – Decomposition of year over year growth
By type of guarantee



Risk materialization marginally increased and is expected to remain under pressure in the short term. Despite disruptions in the PA metric,[41] PA levels rose across all modalities in the second quarter (Chart 1.2.2.20), except for real estate financing. The main driver of this increase is delinquency: although the metric was influenced by changes in FIs' write-off practices in early 2025, even under a hypothetical scenario where practices remained unchanged, delinquency would

39 The new regulation for private sector payroll-deducted credit allowed credit taking by borrowers with a riskier profile, whom previously did not have access to a credit modality with collateral or guarantee. Thus, the credit granting score of payroll-deducted loans worsened in comparison to the previous situation, and the evolution of this credit modality must be monitored to verify how risk materialization evolves in the future. For an analysis on the profile of credit takers of this new credit modality, see box "New private sector payroll-deducted credit", in the September 2025 issue of the Monetary Policy Report.

40 Although the current non-payroll personal credit portfolio has a better mix of transactions than in the past – featuring a greater presence of Length-of-Service Guarantee Fund (FGTS) yearly withdrawal anticipation and transactions backed by non-fiduciary guarantees – the main driver of its recent growth has been unsecured operations.

41 See box "Change in the proxy for Problem Assets"

have risen in nearly all modalities.[42] Regarding risk materialization across FI segments, AP percentages generally increased at the margin, except for "S1 Private Banks" (Chart 1.2.2.21), indicating credit risk pressure for most FIs. Looking ahead, PD estimates[43] (Chart 1.2.2.22) suggest that this upward trend is likely to persist across most modalities, especially rural credit.

Chart 1.2.2.20 – Problem assets
By credit modality

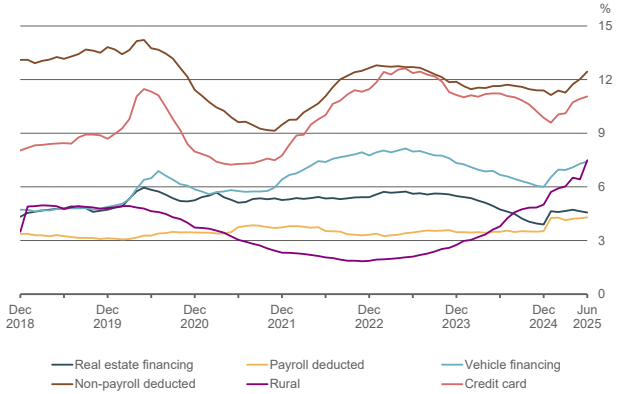


Chart 1.2.2.21 – Problem assets
By segment

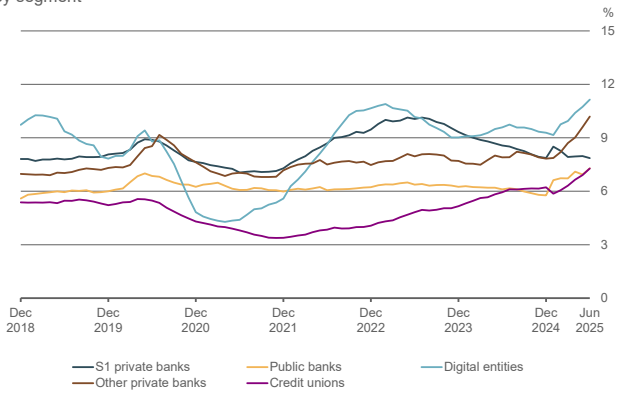
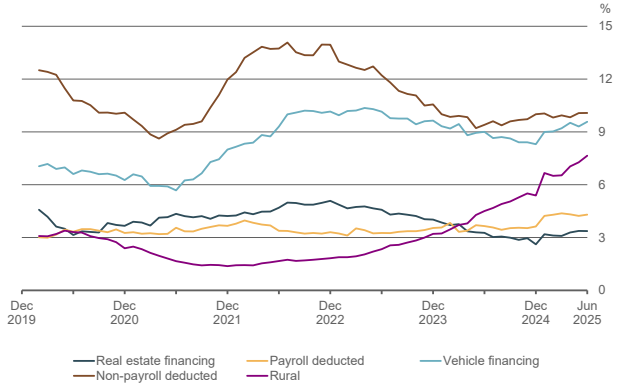


Chart 1.2.2.22 – Credit outstanding probability of default
Performing loans – By credit modality



42 For further details on this discussion, see the box titled "Impact on the delinquency rate resulting from the new financial instrument accounting rules", available in the September 2025 issue of the Monetary Policy Report. The calculation of the delinquency counterfactual for each credit modality can be found in the lines labeled "Delinquency – counterfactual" in the charts within the box "Change in the proxy for problem assets", included in this issue of the Financial Stability Report.

43 Even though the PD metric is the same across different credit modalities, the most appropriate comparison is between the current PD and its historical level within the same modality, or alternatively, between the current PD and the PA ratio for that modality.

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Box – Change in the proxy for problem assets

The proxy for PAs used for monitoring financial stability has been modified due to new accounting rules for financial instruments. Since the April 2017 issue of the Financial Stability Report (FSR),[44] PAs were defined as 90 days past due loans (delinquent), restructured credit operations within a twelve-month cure period (restructuring), and other credit operations classified by financial institutions (FIs) between risk levels E and H under Resolution 2,682 of December 21, 1999. With the expiration of this regulation, it became necessary to replace the latter portion of the PA proxy with a new component that adequately reflects the criteria set forth in the updated regulation.

Given the new regulatory framework, it was deemed appropriate to replace the previous classification of operations between E and H with the PA designation made by FIs. According to Resolution 4,966 of November 25, 2021, a financial instrument is considered a PA[45] when (i) there is a delay of more than ninety days in the payment of principal or charges, or (ii) there is an indication that the obligation will not be fully honored under the agreed terms, without resorting to guarantees or collateral. The first condition continues to be captured by the set of delinquent operations. The second condition is captured both by the restructuring algorithm – which identifies operations that were sixty days overdue in the previous month and avoided delinquency due to renegotiation – and, starting in January 2025, by the PA designation made by FIs in the Credit Information System (SCR) for operations that are neither delinquent nor restructured, as these are already covered by the metric.

The change does not cause significant breaks in the total PA series. The PA proxy used for monitoring purposes retains two unchanged components: delinquent operations and restructured operations. The third component – referred to as "FI Flagged" in all charts below – shifts from the previous classification of operations between E and H under Resolution 2,682/1999 to operations flagged as PA by FIs. This component, by itself, does not cause major disruptions in the overall PA series (brown line in charts 1.2.2.23 to 1.2.2.25), but as will be shown later, it may cause breaks in specific segments. The most significant changes in the overall PA series, however, stem from the delinquency component: the absence of a prescribed timeframe for writing off delinquent operations, combined with the new regulation's incurred loss provisioning floors[46] allowing delinquent operations to remain longer on the books compared to the previous framework,[47] resulted in an increase in the percentage of delinquent

44 Available at Financial Stability Report – April 2017, p. 14-17.

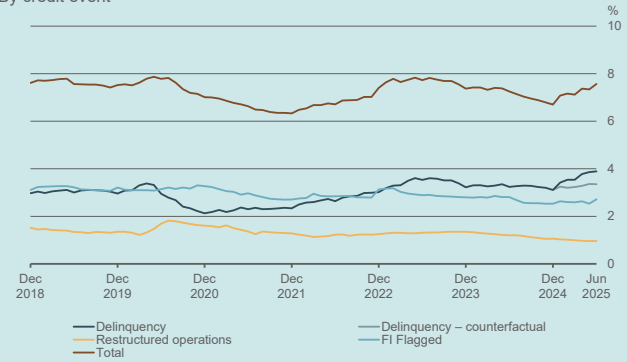
45 Resolution CMN 4,966, of November 25, 2021, art. 3.

46 In accordance with Resolution CMN 4,966, of November 25, 2021, and Resolution BCB 352, of November 23, 2023, provisioning floors depend on the type of portfolio and the delinquency bracket. For further details on portfolio types, refer to Resolution BCB 352, of November 23, 2023, which presents in its Annex 1 the minimum provisioning amounts for incurred losses by delinquency bracket and portfolio type.

47 Under Resolution CMN 2,682, of December 22, 1999, once a credit operation became delinquent, it would reach the former risk classification "H" after remaining in default for three months. At that point, the financial institution (FI) was required to establish a 100% provision. Six months later (nine months after the initial default), the operation would typically be written off as a loss. This framework remained in effect until December 2024. Under the new rules, write-offs now also depend on the expected loss estimated by the FI: an operation must be written off if it is no longer probable that the institution will recover its value. In theory, if the FI no longer expects to recover the operation, it may write off the asset even before reaching the maximum provisioning level defined by the incurred loss floors for delinquent operations. Conversely, even if the delay reaches a level that requires full provisioning under the regulation, the FI may keep the operation in its active portfolio if there is still some expectation of recovery.

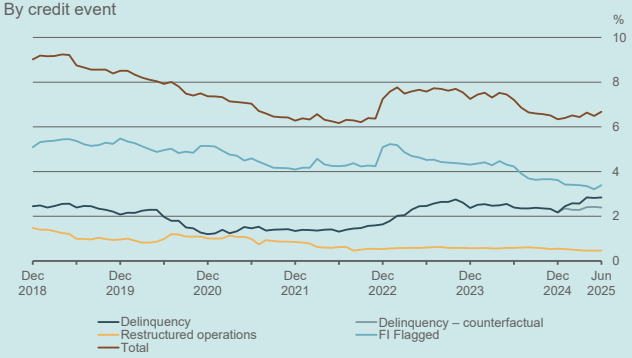
operations,[48] which in turn led to a sharper rise in PAs in 2025. Had the regulatory change not occurred, delinquency would have risen less sharply (Delinquency – counterfactual line in charts 1.2.2.23 to 1.2.2.25).[49]

Chart 1.2.2.23 – Problem Assets – SFN
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

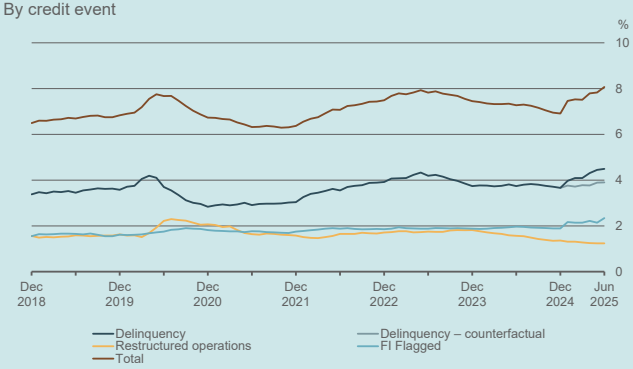
Chart 1.2.2.24 – Problem Assets – Companies
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

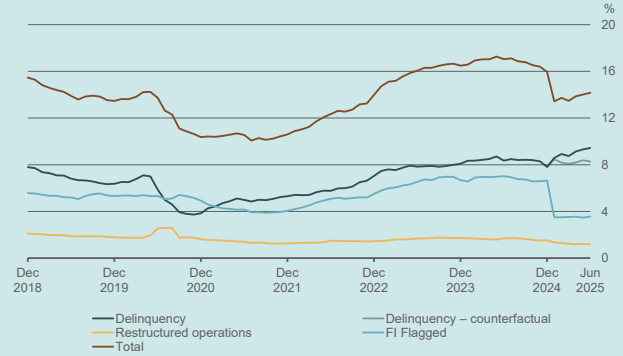
Among corporate borrowers, the proxy change in 2025 caused disruptions in the PA series for micro, small, and large companies. When evaluating the third element of the proxy (FI Flagged), it is evident that it caused a downward break at the turn of the year for micro and small enterprises, while for large enterprises, there was an upward break (Charts 1.2.2.26 to 1.2.2.29). Therefore, at least for these subdivisions, temporal comparisons of PAs before and after the new regulation should be interpreted with caution. Additionally, the change in write-off policy impacted the delinquency rate of MSMEs, contributing to the marginal increase in PAs.

Chart 1.2.2.25 – Problem Assets – Households
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.26 – Problem Assets – Micro companies
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

48 The delinquency rates differ from those published in the Banco Central do Brasil's time series, as they are based on the active portfolio balances of clients identified in the Credit Information System (SCR), in addition to some scope differences between the figures – including the fact that receivables advances from acquirers and similar institutions to FIs within the scope of corporate credit are not considered here.

49 For further details on this discussion, see the box titled *Impact on the delinquency rate resulting from the new financial instrument accounting rules*, available in the Monetary Policy Report – September 2025. Also refer to the Minutes of the 62nd Comef Meeting, which states: "[…] With the entry into force, as of January 2025, of provisions from Resolution CMN 4,966, of November 25, 2021, a lower volume of write-offs was observed, resulting in a measurement of delinquency with higher values than previously calculated. Even disregarding the effects of the change in the write-off dynamics, an increase in problem assets has been noted in the most recent period."

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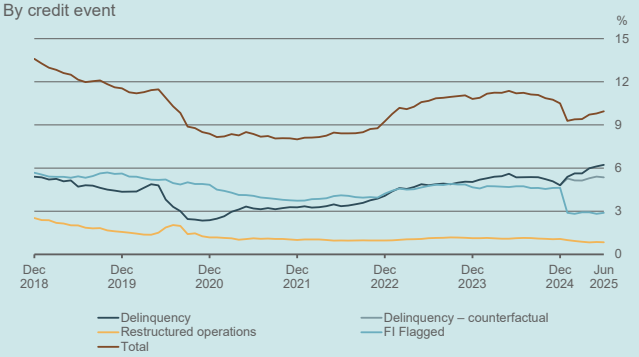
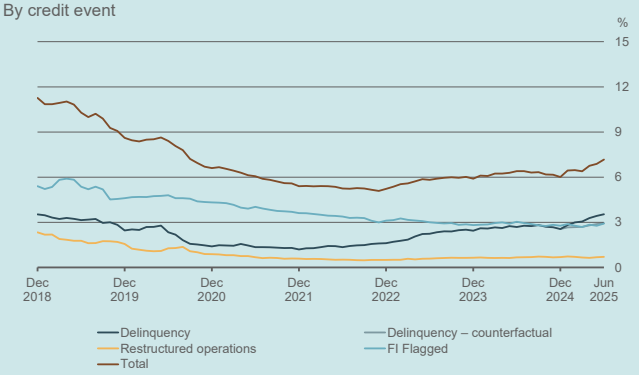
Chart 1.2.2.27 – Problem Assets – Small companies
By credit event



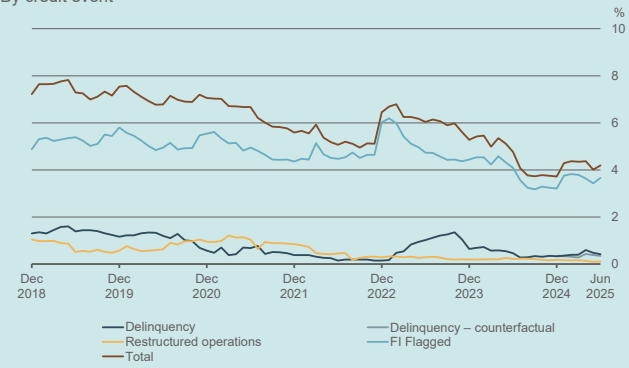
FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.28 – Problem Assets – Medium companies
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999);
After Dec/2024: Designation of financial institutions as problem assets.

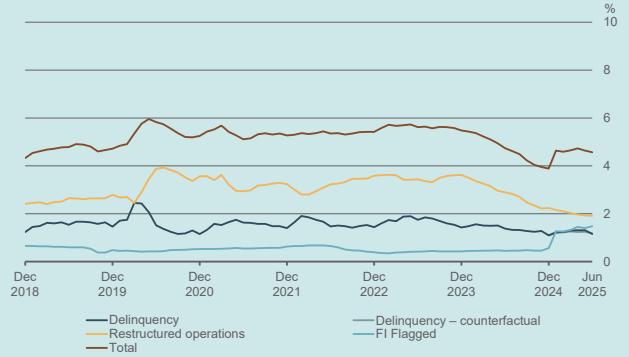
Chart 1.2.2.29 – Problem Assets – Large companies
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

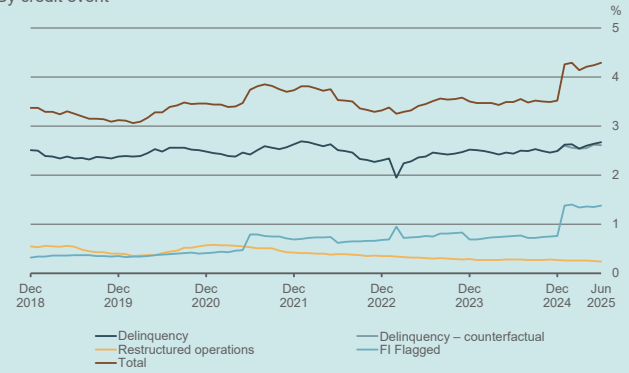
Regarding credit modalities for households, the change in the FI Flagged portion of the PA proxy caused level shifts in most portfolios. The third element of the proxy (FI Flagged) led to upward breaks at the turn of the year in real estate financing, payroll deducted, vehicle financing, and rural portfolios; the opposite occurred in credit card and non-payroll deducted personal loan portfolios (Charts 1.2.2.30 to 1.2.2.35). Furthermore, the new write-off practice more clearly affects the delinquency rates of vehicle financing, rural, credit card, and non-payroll deducted personal loan portfolios. However, delinquency would have increased even under previous practices. The combination of both changes – the shift in the third proxy element and the new write-off practice – resulted in higher PA levels across all portfolios, making comparisons before and after the new regulation subject to important caveats.

Chart 1.2.2.30 – Problem Assets – Real estate financing
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.31 – Problem Assets – Payroll deducted
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

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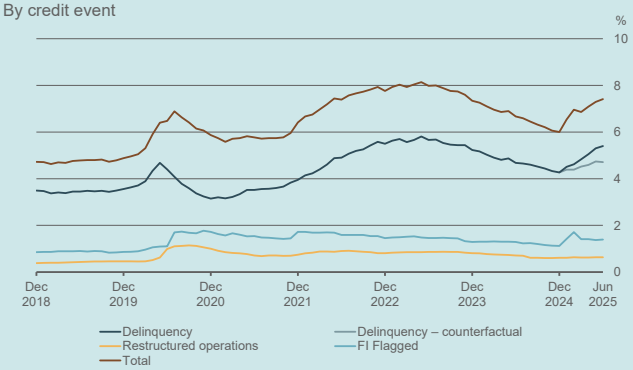
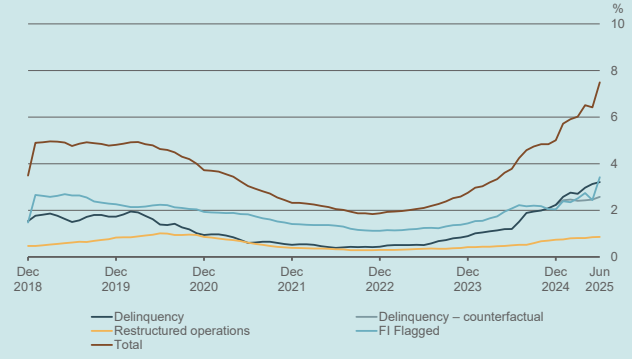
Chart 1.2.2.32 – Problem Assets – Vehicle financing
By credit event



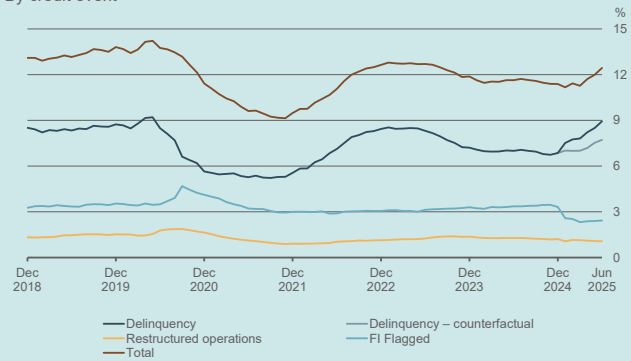
FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.33 – Problem Assets – Rural
By credit event



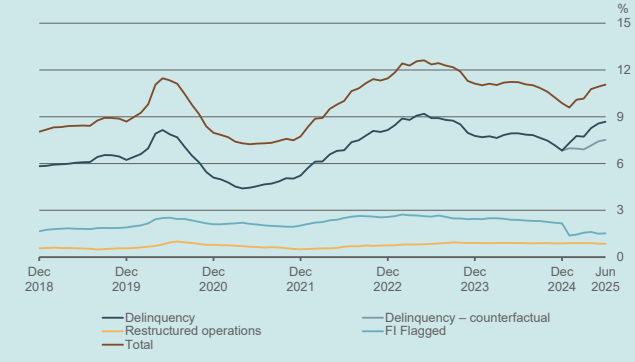
FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.34 – Problem Assets – Non-payroll deducted
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

Chart 1.2.2.35 – Problem Assets – Credit card
By credit event



FI Flagged:
Until Dec/2024: Risk classification between "E" and "H" (Resolution CMN 2,682, of December 21, 1999).
After Dec/2024: Designation of financial institutions as problem assets.

At least initially, risk materialization analysis should be conducted on the margin, since historical comparisons have been compromised. Due to the aforementioned breaks, PA evolution should be analyzed cautiously at the beginning of 2025. Therefore, throughout the previous sections, efforts were made to assess the metric's dynamics on the margin to ensure comparability. Over time, the effects of these breaks tend to smooth out, allowing for broader horizon comparisons. However, whether due to the less deterministic nature of the new regulatory framework's write-off dynamics for delinquent operations, or because the third proxy component now relies on FI designation – which may vary more in how they designate an operation as a PA despite being subject to the same regulatory framework – the PA indicator may exhibit greater future variability compared to figures observed up to 2024.

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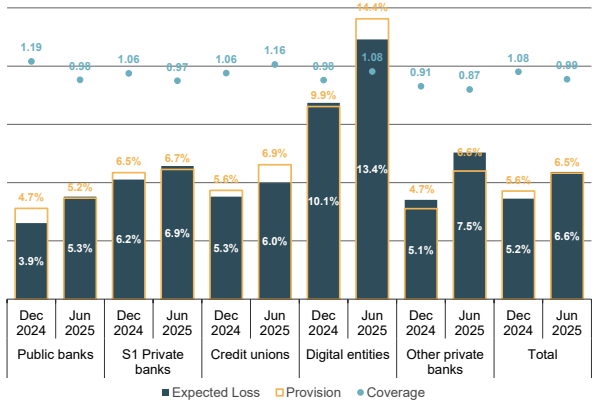
Provisions for Credit Losses

Despite the increase in expected losses resulting from the new financial instruments accounting standards, provisions remained adequate at the aggregate level. With the new accounting rules in force, the BCB's expected losses estimates rose due to a change in the proxy used for problem assets (PA),[50] which led to an increase in the Probability of Default (PD), to adjustments made in Loss Given Default (LGD) models for operations backed by real estate collaterals, to revisions in the entities write-off policies[51] and to the inclusion of non-cancellable credit commitments in the scope of expected losses measurement.[52] Despite this increase, provisions constituted by the entities are compatible with estimated provisions made by the BCB, which considers the calculated expected losses using its internal models and the minimum regulatory provisioning levels.[53] The expected loss coverage ratio (by provision) in the SFN reached 0.99 in June 2025 (chart 1.2.2.36).

Chart 1.2.2.36 – Expected Loss and Coverage ratio
By segment



1.2.3 Profitability

The National Financial System (SFN)[54] remains profitable and has maintained its gradual recovery trajectory, but further progress is expected to be limited. In the first half of 2025, most segments of the SFN improved profitability, strengthening the system's resilience and growth capacity. The Credit Net Interest Margin (NIM) was compressed due to the rising cost of funding. Provision expenses remained virtually stable, but the increased materialization of risk requires caution from institutions. Operational revenues slowed down, reflecting the weakening of Credit Net Interest Income[55] (NII) and service revenues. The operational efficiency of the SFN remained stable, resulting from a balance between administrative expenses and operational results. Looking ahead, further profitability gains are expected to be constrained by tight financial conditions and a moderation in economic activity, which may lead to more modest growth in operational revenues and potentially to an increase in non-performing loans.

50 See *Change in the proxy for problem assets* box.

51 See *Impact on the delinquency rate resulting from the new accounting rules for financial instruments* box, available on the September 2025 Monetary Policy Report.

52 The current scope of expected losses estimates produced by BCB includes domestic credit operations and non-cancellable credit commitments. The scope does not cover credit card operations and overdraft granted to households, non-cancellable credit limits, guarantees provided, securities and the remaining financial assets subject to expected losses provisioning.

53 As of 2025, the BCB's evaluation of expected loss coverage by provisions began to incorporate both the regulatory levels of provisions for incurred losses and of additional provisions for expected losses, as established by Resolution BCB 352, of November 23, 2023. The estimated provision for each credit operation is determined as the higher of the expected loss derived from BCB's internal models and the minimum regulatory provisioning requirements.

54 The analyzes in this Section were carried out considering the scope of the SFN, unless otherwise indicated for issues related to data availability or quality.

55 Refers to the difference between interest income and interest expenses, without considering the effects of loan loss provisions. Interest income derives from interest-earning assets (mainly treasury and credit assets) and interest expenses derive from interest-bearing liabilities (mainly funding).

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The Return on Equity (RoE) of the SFN increased modestly in the first half of 2025. This moderate improvement was supported by credit NII and net gains from fair value adjustments and exchange rate variations on financial instruments.[56] Despite the improvement, there was a noticeable slowdown in credit NII and service revenues (Chart 1.2.3.1). Profitability across most SFN's segments showed positive developments. In "Digital entities", profitability continued to rise, with some signs of stabilization (Chart 1.2.3.2), benefiting from operational leverage. In the "S1 Private banks", sustained strong performance from part of the banks, along with recovery from another part, contributed to profitability gains. The "Other Financial Institutions" recorded the highest improvement, driven mainly by the performance of foreign banks. The "Public banks" segment was the only one to show a decline in profitability, due to the impact of risk materialization in the rural credit portfolio. Profitability in the "Credit unions" segment remained stable, after a period of increased risk materialization in non-payroll credit.

56 Financial institutions use hedging strategies both for the fair value adjustments in their portfolios and for foreign exchange exposures. However, eventual gains or losses tend to reflect residual net exposures during periods of greater volatility in exchange rates or in interest rate yield curve. This effect is reflected in the "Other" component of Chart 1.2.3.1.

Chart 1.2.3.1 – ROE and decomposition of annual variations
Trailing twelve months

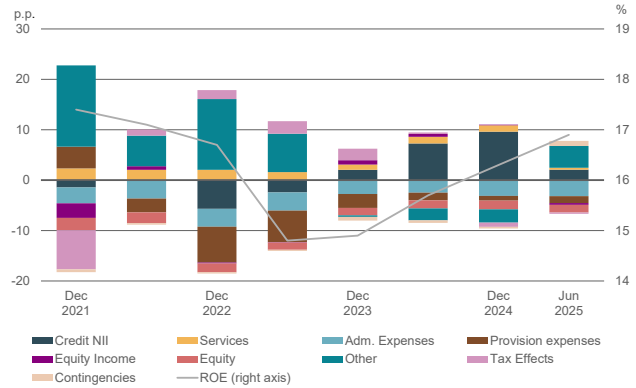
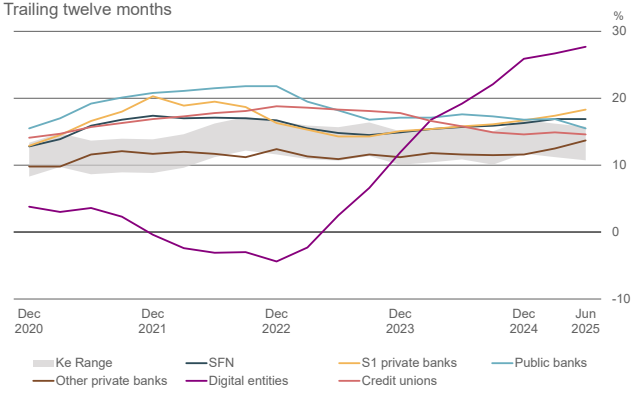


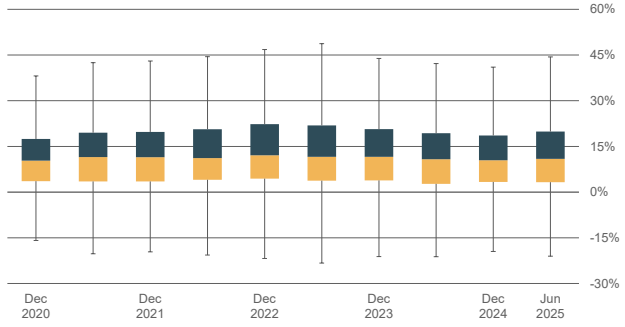
Chart 1.2.3.2 – ROE
Trailing twelve months



The "Ke Range" represents the BCB´s estimated cost of capital for institutions in the SFN.

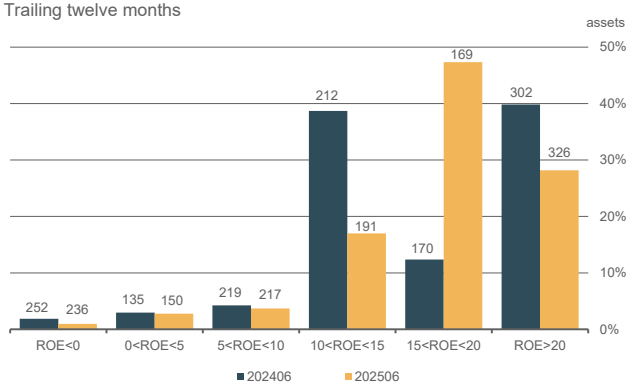
The SFN remains profitable, demonstrating resilience and growth capacity. Although profitability dispersion within the SFN is high due to the diversity of business segments and varying levels of business maturity – the RoE distribution shows that the vast majority of institutions were profitable during the period. The share of assets held by entities with low RoE decreased, with those showing negative RoE representing less than 1% of the SFN's total assets (Charts 1.2.3.3 and 1.2.3.4). The system's median RoE remained stable at 11%, confirming that profitability is not concentrated in just a few entities.

Chart 1.2.3.3 – ROE Dispersion
Trailing twelve months



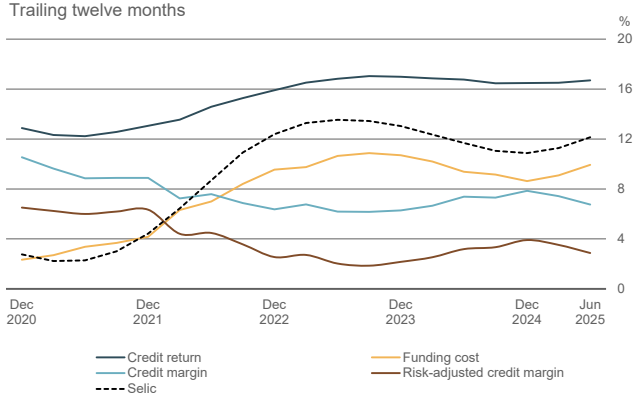
The bars represent the lower and upper limits, corresponding to the smallest and largest observations not classified as outliers. Observations that exceed Q1 ± 1.5×(Q3 − Q1) are considered outliers. The boxes have as limits the 25th and 75th percentiles, with the median (50%) in the center.

Chart 1.2.3.4 – ROE Frequency Distribution
Trailing twelve months



1/ The values above the bars indicate the number of institutions that fall within the respective ROE interval.

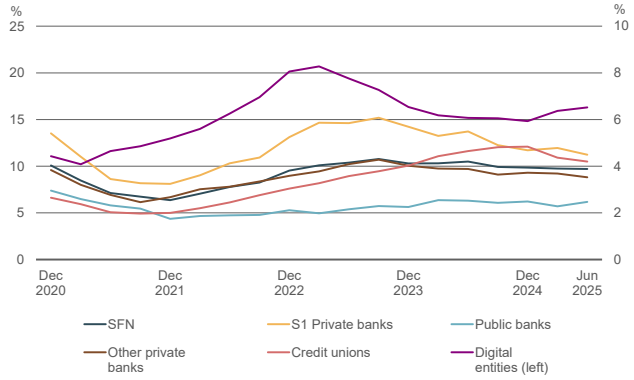
Chart 1.2.3.5 – Credit margin
Components
Trailing twelve months



Credit NIM declined due to rising funding costs. The resumption of the Selic rate hike cycle in the second half of last year raised funding costs, compressing the SFN's credit NIM (Chart 1.2.3.5). Although the return on credit also tends to rise with higher policy rates, the sensitivity of funding costs to monetary tightening is greater due to the predominance of floating-rate operations and the shorter average maturity of funding. The impact of credit provision expenses on NIM was virtually neutral. Looking ahead, the NIM is expected to remain relatively stable.

SFN's provisioning costs remained practically stable, reflecting a balance between the growth of credit portfolio and provisioning expenses. Most segments showed slight reductions in provisioning costs[57] during the period (Chart 1.2.3.6). The exception was the Digital entities segment, which operates in credit modalities that are more prone to delinquency in high-interest rate environments. The Credit unions segment recorded a decrease in provisioning costs in the first half of the year, following a prolonged period of increases related to rising problem assets (PAs) in non-payroll deductible credit. Although virtually stable over the semester, Public banks saw an increase in provisioning costs in the second quarter due to heightened risk materialization in the rural credit portfolio. BCB estimates that the SFN provisions remain adequate and continue to exceed expected losses.[58]

Chart 1.2.3.6 – Provisioning cost[1/]
Trailing twelve months



Source: BCB.
1/ Refers to the ratio between provision expenses and the average balance of the credit portfolio.

Service revenues continued on a deceleration trend. The decline in fee revenues from households and the reduction in the contribution from revenues related to capital market activity explain this movement throughout the first half of the year (Chart 1.2.3.7). Fee revenues from households have been falling for

57 Provision costs refer to the ratio between provision expenses and the average balance of the credit portfolio.

58 See section 1.2.2 for more detail.

some time, reflecting increased competition and the growing availability of fee-free products and service packages. The negative performance of capital market revenues is linked to the slowdown in fixed-income issuances following significant growth in 2024. Looking forward, service revenues are expected to continue decelerating gradually, in line with the moderation in economic activity growth.

The SFN's operational efficiency[59] remained stable, reflecting the stability between operational results and administrative expenses. Operational results slowed down due to the weakening of Credit NII and service revenues. Administrative expenses grew at a stable pace throughout the first half of the year (Chart 1.2.3.8), with a greater increase in non-personnel-related expenses. The Digital entities segment continued to show efficiency gains, driven by operational leverage in entities within this segment (Chart 1.2.3.9). The digitalization of services remains a key factor in the SFN's operational efficiency. The trend of reducing the physical branch network continued, a movement that tends to lower the cost to serve and generate operational efficiency gains in the medium and long term.

Chart 1.2.3.7 – Service revenues
Annual growth and factor decomposition
Trailing twelve months

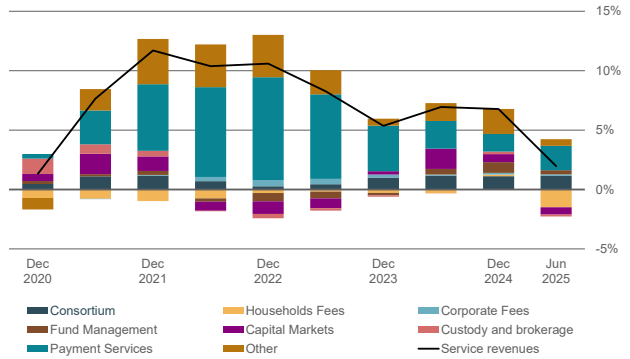


Chart 1.2.3.8 – Administative expenses
Annual growth and factor decomposition
Trailing twelve months

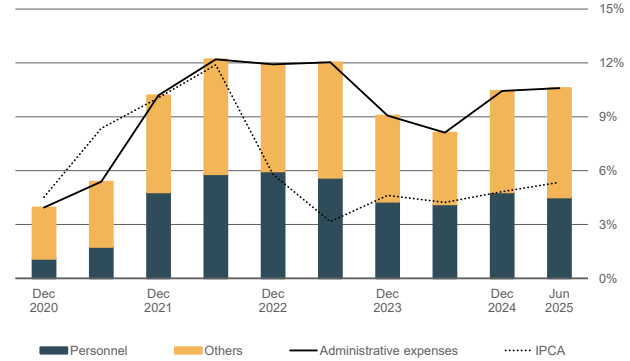
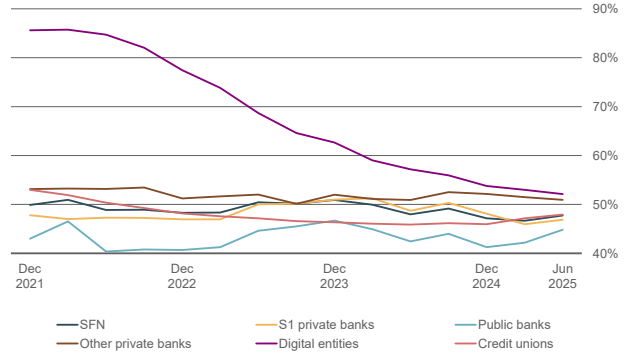


Chart 1.2.3.9 – Operational Efficiency Index[1/]
Trailing 12 months



1/ Refers to the ratio between administrative expenses and operational results.

59 The operational efficiency of the system is measured by the Operational Efficiency Index (IEO), calculated by dividing administrative expenses by operational results, excluding the effects of provision expenses.

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Box – Impact of Resolution CMN 4,966, of November 25, 2021, on the Recognition of Unreceived Revenues

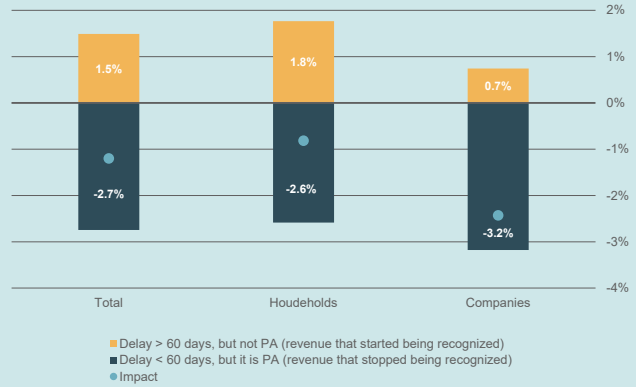
The entry into force of Resolution CMN 4,966, of November 25, 2021, in January 2025, changed the criteria for prohibiting the recognition of unreceived revenues (Stop-Accrual). This criterion changed from a delay of sixty days or more in a credit operation to a financial asset with a credit recovery problem – known as PAs. Therefore, if a credit operation is classified as a PA, the recognition of unreceived revenues must cease until the operation is no longer classified as such.

The impact of this change was estimated by calculating the difference between two effects: (1) revenues that were no longer recognized because the credit operation had a delay of less than sixty days but was classified as a PA; and (2) revenues that began to be recognized because the credit operation had a delay of more than sixty days but was not classified as a PA.

Of the total revenues from January to August 2025, it is estimated that 2.7% were no longer recognized and 1.5% began to be recognized, according to the criteria mentioned above. This resulted in a 1.2% reduction in total revenue, equivalent to BRL12.2 billion during the period. The impact on revenues was negative for both households' and companies' operations, which suffered a reduction of -0.8% (BRL5.8 billion) and -2.4% (BRL6.4 billion), respectively (Chart 1.2.3.10 and Table 1.2.3.1).

The reduction in revenues occurred across all company sizes, with the largest impact on large enterprises. These companies tend to renegotiate or restructure their contracts more promptly, a fact that may already characterize the operation as a PA, even before it becomes delinquent. The impact was also negative across all household credit modalities, except for credit cards and non-payroll-deductible loans, which typically include higher-risk operations with shorter terms and lower average ticket, where PA classification is more closely tied to payment delays. Proportionally to total revenues, the segments with the greatest negative impact were the Public and the Credit unions, with reductions of 2.2% and 3.3%, respectively. These segments have greater exposure to rural credit portfolios, which have recently seen an increase in PA classification.[60] The Digital entities were the only ones to show a positive impact, due to the higher share of credit card operations in their portfolio (Table 1.2.3.2).

Chart 1.2.3.10 – Impact of the Stop Accrual Change
% of revenues that started or stopped being recognized from January to August 2025



60 See section 1.2.2 for more detail.

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Table 1.2.3.1

	Impact R$ bi	Impact % of Revenue
Payroll deducted	-1.6	-1.1%
Non-payroll deducted	0.4	0.3%
Vehicles	-0.1	-0.1%
Housing	-1.0	-1.1%
Credit cards	2.5	1.9%
Rural	-2.0	-2.5%
Other	-4.0	-5.6%
Households	**-5.8**	**-0.8%**
Micro	-1.2	-2.1%
Small	-0.8	-1.9%
Medium	-1.6	-2.0%
Large	-2.7	-3.3%
Companies	**-6.4**	**-2.4%**
Total	**-12.2**	**-1.3%**

Source: BCB.

Table 1.2.3.2

	Impact R$ bi	Impact % of Revenue
S1 (private)	-3.7	-1.1%
Public	-6.4	-2.2%
Other	-0.2	-0.1%
Credit unions	-2.4	-2.4%
Digital	0.5	0.8%
Total	**-12.2**	**-1.3%**

Source: BCB.

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1.2.4 Solvency

The banking system remains sound and capable of supporting the regular functioning of financial intermediation. Aggregate capitalization ratios showed a slight increase over the semester, despite the implementation of restrictive regulatory changes (Charts 1.2.4.1 and 1.2.4.2). The frequency distribution of the Regulatory Capital Adequacy Ratio (RCAR[61]) indicates that more than half of the institutions hold capital exceeding twice the required minimum, and that the share of institutions with insufficient Regulatory Capital (RC) to meet prudential requirements accounts for less than 1% of total assets[62] (Chart 1.2.4.3). The ample capital surplus available to meet prudential requirements, combined with the system's profitability, ensures that solvency does not pose a risk to financial stability.

Chart 1.2.4.1 – Evolution of capital ratios

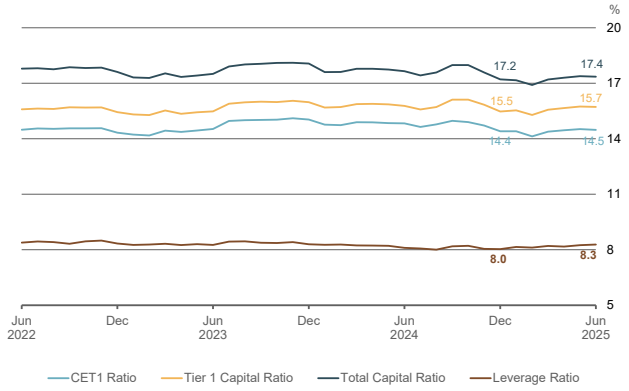
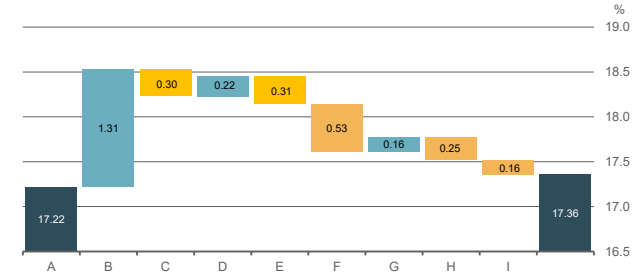
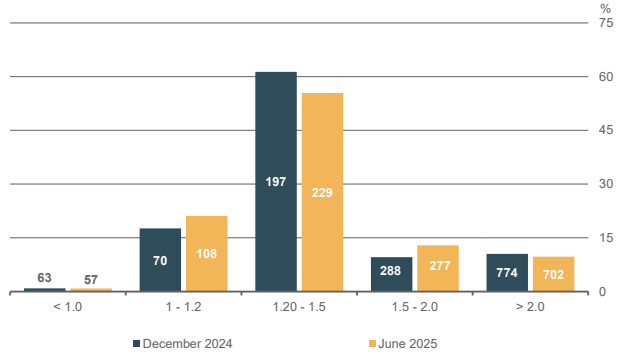


Chart 1.2.4.2 – Total Capital Ratio variation



A = Total Capital Ratio - Dec 2024
B = Half-year net profit
C = Paid-up capital, retained ernings and profits
D = Aditional Tier 1 Capital
E = Capital - Others
F = RWA - Credit-related operations
G = RWA - Securities
H = Operational RWA
I = RWA - Others
J = Total Capital Ratio - Jun 2025

Chart 1.2.4.3 – Regulatory Capital Adequacy Ratio[1/]
Frequency distribution weighted by assets



1/ Inside the bars are the number of financial institutions in the correspondent RCAR range.

The various prudential regulatory changes implemented in 2025 did not produce a significant net effect on the Total Capital Ratio (TCR). As anticipated in previous editions of this report, the new criteria for recognizing expected losses on credit operations and for calculating the portion of Risk-Weighted Assets related to operational risk[63] (RWA_{OPAD}), along with the end of transitional rules under the prudential framework for conglomerates led by payment institutions[64] (PIs), reduced regulatory capital and increased the capital requirements of the

61 The RCAR consists of the quotient between the Regulatory Capital (RC) and the total required RC, including the capital buffers and Basel Pillar 2. This ratio allows for the joint analysis of entities with different minimum RC requirements. For a detailed description of the capital requirements applicable to various entities within the system, see items 2 to 6 under the title Concepts and Methodologies in the Appendix of this report.

62 Even considering the requirements applicable to other levels of regulatory capital (Tier I and Common Equity Tier I), the capital shortfall of 63 institutions that hold 0.9% of the system's assets totals BRL 4 billion, corresponding to only 0.24% of the consolidated RC.

63 Resolution BCB 356, of November 30, 2023.

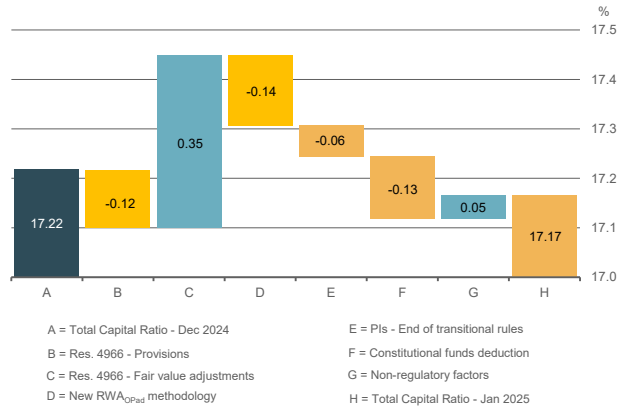
64 Resolutions BCB 198, 199, and 201, of March 11, 2022.

system. On the other hand, Fair Value Adjustments (FVAs) resulting from the reclassification of financial instruments into categories defined by Resolution CMN 4,966, of November 25, 2021, – based on the characteristics of their cash flows and the entities' business models – had a significant positive impact on aggregate Common Equity Tier 1. Considering also the reduced recognition of resources from constitutional funds in public banks eligible for inclusion in Tier 2 Capital,[65] it is estimated that the change in the TCR due solely to regulatory factors in January 2025 amounted to a reduction of 0.10 percentage points (Chart 1.2.4.4). It is worth noting that most of the impact from the new provisioning methodologies and the RWA_{OPAD} calculation will occur between 2026 and 2028.[66]

65 According to the schedule established by article 31 of Resolution CMN 4,955, of October 21, 2021.

66 Resolution CMN 5,199, of December 24, 2024, amended Resolution CMN 4,955, of October 21, 2021, to allow financial institutions to reintegrate into Common Equity Tier 1 Capital up to 75% of the negative adjustment recorded in equity resulting from the application, on January 1, 2025, of the expected credit loss provisioning criteria set forth in Resolution CMN 4,966, of November 25, 2021. Similarly, Article 19 of BCB Resolution No. 356/2023 granted entities that experienced an increase in RWA_{OPAD} due to the new calculation methodology the option to recognize only 25% of this increase in 2025. These percentages are subject to a phased-in approach, such that the full effect of these regulations will be recognized only by 2028.

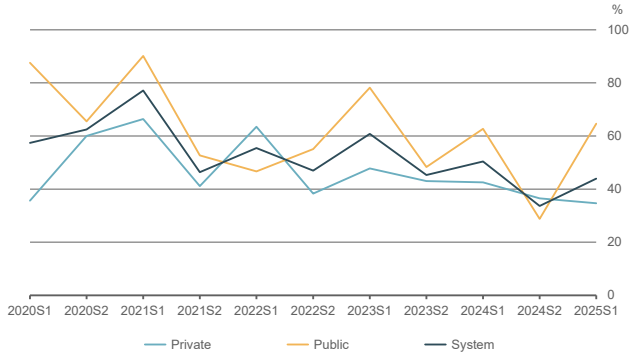
Chart 1.2.4.4 – Effects of regulatory changes on TCR



Profit retention remains the main driver of the expansion of the system's capital base, although it shows a slight downward trend. The system retained 43.9% of its net income, a percentage higher than in the previous semester but lower than in the first semesters of the past five years (Chart 1.2.4.5). During this period, there has been a trend toward greater distribution of capital remuneration in the form of dividends and interest on equity led by conglomerates with ample buffers to meet prudential requirements.

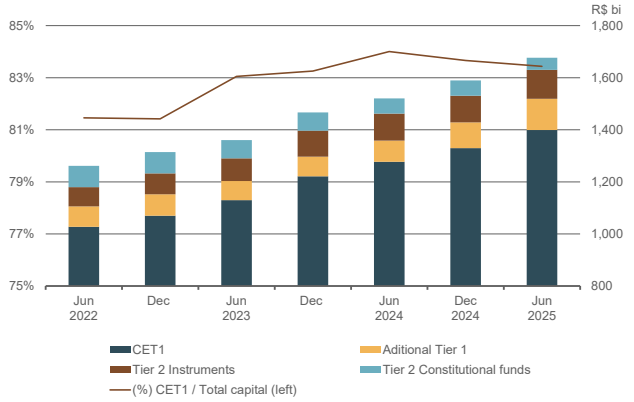
The second most relevant component contributing to the 5.5% growth in regulatory capital was the issuance of instruments eligible for Additional Tier 1 Capital and Tier 2 Capital. Given that the latter were offset by the write-down of constitutional funds, there was an increase in the share of Additional Tier 1 Capital within the RC during the semester (Chart 1.2.4.6).

Chart 1.2.4.5 – Profit retention by ownership[1/]



1/ Data relating to surpluses from credit unions were not considered.

Chart 1.2.4.6 – Capital structure



The growth in the system's RWA was driven by credit-related operations and the components associated with operational and market risk. Exposures from credit operations and credit-like transactions expanded significantly, to the detriment of exposures with lower average risk weights, such as securities and interbank investments (Table 1.2.4.1). The change in the methodology for calculating the operational risk component contributed to an increase in its share of the capital requirement. A similar effect was observed in the market risk component, mainly due to the growth in exposures subject to fluctuations in fixed-interest rates.

The system has sufficient capital buffers to continue expanding credit supply, despite the expected continuation of regulatory impacts. Due to their phased implementation, the new criteria for expected loss provisioning and for calculating RWA_{OPAD} will continue to affect capitalization ratios until 2028. If the full effect of these regulations were anticipated as of June 2025, the system's TCR would decline by 0.93 percentage points, reaching 16.4%. Nonetheless, the system's capitalization levels are adequate to absorb the projected regulatory impacts. Even though, at a microprudential level, some institutions may require capital reinforcement or exposure reduction, the system's profitability is sufficient to sustain adequate capitalization levels without relying, under current conditions, on additional capital injections from controlling shareholders.

Table 1.2.4.1 – RWA Composition

R$ billions	System dez/24		System jun/25		Var. (%)	Var. (%) Dec/Jun Public	Var. (%) Dec/Jun Private
Total RWA	**9,232**		**9,659**		**4.6%**	**5.9%**	**3.9%**
Credit RWA	**7,630**	**82.6%**	**7,839**	**81.2%**	**2.7%**	**3.9%**	**2.1%**
Credit-related operations[1]	4,889		5,177		5.9%	8.0%	4.5%
Leasing	28		29		2.2%	33.1%	1.5%
Interbank investments	234		164		-29.9%	-44.6%	-25.7%
Securities	614		528		-13.9%	-34.5%	-5.9%
Derivatives	217		172		-20.7%	-58.9%	-15.1%
Fixed Assets	473		547		15.5%	22.6%	11.3%
Tax assets	149		0		-100.0%	-100.0%	-100.0%
Other	1,153		737		-36.0%	-16.1%	-43.7%
Market RWA	**549**	**5.9%**	**620**	**6.4%**	**13.1%**	**38.9%**	**7.5%**
Operational RWA	**973**	**10.5%**	**1,109**	**11.5%**	**14.0%**	**11.7%**	**15.6%**
Payment Services RWA	**80**	**0.9%**	**90**	**0.9%**	**13.3%**	**-14.4%**	**13.8%**

1) Includes guarantees provided, credit commitments, and other rights with characteristics of credit operations

1.2.5 Stress Tests

Macroeconomic stress test

Stress tests[67] results indicate that the banking system presents adequate levels of capital and is resilient in all scenarios simulated. Capital stress tests show that no relevant noncompliance[68] events would occur when adverse macroeconomic scenarios are simulated. Sensitivity analyses also point to a good resilience to risk factors, when simulated on a solo basis. The liquidity stress test indicates a comfortable amount of liquid assets in the event of cash outflows in adverse conditions or shocks to market parameters in the short term.

67 Details on methodology, scope and scenarios of the macroeconomic test, the sensitivity analyzes, interbank direct contagion simulation and liquidity stress test can be found in Concepts and Methodologies section.

68 A bank is considered non-compliant if any of the three capital adequacy indices are not met: Total Capital Ratio (TCR), Tier 1 and Common Equity Tier 1 (CET1).

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Box: Scenarios used in the macroeconomic stress test[69]

The scenarios used in the Macroeconomic stress test are named Baseline, Acute Recession and Confidence Crisis (Charts 1.2.5.1 to 1.2.5.5).

The baseline scenario is built upon median market expectations, as provided by the Focus report.

The acute recession scenario is characterized by falling domestic demand, inflation and interest rates. It assumes a relevant drop in domestic demand, together with a strong decline in the global economy, from the fourth quarter of 2025 onwards. The magnitude of the external economic activity slide resembles that of the Covid-19 pandemic, together with a strengthening US Dollar and falling commodities prices. In the domestic economy, household consumption and gross fixed capital formation would have a significantly decline, and a slow recovery would follow, so that mid-2025 GDP levels would be recovered only by mid-2027. Reduced economic activity would trigger a relevant increase in unemployment rates. Economic idleness would lead to reduced inflation, despite the currency depreciation. In accordance with a Taylor rule, falling inflation would lead to Selic rate cuts by the BCB, aiming at achieving inflation convergence to target.

The confidence crisis scenario is characterized by falling economic activity and rising inflation and interest rates, due to significant increased uncertainty in the economy starting on the fourth quarter, 2025. As a result of expected fiscal and monetary deterioration, risk premia would steepen, followed by currency depreciation, elevated neutral interest rate and economic activity contraction. The building of such a confidence crisis scenario utilized as a reference the fiscal deterioration and economic uncertainty seen in the past, between mid-2014 and the beginning of 2016. Despite the GDP drop and increased unemployment, inflationary effects of currency depreciation would prevail. FX rate peaks in the first quarter, 2026 and then starts appreciating, in response to an increased interest rate differential to international markets. In accordance with a Taylor rule, to pursue convergence of inflation rates to the target, the significant rise of inflation would lead the BCB to hike the Selic rate. Output recovery occurs more gradually than in the acute recession scenario.

69 For scenarios other than the baseline scenario, the Selic rate movement described is solely intended to keep macroeconomic consistency and does not represent any indication or compromise if any of the described scenarios materialize.

Chart 1.2.5.1 – Inflation

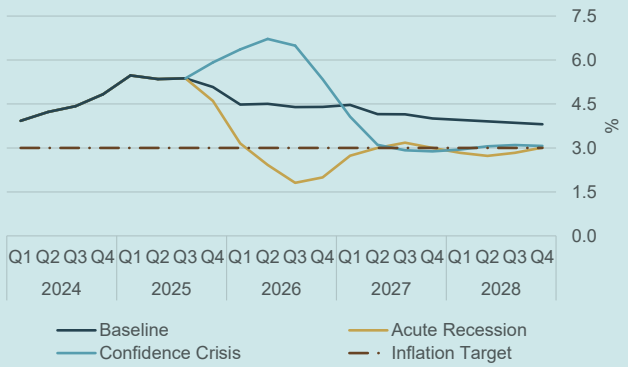


Chart 1.2.5.2 – Exchange Rate

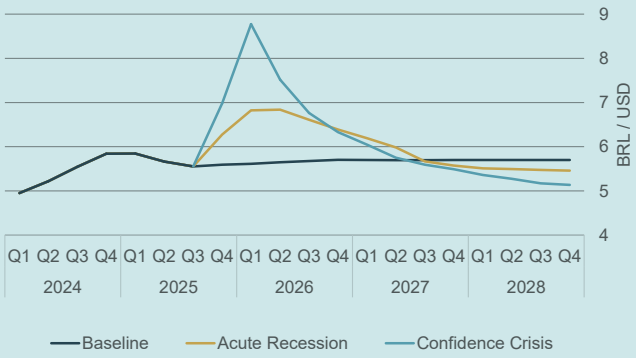


Chart 1.2.5.3 – GDP Change

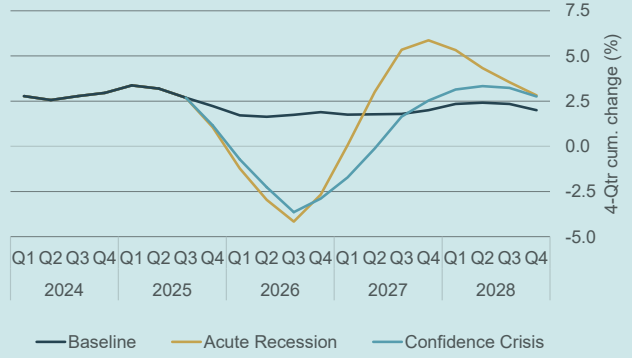
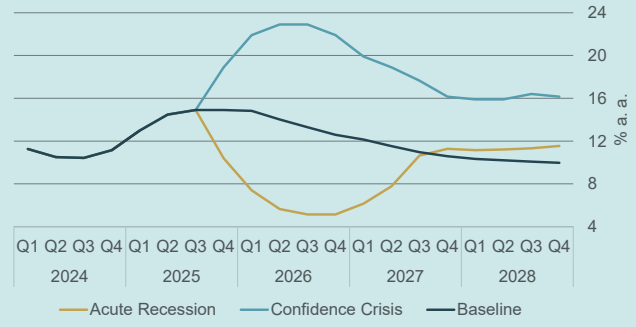


Chart 1.2.5.4 – Unemployment

Chart 1.2.5.5 – Selic Rate

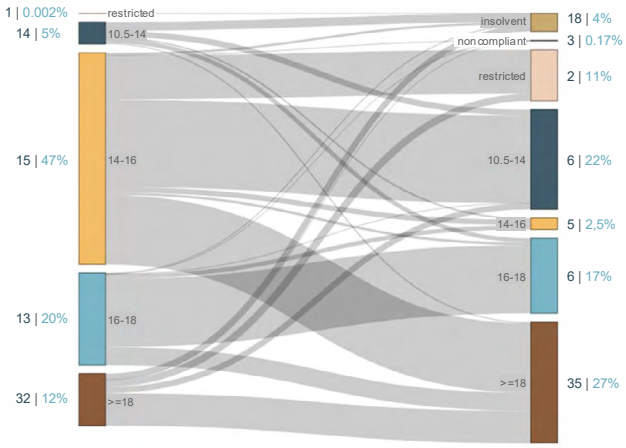


Solvency stress test

The estimated system capital shortfall[70] is low, even at the most stringent scenario, confidence crisis, confirming the adequate loss absorption capacity of the banking system. Institutions accounting for 68.2% of system total assets would continue to present TCR above regulatory minimum of 10.5%, at the confidence crisis scenario (Chart 1.2.5.6). Capital shortfall peaks at 5.3% of current system's regulatory capital in the seventh simulated quarter, at the confidence crisis scenario (Chart 1.2.5.7). This figure is lower than the 9.9% capital shortfall presented at the previous FSR, in that case in the last simulated quarter. For the acute recession scenario, capital shortfall reaches 2% of system's regulatory capital, which compares to the 2.7% figure obtained at previous tests.

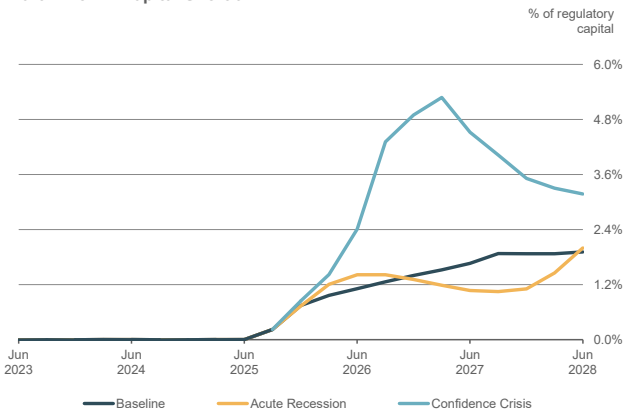
Total Capital Ratios reach its minimum value in September 2026, at 14.3%, having remained above the 10.5% required TCR in the confidence crisis scenario, which attests system's resilience. The regulatory changes[71] put in place in January 2025, and their impacts distributed over the course of the next years have been incorporated into the macroeconomic stress simulations.

Chart 1.2.5.6 – Capital Ratio Status
Confidence crisis scenario – Jun 2025 (left) vs Jun 2028 (right)



Capital Status refers to capital ratio ranges (when above minimum, including ACP) or or to the banks status (restricted if below ACP required, noncompliant or insolvent).
Size of bars represent the total assets proportion to the financial system.
Figures external to bars: banks count | Total Assets (% of Financial System)

Chart 1.2.5.7 – Capital Shortfall



Sensitivity Analysis

Sensitivity analyses consist in applying shocks to unhedged positions, one driver at a time, statically. Second order effects to other drivers are not considered, differently from what occurs during the materialization of changes in the macroeconomic environment.

70 The concept of capital shortfall encompasses amounts necessary to replenish regulatory capital to a level that fully complies with minimum requirements, inclusive of all capital buffer requirements (ACP) applicable and avoiding distribution restrictions, as provided by Resolution BCB 200, of March 11, 2022. Particularly, systemically important banks are subject to the systemic capital buffer ($ACP_{Sistêmico}$).

71 Regulation measures which alter legal or regulatory frameworks: (i) Law 14,467,of November 16, 2022, which brings tax deductibility rules closer to accounting provisioning criteria; (ii) new provisions calculus procedures for credit risk expected losses, established by Resolution CMN 4,966, of November 25, 2021, with a transition schedule established by Resolution CMN 5,199, of December 23, 2024; and (iii) the new framework for computing operational risk risk-weighted assets (RWA_{OPAD}), as per Resolution BCB 356, of November 28, 2023.

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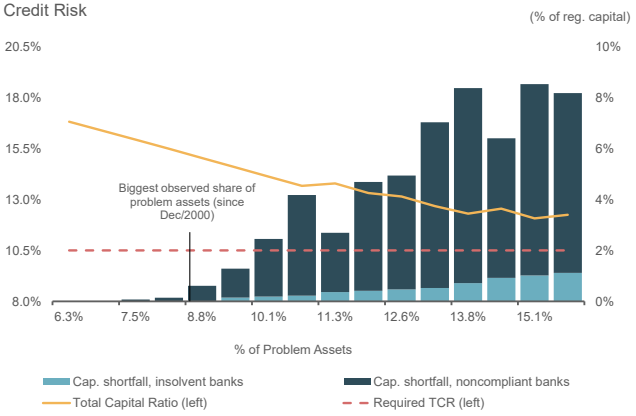
The system has low sensitivity to shocks in the exchange rate. Non-compliances, if the exchange rate increases 100% over the rate observed by June 2025, occur for institutions representing 0.003% of system's regulatory capital. The small amount is explained by low net exposures to foreign currencies held by financial institutions.

Only very large positive shocks in the interest rate could generate some capital shortfall. A shock equivalent to the greater variation observed[72] through the last 26 years would result in a capital shortfall of 2.2% of system's regulatory capital, affecting banks accounting for 0.6% of system assets. Hedging policies aiming at limiting exposure to trading book assets that are sensitive to interest rates, reduce the risk of losses arising from interest rate shocks.

Incremental credit risk shocks point to a low capital shortfall if problem assets reach their highest historical mark. Capital shortfall would be 0.4% of system's regulatory capital, if problem assets reach 8.6%, the historical maximum level observed in May 2017 (Chart 1.2.5.8).[73] In an extreme situation, if the proportion of problem assets reached 250% of current levels, there would be a capital shortfall equivalent to 9.3% of system's regulatory capital.

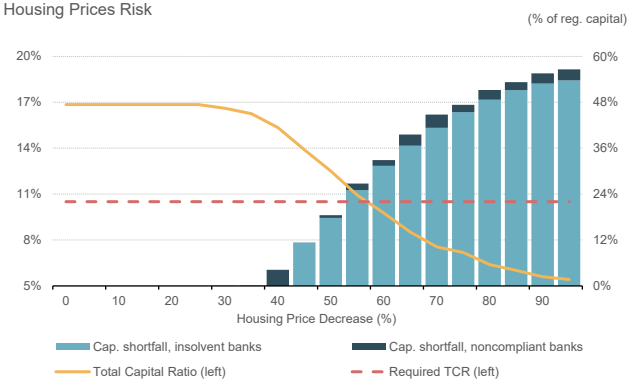
Chart 1.2.5.8 – Sensitivity Analysis
Credit Risk



Simulation of reductions in residential property prices shows a very low possibility of non-compliances. There would only be any capital shortfall in the event of nominal prices drop more than 30% of collateral prices of real estate credit operations, compared to the 36-month average of the Residential Real Estate Collateral Value Index (IVG-R). This shock is similar to the 33% drop observed in the S&P Case-Shiller during the subprime crisis in the U.S. Only a 45% reduction or greater, in nominal prices would lead to insolvency, characterized by negative CET1.

Origination criteria with moderate loan-to-value (LTVs) and the low share of real estate loans to the total credit portfolio of most banks contribute to the system's ability to absorb housing price shocks in extreme scenarios. The stock of residential real estate loans had an average LTV of 54.5% in June 2025, considering collateral prices updated by IVG-R[74] and outstanding balances updated by interests, amortizations and adjusting for inflation (Chart 1.2.5.9).

Chart 1.2.5.9 – Sensitivity Analysis
Housing Prices Risk



72 In 21-day windows, since 1999, the maximum change of the six-month rate was circa 83.5%.

73 Prior to January 2012, for comparative purposes, the share of E-to-H classified loans in the total portfolio is considered.

74 The Residential Real Estate Collateral Value Index (IVG-R) is calculated and disclosed by the BCB, based on property appraisals carried out for the granting of housing loans.

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Simulation of direct interbank contagion

The contagion simulation suggests a low capital shortfall due to contagion caused by the bankruptcy of financial institutions individually. Impact from the failure of one bank is transmitted to other institutions through direct links, such as loans and interbank deposits. In the worst case simulated, the capital shortfall resulting from contagion would be below 1% of system's regulatory capital. This low impact is explained by the appropriate level of capitalization of the system and the existence of an exposure limit per client, which restricts exposures between institutions. In addition, some direct interbank exposures are collateralized, such as repurchase agreements backed by Federal Public Securities (TPF), thus reducing the likelihood of contagion.

Liquidity stress testing

The banking system holds enough liquid assets to withstand potential losses under stressed scenarios and to comply with current regulations. The wide majority of FIs, including the largest ones, exhibit liquidity buffers large enough to withstand depositor outflows and potential losses under adverse market scenarios.

Depositors' run-off stress tests indicate the system is sufficiently resilient to withstand extreme funding withdrawals. The depositors´ run-off scenario for the thirty-day horizon applies standardized outflows percentages to funding sources, considering the client profile and the type of funding instrument. The methodology captures the effect of deposit volatility to estimate supplementary run-offs (VaR).[75] Furthermore, it considers the total withdrawal of all instruments maturing over a thirty-day horizon, as well as the withdrawal of all eligible instruments by their three largest counterparties, capturing concentration risk. The simulation results indicate that only a small subset of institutions representing 3,8% of the system's assets have stressed deposit run-offs representing more than 100% of their liquid assets. (Chart 1.2.5.10)

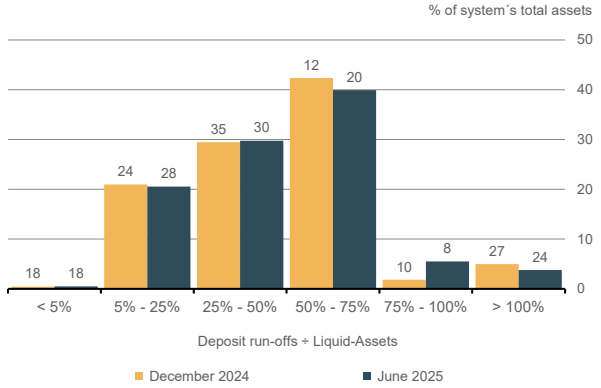
The result of shocks to market parameters demonstrates that banks remain resilient to withstand potential cash outflows in the short term, and meet margin calls and guarantees, as well as a devaluation of liquid assets.[76] A reduction in the volatility of interest and foreign exchange rates, combined with a greater degree of risk aversion, contributed to a reduction in the proportion of market stress to liquid assets when compared to December 2024 (Chart 1.2.5.11). These simulations estimate the amount necessary to cover losses resulting from fluctuations in market prices of liquid assets, derivatives, and other financial instruments.[77] Liquid assets, in turn, are marked to market regardless of their accounting classification, eliminating potential problems arising from the revaluation of securities classified as Held to Maturity (HTM) and accounted for at amortized cost.

75 The deposit run-off stress test aggregates a subset of components of the Short-Term Liquidity Ratio methodology (IL) associated with unexpected deposit outflows: deposit profile, early redemption and brokered deposits. For further details about the IL´s methodology, please refer to the Concepts and Methodology annex (the Stressed Cash Flow component of the Liquidity Ratio).

76 This simulation is based on forecasts to shocks in market parameters through different scenarios for yield curve, exchange rate, currency coupons and inflation price indices. The stress tests consider the worst impact of high/low shock scenarios for the different marks risk factors, independently, for each institution; that is, we may have two independent scenarios, one shock resulting in an increase for a certain risk factor for an institution A and a decrease for the same risk factor for an institution B.

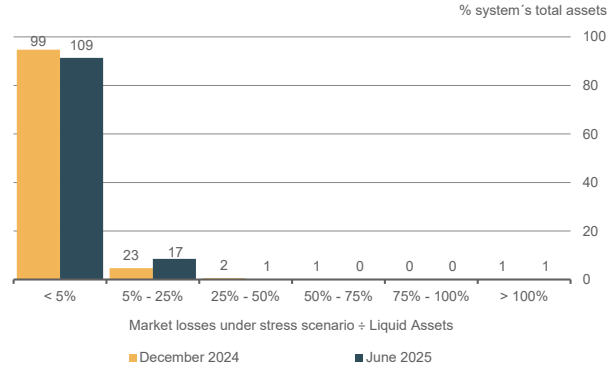
77 Resource losses/cash outflows include: (i) additional margin calls deposited in clearing houses; (ii) disbursements in positions of derivative markets; (iii) loss of value of liquid assets used as collateral for repurchase agreements or pledged as guarantees to clearing houses and BCB.

Chart 1.2.5.10 – Frequency distribution off deposits run-offs[/1]



1/ The values on the top of the bars refer to the number of financial institutions with the value of the expected earlier redemptions for next 30 days (run-offs) as a share of its liquid assets belonging to the corresponding interval.

Chart 1.2.5.11 – Frequency distribution for market losses under stress scenarios[1/]



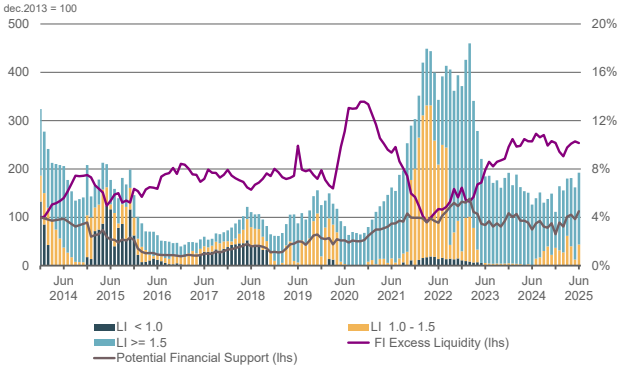
1/ The values on top of the bars refer to the number of institutions with estimated market losses under stressed scenarios as a share of liquid assets belonging to the corresponding interval.

The impact of eventual liquidity support to investment funds[78] managed by bank-linked managers on the banking system participants is not a relevant matter of concern. The step-in risk is the ratio between the value of potential liquidity support to investment funds provided by their bank-linked managers, estimated in a scenario of strong withdrawals in investment funds, and the excess liquidity of their linked FIs – estimated from the liquidity stress tests performed by the BCB. The indicator showed a increase in recent months, representing 8% of the excess liquidity of the linked FIs.

Step-in risk remains historically low, despite the recent increase. The movement results from the growth of the eventual liquidity support to funds (to BRL57 billion) that was not fully compensated for the increase in excess liquidity of the linked FIs (to BRL739 billion). Furthermore, most of this need occurs in managers that have an IL greater than 1.5, which indicates a comfortable situation regarding the step-in risk (Chart 1.2.5.12).

78 The concept and methodology for assessing potential liquidity support to investment funds were presented in the October 2017 FSR, available at https:// www.bcb.gov. br/publications/financialstabilityreport/201710. Investment funds considered in the estimation of the potential support are those under Instruction CVM 555, of December 17, 2014, managed by entities belonging to the banking system, open-end and non-exclusive, not fund of funds, having a redemption no longer than thirty days and whose financial statements are not consolidated into prudential conglomerates.

Chart 1.2.5.12 – Investment funds' step-in risk
Potential support as a proportion of excess of liquidity of bank-linked managers, segregated by Liquidity Index range



Sources: BCB, CVM, BCB staff calculations.

Fixed-income corporate debt funds managed by independent managers would have sufficient liquidity to face stressed outflow scenarios. To broaden the assessment of risks to financial stability that could arise from the funds of independent managers, a test was conducted, replicating the pattern of outflows of open-end fixed-income corporate debt funds observed in the first quarter of 2023 (Americanas case). The test results indicate that the industry would be able to withstand, without major problems, redemptions of that magnitude within the same time window. Additionally, another test was conducted for funds with a redemption period of up to one business day, applying to each of them the redemption level corresponding to the 1st percentile of each fund's historical series. No situations

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were identified that could indicate potential cases of closure for redemptions or absence of liquidity that could represent risks to financial stability.

1.3 Financial Stability Survey (FSS)[79]

According to the responding financial institutions, the key risks to financial stability are related to the international and fiscal scenarios, as well as to delinquency and economic activity. Moreover, concerns about operational risks have increased, especially those arising from cyber risks. Fiscal risks were preponderantly mentioned as the most important risk (Table 1.3.1), while risks arising from the international scenario remain the most frequently mentioned among the three risks (Table 1.3.2). The responding financial institutions also point to the growing operational/cyber risk in an increasingly digitalized financial system. Despite these assessments, most respondents still expect and suggest that the $ACCP_{Brasil}$ value should be kept at 0%.

Risks to financial stability[80]

Fiscal risks were preponderantly mentioned as the most important risk, reflecting increasing concerns about the sustainability of public debt and the impacts of fiscal policy on asset prices and on monetary policy. The percentage of respondents naming "fiscal risks" as the most important was 38% in August, compared to 52% in February. Concerns should be highlighted about the sustainability of public accounts and the impact on the yield curve, on the exchange rate, and on the conduct of monetary policy, and, consequently, on household and corporate delinquency. In this scenario, the rise in funding costs and the increase in market risk would negatively impact the balance sheets of financial institutions.

The mention to international scenario risks as the most important when considering the three risks grew due to concerns about the U.S. economic policy, with an emphasis on tariffs imposed on Brazilian products. Respondents highlighted the role of the U.S. trade policy in increasing global uncertainty, particularly focused on tariffs and other instruments that could be directed at the SFN, as well as likely responses from the Brazilian government. Global geopolitical conflicts are also mentioned, as well as their impact on commodity prices and global inflation.

The increased concern about delinquency and economic activity risks is due to the slowdown in economic growth, high interest rates, and the perception of high levels of credit/GDP gap and household and corporate indebtedness. The mention of this risk increased both in the most important risk category and in the three risks highlighted by financial institutions. The slowdown in economic growth, especially in the face of a challenging external scenario, could intensify delinquency, increase provisions, restrict credit, and impact market liquidity.

Operational risks continue to grow both as the most important risk and as one of the three risks

79 The BCB conducts a quarterly survey to identify and monitor risks to financial stability according to the perception of SFN institutions. It is noteworthy that the BCB has started publishing, since 2023Q4, the quarterly FSS report with the opinions reported by the responding financial institutions. The survey is published on the Thursday of the subsequent week to the Comef meeting. Since the previous FSS edition, two surveys have been conducted, one from April 19 to May 9, 2025, and another from July 13 to July 25, 2025, respectively with 84 and 91 financial institutions responding out of a total of 100 institutions invited (of this total, 75 are regulated by the BCB, 12 by the CVM, 8 by Previc, and 5 by Susep). In August 2025, the sample of the BCB regulated institutions that responded to the latest FSS edition accounted for more than 90% of the segment's assets.

80 Questions: In the next three years, which risks to financial stability does your institution consider more relevant, considering probability and impact on the SFN?" and "For each of the three risks identified, indicate the probability and impact, considering the following classes: i) probability: low (<1%); medium-low (1%-10%); medium-high (10%-30%); high (>30%); ii) impact (volume of SFN assets): very low (<0.1%); low (0.1%-1%); medium (1%-5%); high (5%-10%); very high (>10%).

identified by financial institutions, with concerns focused on cyber attacks and electronic fraud in an environment of increasing digitalization of financial services. Financial institutions highlight that the increasing digitalization of the SFN access raises the cyber risk, with increasingly sophisticated attacks, amid a scenario in which the interconnection of financial systems could amplify the potential impact of failure in a single institution. In addition to financial losses, cyber attacks can undermine customer confidence and lead to reputational risks.

Analysis of the most important risk confirms increased concern with fiscal policy and with uncertainties arising from the U.S. tariff policies toward Brazil. Despite declining in comparison with the previous two surveys, "inflation" and "U.S." remain among the most frequently mentioned terms by financial institutions in their answers about the key risks to stability,[81] along with "delinquency" and terms related to the fiscal situation. In the comparison among the last three surveys, there has been an increase in the occurrence of terms related to international scenario risks applicable directly to Brazil, such as "tariff", "sanctions" and "Brazilian products", and to economic and banking activity, such as "credit

81 It should be noted that terms such as "inflation" may refer to both domestic and international variables.

Table 1.3.1 – FSS – Risk considered most important by financial institutions

Risk	Frequency (%)			Probability	Impact
	Feb. 2025	May 2025	Aug. 2025	Aug. 2025	
Fiscal risks	52	30	38	Medium-High	High
International outlook	16	39	30	Medium-High	High
Delinquency and activity	13	12	16	Medium-High	High
Operational risk	1	2	3	Medium-High	High
Domestic interest rate level	2	2	3	Medium-High	Medium

Table 1.3.2 – FSS – Three risks mentioned by financial institutions

Risk	Average frequency (mentions/IF)			Probability	Impact
	Feb. 2025	May 2025	Aug. 2025	Aug. 2025	
International outlook	0.86	0.88	0.89	Medium-High	High
Fiscal risks	0.74	0.69	0.71	Medium-High	High
Delinquency and activity	0.44	0.46	0.55	Medium-High	High
Operational risk	0.19	0.21	0.25	Medium-High	Medium
Domestic inflation	0.15	0.13	0.09	Medium-High	High

Note: Financial institutions answer the following question: "In the next three years, which risks to financial stability does your institution deem more relevant, considering the probability of occurrence and their impact on the SFN? Describe the three risks ranked by importance (the most important first, considering the product between the probability of the event occurrence and the magnitude of losses as a share of SFN total assets)". The BCB then classifies these descriptions into different risk categories for analytical purposes. Table 1.3.1 presents information referring only to the most important risk according to each institution, while Table 1.3.2 refers to the three risks listed by each of them.

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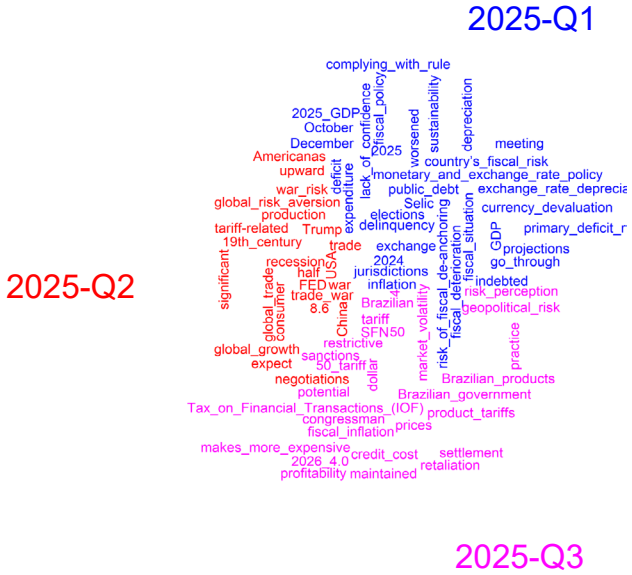
cost" and "fiscal_inflation". Conversely, references to international scenario terms in a broader sense, such as "global_risk_aversion" and "war risk", have decreased (Charts 1.3.1 and 1.3.2).[82]

Chart 1.3.1 – FSS – Word cloud describing the most important risk

Note: the word cloud is compiled from the textual analysis of the most important risk described by each respondent. The size of the word is proportional to its frequency.

Chart 1.3.2 – FSS – Evolution of risk perception

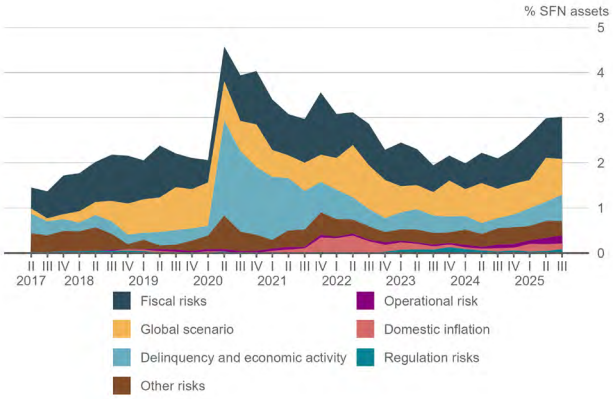


Note: the comparative word cloud is compiled from the textual analysis of the most important risk described by each respondent. The color of the word indicates the FSS in which the word frequency was predominant. The size of the word is proportional to the difference between the word frequency in the corresponding FSS and the average frequency of the same word in the three surveys depicted in the chart.

The average expected impact of risks on the SFN increased compared with the recent surveys, driven by risks related to the international scenario, delinquency and economic activity, and operational risks. The sum of the average expected impact of all risks rose to 3.02% of the SFN assets, compared with 2.62% in the February 2025 survey. The average expected impact of international scenario risks increased from 0.63% of SFN assets in 2025Q1 to 0.79% in 2025Q3. During the same period, this indicator for delinquency and economic activity risks rose from 0.39% to 0.59%, and that for the operational risk, from 0.08% to 0.18%. In turn, the average expected impact of fiscal risks fell from 1% to 0.93%, despite remaining the most frequently mentioned when considering the most relevant risk identified by financial institutions (Chart 1.3.3). When observing separately the probability of materialization and the impact of risks in the universe of financial institutions that mention these risks, the increased probability of delinquency and economic activity risks, as well the rise in both the probability and impact of domestic inflation and operational risks stand out (Charts 1.3.4.a to 1.3.4.e).

82 In many cases, the word cloud does not allow to distinguish whether the variable refers to Brazil or abroad. However, the assessment is complemented with a more granular analysis.

Chart 1.3.3 – FSS – Average expected impact



Note: The average expected impact of risk r is computed as $I_r = \frac{1}{n}\sum_b probability_{br} * impact_{br,}$ where n is the number of financial institutions; and probability and impact are values assigned by the respondents to the r risk mentioned in the FSS. Risks are assumed to be independent so they can be aggregated into a single indicator. Hence, $I = \sum_r I_r$. All three risks pointed out by financial institutions are considered. The measure r refers to the expected impact of a risk type from the point of view of the group of respondents. It is not a feature of the r risk class itself but of the group's expectation about the materialization of that risk. For example, there could be a risk class with a very high expected impact mentioned by only one respondent. In this case, the average expected impact of the risk from the respondents' point of view would be low.

Chart 1.3.4.a – FSS – Global scenario: probability, impact and frequency

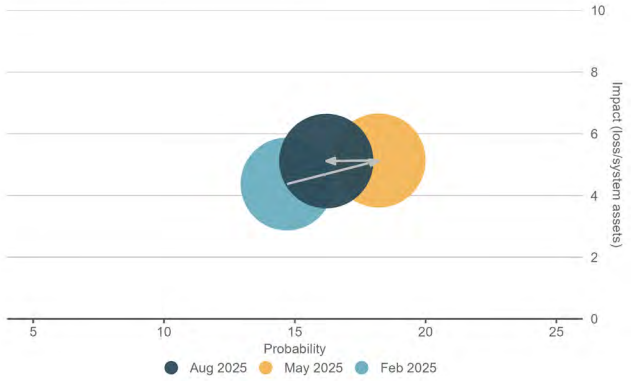


Chart 1.3.4.b – FSS – Fiscal risks: probability, impact and frequency

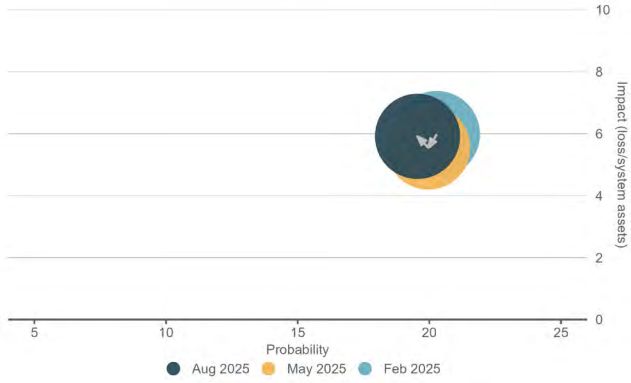


Chart 1.3.4.c – FSS – Delinquency and economic activity: probability, impact and frequency

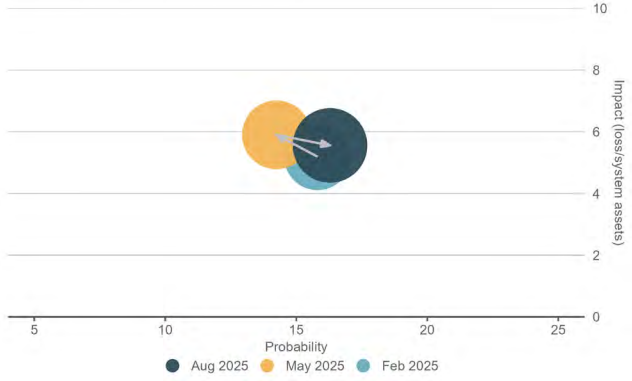


Chart 1.3.4.d – FSS – Operational risk: probability, impact and frequency

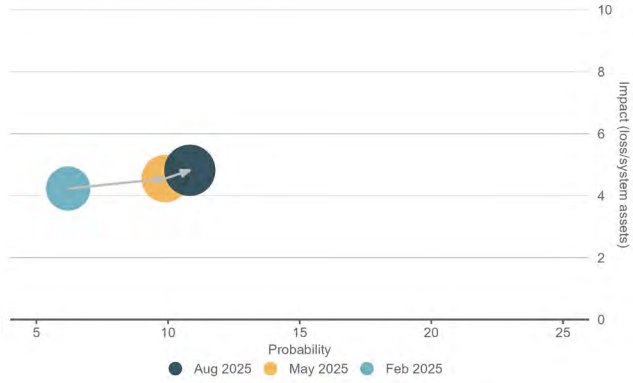


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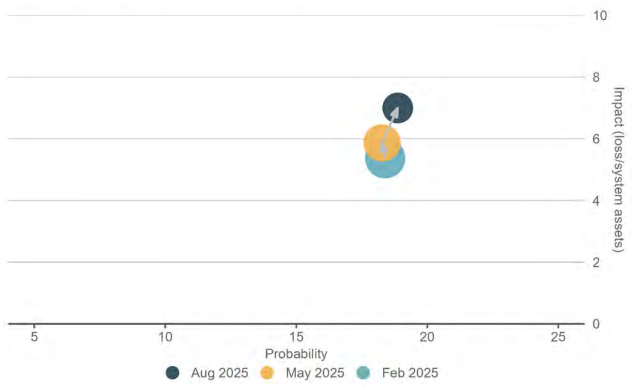
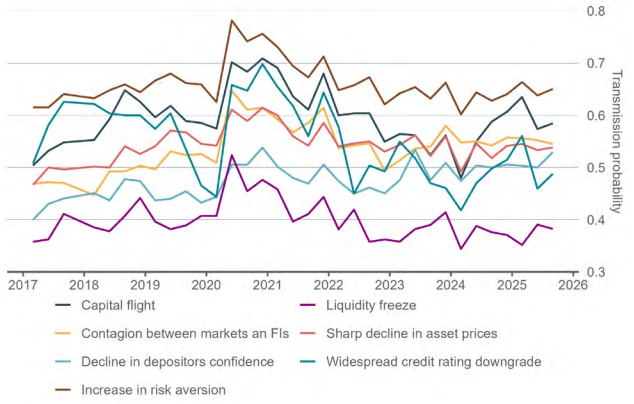
Chart 1.3.4.e – FSS – Domestic inflation: probability, impact and frequency



Note: the size of the circle represents the frequency of the risk. The x and y coordinates represent the midpoint of the probability and the impact classes, respectively.

"Increase in risk aversion" and "capital flight" remained the most likely channels for transmitting shocks, with the "decline in depositors' confidence" channel also gaining strength. Compared with the February survey, the "increase in risk aversion," although with a slight decline in its transmission probability, remained the most relevant channel. Higher probabilities of shock transmission were observed in the "decline in depositors' confidence" and "liquidity freeze" channels. The probability of transmission through all other channels dropped compared with February[83] (Chart 1.3.5).

Chart 1.3.5 – FSS – Transmission channels of high-impact events

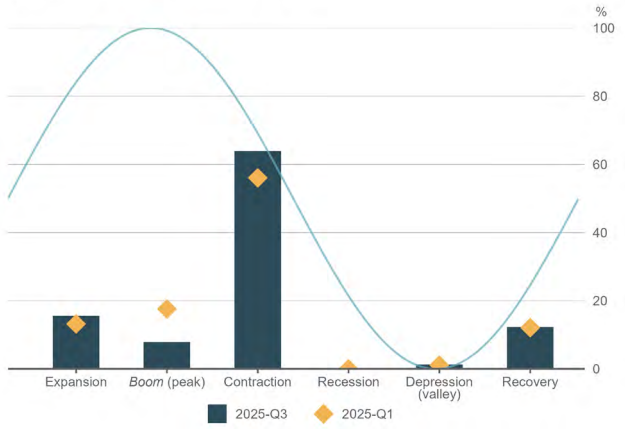


Note: Financial institutions answer the following question: "In the case of the occurrence of the event described as the most relevant to financial stability, what is the probability of this shock being carried through the channels below?"

Economic and financial cycles[84]

The perceptions of the economic cycle increased in the assessment of "contraction" and decreased in those of "boom". The share of respondents assessing that the economic cycle is in "contraction" increased from 56% to 64% from February to August 2025, while the number of financial institutions assessing that the cycle is in a "boom" phase fell from 18% to 8% (Chart 1.3.6).

Chart 1.3.6 – FSS – Economic cycle



83 These measurements present a certain degree of noise, which is why caution is recommended when interpreting the results. The analysis should prioritize the identification of structural trends.

84 Questions: "How would your institution classify the current phase of the economic cycle? Classifications: Expansion; Boom; Contraction; Recession; Depression; and Recovery." and "Classify your institution's assessment of the following financial cycle factors: Credit/GDP gap; Access to funding and means of liquidity; Degree of corporate leverage; Degree of household leverage; Asset prices in relation to economic fundamentals; Willingness to take risks of institutions in your segment. Classifications: High/increasing; High/stable; High/declining; Low/declining; Low/stable; and Low/increasing".

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The perception of the credit/GDP gap as high has declined, while the upward trend of the willingness of financial institutions to take risks has increased slightly. Most financial institutions continue to consider that the credit/GDP ratio is high, reaching 75% in August, compared with 78% in February 2025, and nearly half of respondents (49%) believe it should remain stable (Chart 1.3.7.a). The willingness of financial institutions to take risks is still considered low by most respondents (75%) (Chart 1.3.7.b).

Chart 1.3.7.a – FSS – Financial cycles
Credit-to-GDP gap

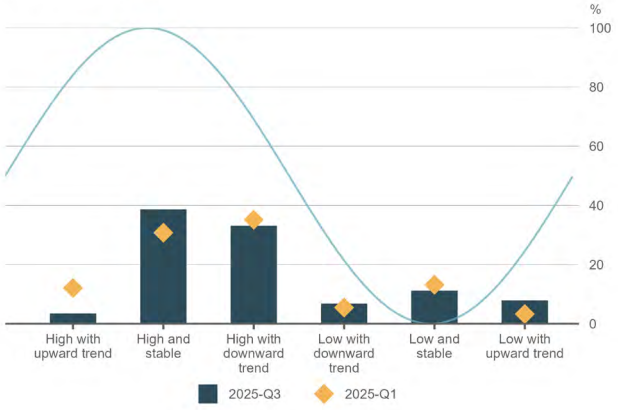

Chart 1.3.7.b – FSS – Financial cycles
Risk appetite

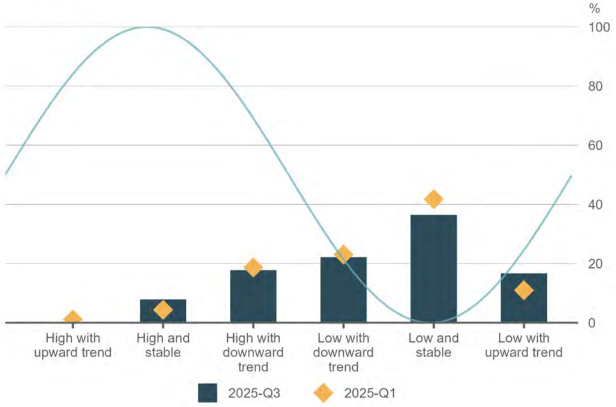

Chart 1.3.7.c – FSS – Financial cycles
Households leverage

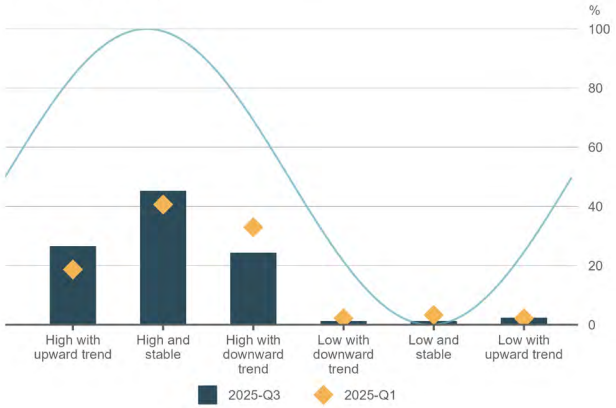

Chart 1.3.7.d – FSS – Financial cycles
Companies leverage

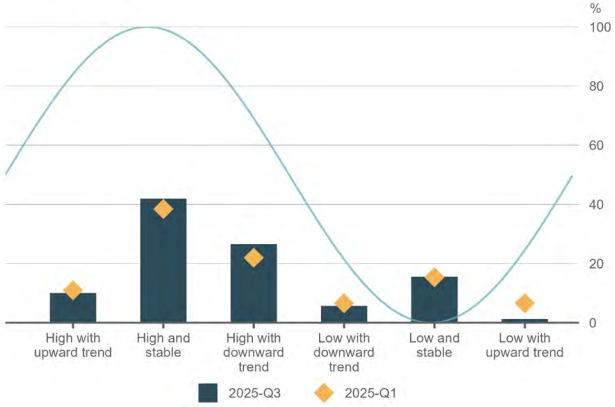

Chart 1.3.7.e – FSS – Financial cycles
Funding and liquidity

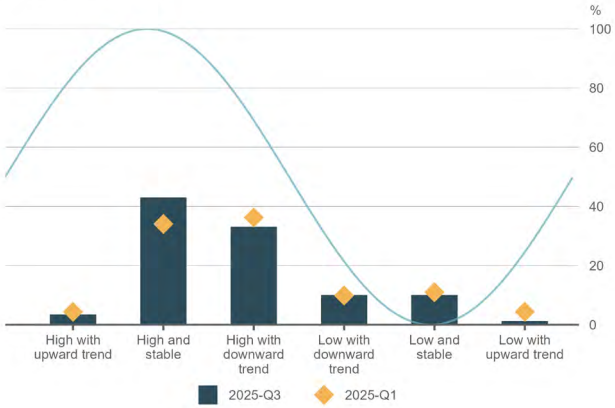

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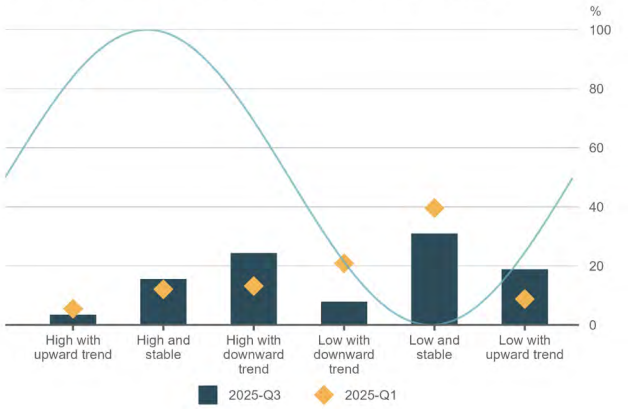
Chart 1.3.7.f – FSS – Financial cycles
Asset prices with respect to the fundamentals of the economy



The degree of leverage of households and companies is still mostly perceived as high. The share of respondents assessing that the household leverage is high remains elevated (96%), and the share of those assessing that there is an upward trend increased from 21% in February to 29% in August 2025 (Chart 1.3.7.c). Regarding companies, 78% of respondents believe that the leverage is high (71% in February 2024). The perception of stability rose from 54% in February to 57% in August (Chart 1.3.7.d).

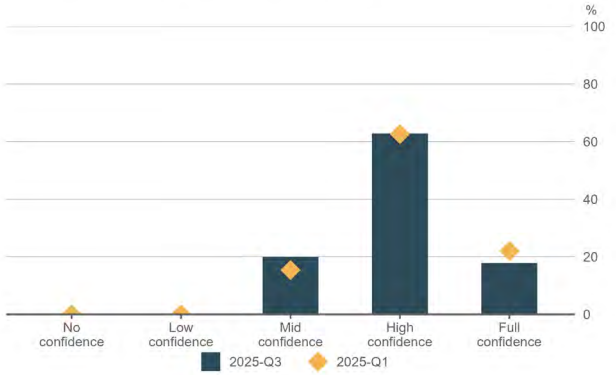
There was an increase in the perception of stability in the access to funding and means of liquidity and an upward trend in asset prices. The share of respondents assessing that the access to funding and liquidity is stable rose from 45% in February to 53% in August 2025 (Chart 1.3.7.e). The perception of an upward trend in asset prices in relation to economic fundamentals also increased, from 14% to 22% (Chart 1.3.7.f).

Resilience and confidence in the financial system stability

Confidence in the SFN stability remains high. According to respondents, confidence in the stability of the financial system remains high, despite a slight decline in the last two surveys. Most financial institutions are very or fully confident in the SFN resilience (85% in August, compared with 76% in February). Similarly to the previous two surveys, there were no negative mentions – "little confidence" or "no confidence" (Charts 1.3.8. and 1.3.8.b).

Chart 1.3.8.a – FSS – Index of confidence in the stability of the financial system
Evolution of confidence indexes

Chart 1.3.8.b – FSS – Index of confidence in the stability of the financial system
Relative distribution of confidence perceptions



Expectations for the Countercyclical Additional Buffer

The financial institutions regulated by the BCB subject to the CCyB expect and suggest an $ACCP_{Brasil}$ at 0%. Of those, around 90% expected the **$ACCP_{Brasil}$** to remain at 0% and recommended maintaining it at that level (Charts 1.3.9.a and 1.3.9.b). This result has remained relatively stable during all surveys.

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Chart 1.3.9.a – FSS – Expectations and suggestions for the Countercyclical Additional Buffer (Brazil)
Expectations

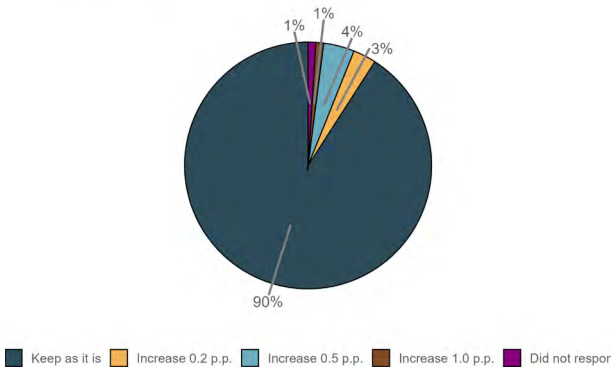
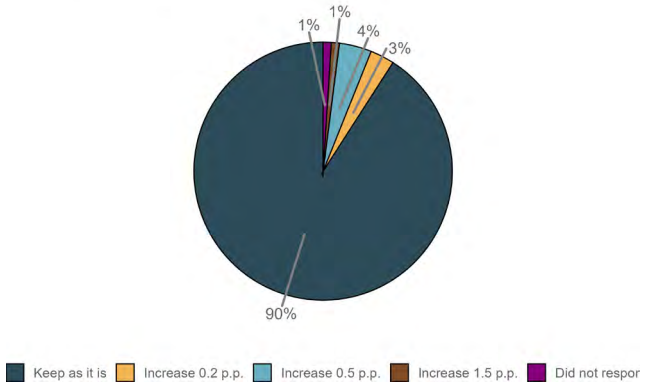


Chart 1.3.9.b – FSS – Expectations and suggestions for the Countercyclical Additional Buffer (Brazil)
Suggestions



1.4 Financial market infrastructures

In the first half of 2025, FMIs contributed to the safe and efficient functioning of the markets. The systems were compliant with regulatory requirements and applicable international principles. These are necessary conditions for the stability of the SFN.

The financial system held enough intraday liquidity[85] to ensure seamless transactions in the Brazilian Payment System (SPB).[86] Interbank market transactions were settled without any relevant issues and under low risk of intraday fund insufficiency throughout the semester (Chart 1.4.1).[87] Every two and a half days the Reserves Transfer System (STR) managed a turnover that roughly equals to the Brazilian GDP. During the semester, the average need for funds for daily payments (NEL) was 2.8% of the total available liquidity, with a peak of 4.7%. The Instant Payment System (SPI) reached 276 million transactions in a single day. In more than 96% of time, institutions demanded no more than 25% of their liquidity to settle payments off the STR´s operating timetable (Chart 1.4.2).

Chart 1.4.1 – Liquidity Potential and Effective Liquidity Needs

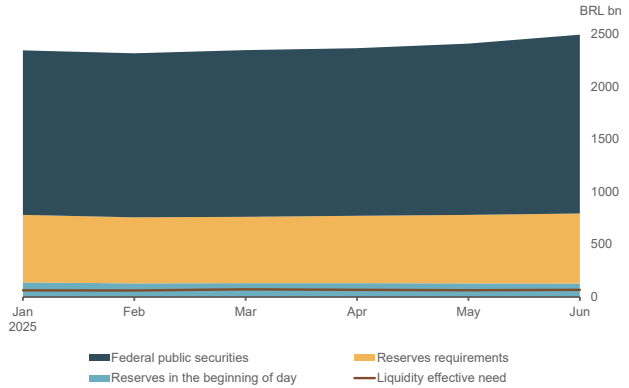
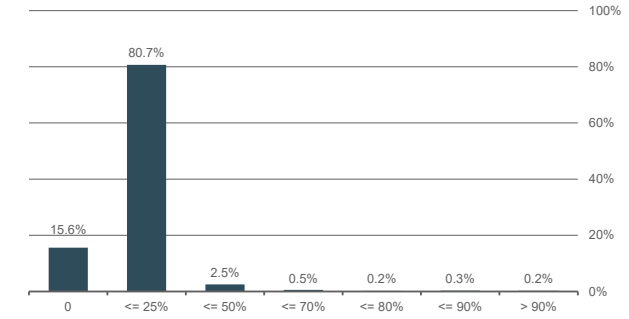


Chart 1.4.2 – After-Hours Liquidity Needs



85 Aggregate balance of funds available for interbank payments and transfers.

86 Real-time gross settlement systems: Reserves Transfer System (STR), Instant Payment System (SPI) and Funds Transfer System (CIP-Sitraf).

87 FIs can transfer required reserve balances to the Reserves Account and convert Brazilian Government Bonds into Banco Central do Brasil money by doing repo operations, both without intraday financial costs.

Pix continues to increase its relevance in the SFN and SPB. In the past semester, this instant payment tool accounted for 26.9% of all retail payments. The transaction volume grew by 0.4% over the semester and 23.1% over the past twelve months (Chart 1.4.3). Transactions between individuals remain the primary use case (Chart 1.4.4), although there has been a steady increase in other use cases. The SPI maintained availability above 99.9% throughout the period, with 99% of transactions processed by the SPI within 0.643 seconds.

Chart 1.4.3 – Interbank Pix (settled by SPI) and Intrabank Pix

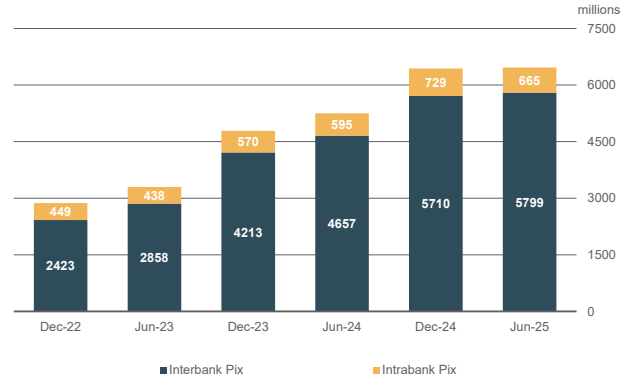
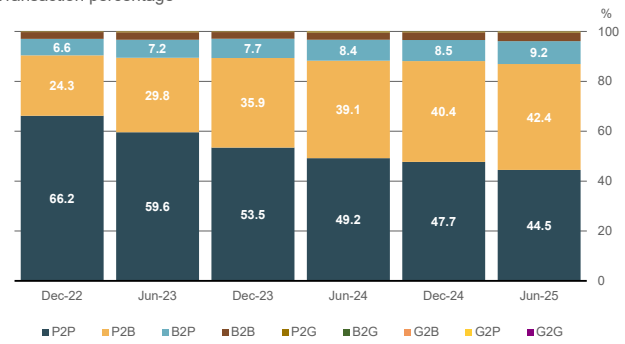


Chart 1.4.4 – Pix transactions types (Interbank Pix)
Transaction percentage



(P = Person, B = Business, G = Government)
(e.g.: P2P = Person to Person)

The financial risks of the financial assets, securities and foreign exchange markets were properly managed by the FMIs. B3 S.A. acts as CCP in two systems: the B3 Clearinghouse and the B3 FX Clearinghouse. In both cases, the initial margin model's confidence level exceeds 99%, in accordance with the Principles for Financial Market Infrastructures (PFMI)[88]. The stress scenarios employed by B3 were more severe than the variations observed in the main Primitive Risk Factors (PRF)[89] in the period, except for the fixed interest rate at the 252-business-day vertex[90] (Table 1.4.1). The margins required by B3 Clearinghouse were sufficient to cover the risk of a high percentage of investors' portfolios, as assessed by the BCB (Chart 1.4.5).

Table 1.4.1 – B3 Clearinghouse
Primitive Risk Factors (PRF)

Discrimination	Low[1/]	High[1/]
Ibovespa spot	24%	23%
USD spot	26%	27%
Fixed rate 42	75%	10%
Fixed rate 126	96%	10%
Fixed rate 252	107%	12%
Fxed rate 756	92%	16%
DDI[2/] 180	13%	5%
DDI 360	16%	7%
DDI 1080	22%	9%

Sources: [B][3], BCB, and BCB staff calculations.

1/ Highest percentage of accumulated variation over 2 days considering the low and high scenarios in the 1st semester of 2025.

2/ Foreign exchange coupon.

88 This confidence level relates to the estimated distribution of future exposure to settled financial instruments.

89 The primitive risk factor associated with a derivative contract is the designation given to the financial variables that are relevant to the contract's price formation.

90 On March 6, the downside stress scenario for the fixed interest rate at the 252-business-day vertex was exceeded: the two-day cumulative change in that rate reached 107% of its respective envelope.

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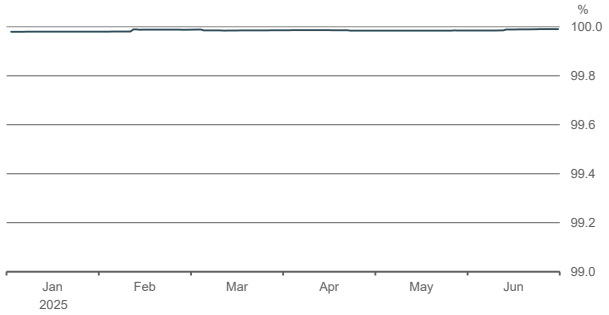
Chart 1.4.5 – B3 Clearinghouse
Accuracy statistics of the individual margin calculation model 1/

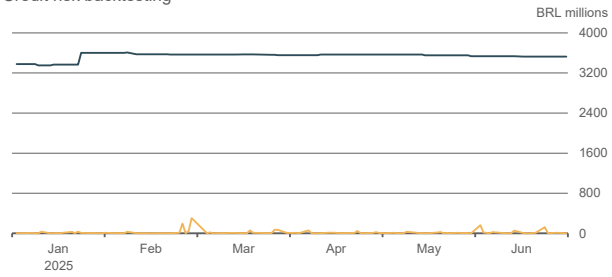


1/ Simply put, the statistic corresponds to an average, over a moving period of 63 working days, of the ratio between (i) the number of portfolios that would not have suffered losses greater than those calculated by the individual margin model used by the CCP; and (ii) the total number of portfolios.

Sources: [B]³, BCB, and BCB staff calculations.

The credit and liquidity exposures were adequately managed by the CCP on all days of the period.[91] In the B3 Clearinghouse, individual margin and prefunded additional resources would be sufficient to cover B3's credit exposure to the two participants whose joint default would cause the largest aggregate credit exposure (Chart 1.4.6). The liquid resources maintained by the B3 Clearinghouse would be sufficient to ensure the timely settlement of obligations for the two participants with the largest net debt positions. In the B3 FX Clearinghouse, the required collateral would be sufficient to cover its credit exposures associated with each of the participants. Liquid resources held by the B3 FX Clearinghouse would be sufficient to cover the default of the participant with the largest obligation in Brazilian reais (Chart 1.4.7) and in U.S. dollars (Chart 1.4.8).[92]

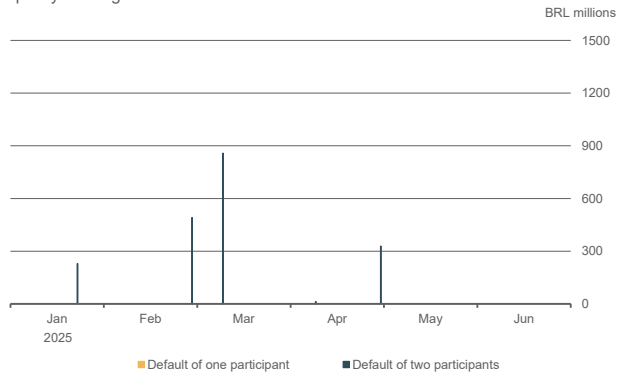
Chart 1.4.6 – B3 Clearinghouse
Credit risk backtesting



The Net Financial Result (NFR) is determined by comparing the financial result arising from the simulation of closing-out the participant's position against the value of its collateral, if it is declared in default. This result is calculated based on the close-out strategy projected by the individual margin calculation model and the actual changes in asset prices, observed in the subsequent days.

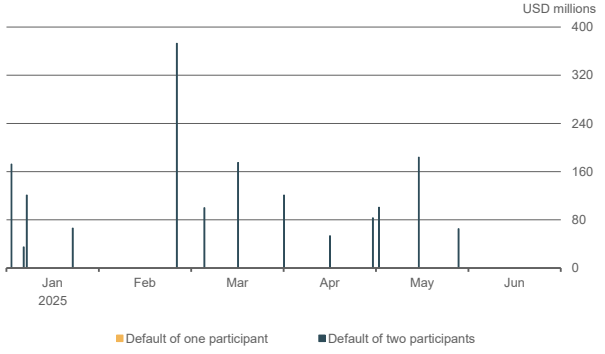
Sources: [B]³, BCB, and BCB staff calculations.

Chart 1.4.7 – B3 FX Clearinghouse
Liquidity shortage in BRL



Sources: [B]³, BCB, and BCB staff calculations.

Chart 1.4.8 – B3 FX Clearinghouse
Liquidity shortage in USD



Sources: [B]³, BCB, and BCB staff calculations.

91 The backtestings indicate that the B3 Clearinghouse and the Foreign Exchange Clearinghouse are complying with SPB legislation and the objectives of the PFMI.

92 Principle 7 of the PFMI determines: a) maintenance of sufficient liquid resources to timely settle the obligations arising from the default of the two participants, including companies controlled by them, which would generate the largest aggregate payment obligation for the CCP, in the case of CCPs that are considered systemically important in more than one jurisdiction, or that have a complex risk profile; or b) maintenance of sufficient liquid resources to timely settle the obligations arising from the default of the participant and its affiliates, which would generate the largest aggregate payment obligation for the CCP, in the case of the other CCPs. Since the B3 FX Clearinghouse is systemically important only in Brazil, does not have a complex risk profile and only settles spot dollar purchase and sale contracts, the events represented in Charts 1.4.7 and 1.4.8 are compatible with international recommendations and domestic regulations.

II

Selected topics

2.1 Survey on the Use of Artificial Intelligence in the National Financial System[94]

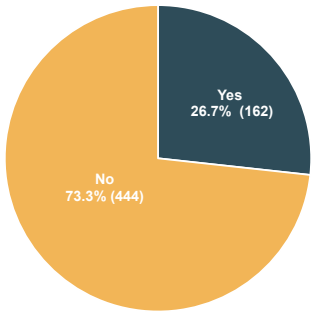
The BCB's survey on the use of AI in the National Financial System (SFN) reveals an evolving adoption stage, marked by heterogeneity across segments and strong reliance on external providers. With widespread use among larger banks and limited presence in credit unions and payment institutions (PIs), technological maturity, investment capacity, and governance challenges appear to be decisive factors for implementation. Although practices such as continuous monitoring, data validation, and systematic testing are present, AI governance still offers room for improvement, given the absence of specific policies and mechanisms for risk management. Barriers such as lack of skilled personnel, high costs, and limitations in data quality are also observed. Institutional risk perception is aligned with the international debate, highlighting challenges related to legal and operational aspects. The study aims to identify practices and anticipate risks and other aspects to support future regulations and initiatives on the subject.

94 The survey was conducted between February and March 2025, covering 606 regulated institutions, which represent approximately 38% of the entities authorized to operate by the BCB and 96% of the National Financial System's (SFN) assets as of the December 2024 reference date.

The BCB's study on AI in the SFN is a response to its growing regulatory and technological relevance. The progress of Bill No. 2,338 of 2023, which establishes principles for AI governance, reinforces the urgency of understanding how institutions are incorporating this technology. The strategic objective is to anticipate the understanding of practices and risks and to support the development of potential specific regulations.

Most regulated institutions still do not use AI models in their information technology (IT) solutions and services. The research reveals that 26.7% of the institutions consulted employ AI models in their IT solutions, suggesting that, although the topic is under discussion, its incorporation is not yet widespread (Chart 2.1.1).

Chart 2.1.1 – Use of IT solutions and services that employ AI models



AI adoption varies significantly across macrosegments, reflecting structural and strategic differences. Banks stand out for their broad incorporation of the technology, especially in segments S1 and S2, while segments S3 and S4 show some disparity in adoption, indicating that technological maturity, investment capacity, and willingness to use AI vary even among banking institutions. In contrast, credit unions and payment institutions (PIs) show low adoption levels, suggesting operational constraints or lower technological prioritization (Table 2.1.1).

Table 2.1.1 – Employs AI models in IT
Solutions and services in the SFN[1/]

Distribution by macrosegment	Frequency (Yes)	
	Absolute	Relative (%)
Banks	55	45
S1	6	100
S2	7	100
S3	25	57
S4	17	26
Credit unions	9	5
Intermediation/Finance Companies	24	25
PIs	72	38
IOSMF	2	20

Source: Banco Central do Brasil.

1/ The Financial Institutions (FIs) answer the following question:
"Does the institution use IT solutions and services that employ artificial intelligence models?"
PIs – Payment Institutions
IOSMF – Operators of Financial Market Systems Institutions

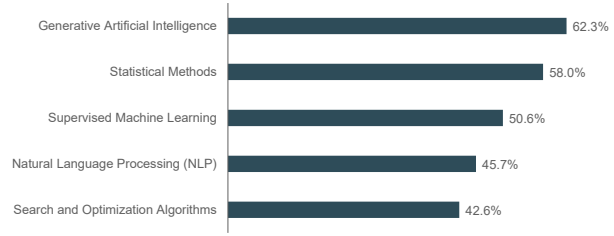
The predominance of AI models developed by third parties reveals the sector's technical dependence on specialized providers, even amid growing technology adoption. Internally, the leading role of IT departments in model development, compared to business areas, indicates that technical capabilities are concentrated in operational structures, with limited strategic integration between technology and institutional objectives (Chart 2.1.2).

Chart 2.1.2 – AI Usage

Note: this question was answered by 162 institutions.

The leading role of generative AI among the approaches adopted reflects its versatility and the impact of recent advances in language models. Although widely used, this technology poses regulatory and ethical challenges, highlighting the need for balance between innovation and governance within the institutional sector. The low adoption of deep learning and reinforcement learning indicates that, despite being at the forefront of AI research, these techniques still face practical barriers in the institutional environment, such as technical complexity and limited operational maturity (Chart 2.1.3).

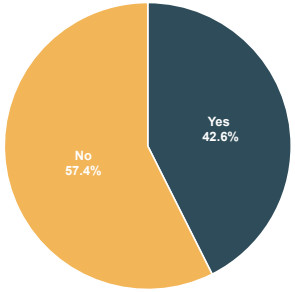
Chart 2.1.3 – AI approaches employed in IT solutions and services used in the institution's business processes



Note: this question was answered by 162 institutions.

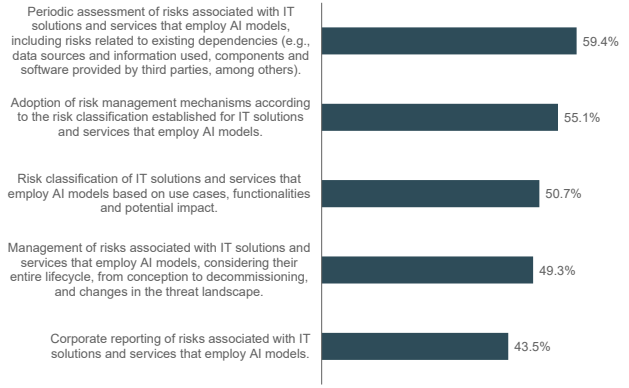
The absence of specific practices for AI risk management in most institutions reveals a relevant gap in technological governance. Although some organizations already adopt complementary mechanisms, the current landscape points to the need for broader dissemination of frameworks and best practices to ensure the responsible use of AI (Chart 2.1.4).

Chart 2.1.4 – Complementary processes, practices and/or procedures to manage risks associated with IT solutions and services that employ AI models



The emphasis on continuous monitoring and risk-based management reflects institutions' efforts to structure AI governance practices with greater technical rigor. This preventive approach, aligned with Bill No. 2,338/2023[95], indicates progress in regulatory maturity. However, the low adoption of practices such as lifecycle management and corporate reporting shows that fundamental aspects of governance are still at an early stage (Chart 2.1.5).

Chart 2.1.5 – Complementary activities performed in the risk management associated with IT solutions and services that employ AI models



Note: this question was answered by 69 institutions.

95 A bill currently under consideration in the National Congress establishes the National Artificial Intelligence Policy, setting forth principles, guidelines, and instruments for the responsible development and use of AI in Brazil

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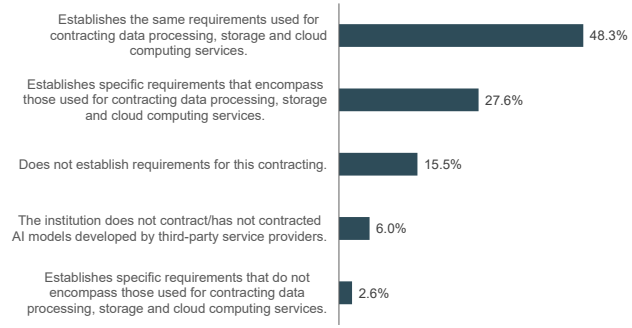
The application of the same contracting criteria used for cloud services to third-party AI models reveals a still generic approach. While there is concern with security and compliance, the absence of specific requirements indicates an opportunity to enhance contractual governance related to AI. The adoption of specific requirements for contracting AI models by some institutions suggests an initial movement toward contractual differentiation (Chart 2.1.6).

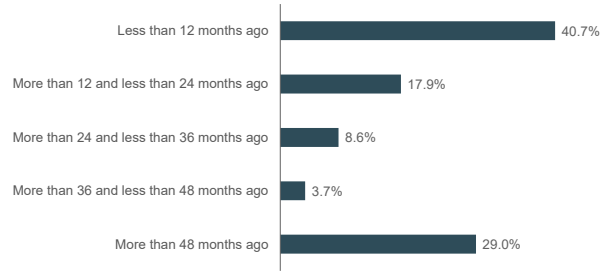
Chart 2.1.6 – Requirements for contracting AI models developed by third parties



Note: this question was answered by 116 institutions.

The diversity in AI adoption timelines reveals varying levels of maturity among institutions. While some have already accumulated consolidated experience, the significant presence of recent initiatives indicates that the sector is still undergoing technological assimilation and practical learning (Chart 2.1.7).

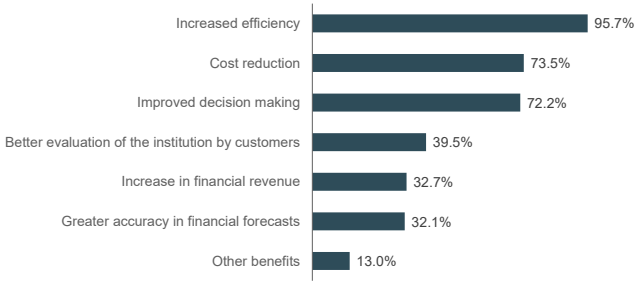
Chart 2.1.7 – Since when the institution employs AI in its activities



Note: this question was answered by 162 institutions.

The benefits reported by institutions indicate that AI has generated gains in efficiency, cost reduction, and decision-making quality. These benefits suggest that the technology is being applied strategically, going beyond automation and contributing directly to improvements in institutional management (Chart 2.1.8).

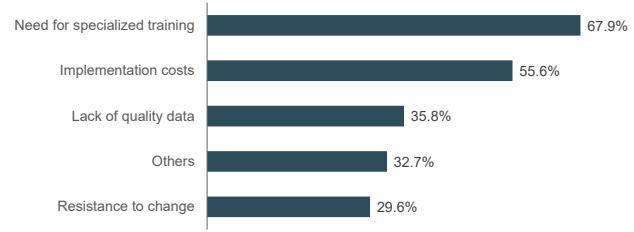
Chart 2.1.8 – Benefits observed with the use of AI



Note: this question was answered by 162 institutions.

Despite the benefits of AI, its expansion faces barriers such as lack of skilled personnel, high implementation costs, and limitations in data quality. These challenges indicate that advancing the technology within the financial sector requires not only technical investments but also improvements in infrastructure and informational governance (Chart 2.1.9).

Chart 2.1.9 – Challenges faced for the use of AI



Note: this question was answered by 162 institutions.

The textual analysis of the challenges faced by institutions in integrating AI reinforces that its adoption requires attention to both organizational and technical aspects. In line with previously identified challenges, the most frequently mentioned terms in the responses were "Governance and Data Management" and "Training and Knowledge," followed by "Security and Privacy" and "Technical and Operational Challenges" (Figure 2.1.1).

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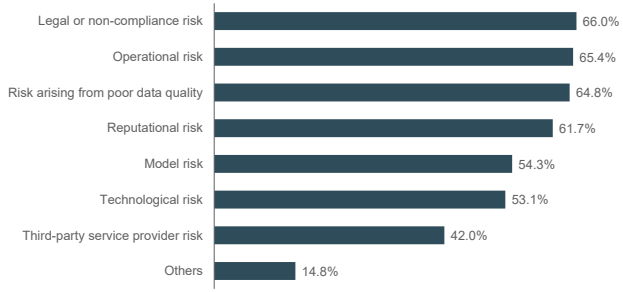
Figure 2.1.1 – Word cloud describing the challenges in AI integration

Note: this question was answered by 53 institutions.

Institutional perception of AI-related risks reflects concerns aligned with the international debate, with emphasis on legal, operational, and data quality issues. The main risks identified mirror global concerns, such as lack of transparency and explainability observed in some AI models, as well as the potential manifestation of biases resulting from the use of historical data without proper governance processes aimed at mitigating such risks (Chart 2.1.10).

Chart 2.1.10 – Main risks associated with AI



Note: this question was answered by 162 institutions.

The predominance of AI applications focused on internal operational processes and customer service reveals a pragmatic orientation among institutions, with emphasis on efficiency gains and cost reduction. The use of chatbots, document analysis, and functions such as fraud monitoring and credit assessment indicates that the technology is being integrated into core processes. The low adoption of AI in activities such as investment management, financial advisory, and service personalization suggests that its use remains concentrated in more operational functions (Chart 2.1.11).

Chart 2.1.11 – Activities in which IT solutions and services that employ AI models are used

Note: this question was answered by 162 institutions.

The absence of complementary security procedures for AI solutions in most institutions suggests an underestimation of the specific risks associated with this technology. Despite the incorporation of AI into internal processes, a dedicated approach to protection and mitigation of vulnerabilities related to its use is still lacking (Chart 2.1.12).

Chart 2.1.12 – Institution adopts complementary procedures for the security of IT solutions that employ AI

Note: this question was answered by 162 institutions.

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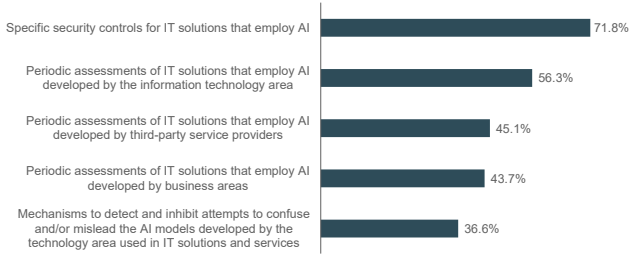
The complementary security activities adopted by institutions indicate a growing effort to adapt specific controls for AI solutions. The predominance of measures focused on technical security, such as specific controls and periodic assessments, reflects a more mature approach by technology departments. The low adoption of advanced security practices, such as API-level restrictions and model obfuscation, suggests that AI governance is still in a maturing phase (Chart 2.1.13).

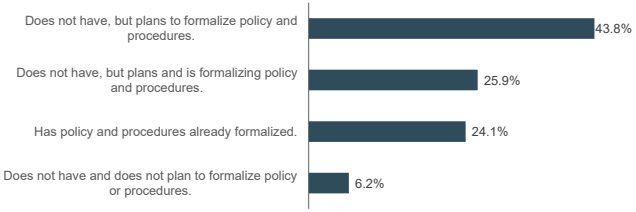
Chart 2.1.13 – Complementary activities performed to ensure the security of IT solutions and services that employ AI models



Note: this question was answered by 71 institutions.

The low formalization of policies and procedures for AI use reveals opportunities to enhance institutional governance structures, although the evidence points to progress. While the technology is already present in various processes, the absence of consolidated guidelines compromises consistency and security in AI application. The trend toward formalizing AI usage policies, observed in nearly 70% of institutions that currently use AI, indicates progress in technology governance, albeit still at an early stage (Chart 2.1.14).

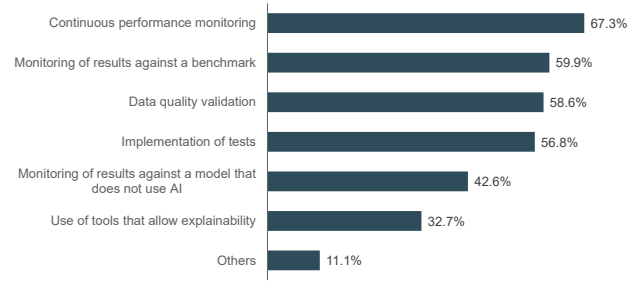
Chart 2.1.14 – Policies and procedures to establish/implement AI systems



Note: this question was answered by 162 institutions.

The predominance of practices such as continuous monitoring, data validation, and systematic testing indicates that institutions are adopting control mechanisms to track AI performance. This approach reflects a growing concern with model reliability and the mitigation of operational risks. On the other hand, the low frequency of practices aimed at model explainability reveals a gap in the understanding and transparency of the adopted solutions (Chart 2.1.15).

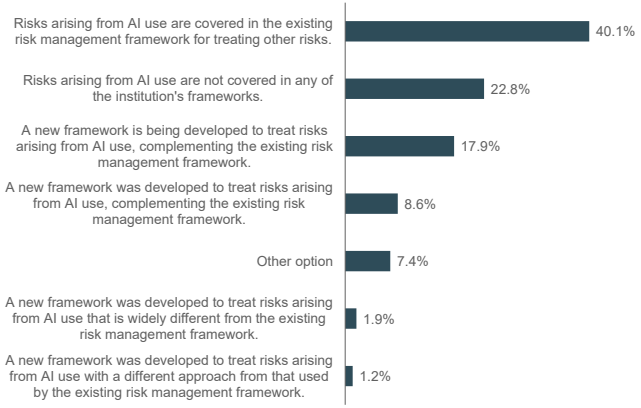
Chart 2.1.15 – Activities performed by the institution to assess the impact of using AI models in IT solutions and services



Note: this question was answered by 162 institutions.

Risk management related to AI still relies heavily on traditional structures. The fact that 40.1% of institutions using AI incorporate AI-related risks into existing models reveals a trend toward assimilating these risks. However, the low proportion of institutions with dedicated structures for AI risk indicates that specialized management of this technology remains at an early stage (Chart 2.1.16).

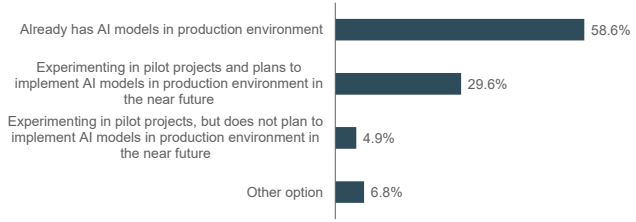
Chart 2.1.16 – Risk management framework used to address risks associated with AI use



Note: this question was answered by 162 institutions.

The stage of AI adoption among institutions already using the technology reveals a consolidation scenario, with progress toward operational maturity. The advancement of AI into production environments indicates a consistent movement toward operational maturity. This result suggests that, despite remaining challenges, the technology is beginning to consolidate as a functional part of institutional processes, moving beyond the experimental phase and gaining strategic relevance (Chart 2.1.17).

Chart 2.1.17 – Current stage of AI utilization



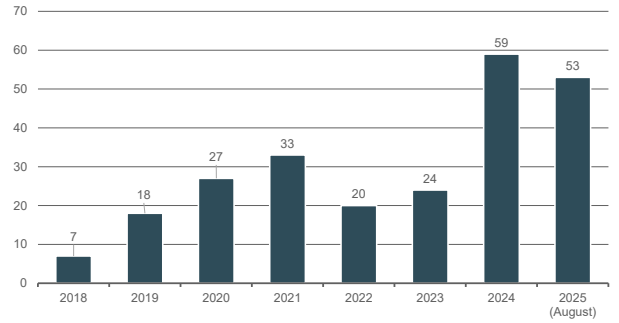
Note: this question was answered by 162 institutions.

2.2 Cyber incidents: risk factors, implications for financial stability, and preventive measures

Recent incidents have demonstrated that the materialization of cyber risk can have implications for financial and payment institutions. The incidents (i) resulted in financial losses in some cases, (ii) revealed weaknesses in essential controls implemented by institutions and their service providers, (iii) indicated that a reasonable set of institutions do not have adequate mechanisms to manage services provided through APIs, and (iv) showed that criminals have advanced knowledge about the operation of the SFN and co-opt employees of the FIs/PIs or service providers hired by them. Not limited to the measures adopted so far, the BCB continues to monitor and respond to relevant cyber incidents that may impact the regular functioning of the SFN.

The increase in relevant cyber incidents (Chart 2.2.1), with financial losses in some cases, and the sophistication of criminal actions corroborate the understanding that the materialization of cyber risk can have implications for financial and payment institutions. The digital transformation process of the SFN implies greater exposure of institutions to technological and cyber risks and, naturally, an increase in the occurrence of operational incidents is expected, so that the BCB has been developing actions to improve the operational and cyber resilience of supervised entities. However, recent incidents have been characterized by the coordinated and planned action of criminal groups with the aim of stealing financial resources from FIs/PIs, resulting in financial losses and relevant operational impacts.

Chart 2.2.1 – Number of relevant incidents reported to the BCB per year (*)



(*) Reports received by the Department of Strategic Management and Specialized Supervision

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Recent events have required advanced knowledge about the operation of the SFN. The tactics, techniques, and procedures of the criminals in the execution of cyberattacks indicate that these groups have advanced knowledge about the operation, organization, and processes of the SFN, including knowledge about the architecture of the IT systems of the attacked institutions and the activities performed in the management of accounts used to store the resources of these institutions.

Incidents that occur in companies that provide technological services to FIs raise concrete concerns about potential impacts to the SFN. The most impactful incidents were characterized by the cyberattacks targeting Information Technology Service Providers (PSTIs) that provide data processing and connectivity services to access the National Financial System Network (RSFN). Different institutions can contract these companies, so that relevant incidents in these providers can simultaneously compromise the operations of a set of institutions.

The incidents revealed weaknesses in essential controls of institutions such as the management of risks associated with services provided by third parties and access control practices, as well as in the management of services provided through APIs. The incidents revealed that some FIs did not have adequate controls for the risk management of services provided by third parties. Although adequate management of third-party risk is essential to ensure the operational resilience of an institution, the BCB identified that, in a survey that considered 606 institutions, 453 institutions reported having procedures for managing the relationship with third parties; 317 reported that this process is evaluated by the second line; and 319 informed that the subject is the scope of their internal audit program. The percentage of institutions considered in the survey that implement the activities typically considered in the management of third parties indicates that it is necessary to improve this process (Table 2.2.1).

Table 2.2.1 – Third-party relationship management – activities

Activity	%
Prior evaluation of potential service providers to verify operational capacity	66.3
Service Provider Selection	60.6
Formalization of the relationship with service provider	65.7
Inventories of contracted service providers	43.9
Classification of contracted service providers	41.7
Periodic assessment of risks related to each service provider	37.3
Periodic monitoring and evaluation of the adequacy of service delivery	46.5
Establishment of communication channels with the service provider	55.9
Execution of specific procedures for termination of the relationship with service provider	49.8

Criminals have co-opted employees of FIs/PIs or service providers contracted by them; this situation reinforces the importance of implementing cyber hygiene practices and avoiding failures in access control. BCB's experience in monitoring incidents indicates that, most of the time, improper access to the FI/PI's credentials and subsequent access to its technological infrastructure are typically exploited in cyber incidents. It is essential to invest in cyber hygiene practices (e.g., applying vulnerability patches, implementing access control, adhering to secure configuration standards for IT assets, etc.), to reduce the attack surface. The BCB identified that it is necessary to advance in activities such as periodically reviewing configured accesses, using multi-factor authentication, especially for activities such as the management of accounts, and controlling access at the port level, *Network Access Control* (NAC) (Table 2.2.2). Regarding this last item, there is a growing number of incidents in which employees co-opted by crime facilitate the installation of physical devices in the computer environment of institutions, enabling the connection to the corporate network to gather information or even provide remote access to corporate systems.

Table 2.2.2 – Access control – activities

Activity	%
Granting access	84.5
Revocation of access	82.7
Inventory of authentication and authorization systems	59.2
Role-based access control	53.6
Port-level access control (802.1x protocol or similar)	37.1
Access control for remote devices	60.6
Access blocking	79.9
Automatic device locking (successive authentication failures)	65.7
Periodic review of configured accesses	71.3
Multi-Factor Authentication (MFA)	79.2

The automation of attacks was a factor that increased the complexity of recent actions by criminal groups. The services provided through API are increasingly disseminated in the SFN (Table 2.2.3) and have provided agility for the development of financial products and services. API services have also enabled the integration between institutions and the creation of business models such as *Banking as a Service* (BaaS). However, this facility has also been exploited by criminals to automate the steps of attacks, increasing the impacts and challenging the response capabilities of FIs/PIs. Services provided by FIs/PIs through APIs have been used by criminals to automate tasks such as splitting and transferring funds to fraudulent accounts, making it difficult to track stolen resources. In addition, API services for account opening provided by institutions that have poor "Know Your Customer" (KYC) practices have been used for automated opening of fraudulent accounts, which are used for the pulverization of funds during the attack.

Table 2.2.3 – Statistics on the use and provision of services through electronic interface (API)

Configuration	%
Institutions that use services provided through APIs	72.6
Institutions using services[1] (excl. Open Finance) provided by other financial institutions through API	45.9
Institutions using services[1] (excl. Open Finance) provided by service providers through API	52.1
Institutions that provide services through APIs	47.4
Institutions providing services[1] (excl. Open Finance) to other financial institutions via API	14.9
Institutions that provide services to customers who are not financial institutions through API	35.8

1 Open Finance-related services are not considered.

The BCB identified relevant gaps in the risk management of services provided through API. API services are a "digital gateway" to access services provided by institutions. It is essential that API services are developed with security and fraud prevention mechanisms in place by design. The information submitted by 440 institutions that have IT solutions that use services provided through APIs indicates that: (i) only 128 institutions perform periodic assessments of the risks associated with these IT solutions, which are the focus of second line of defense assessments of 159 institutions and internal audit assessments of 124 institutions; (ii) among the 287 institutions that have IT solutions that provide services through APIs, only 114 perform periodic risk assessments associated with IT solutions that provide services through APIs, which are considered in the assessments of the second line of defense of 138 institutions and internal audit assessments of 106 institutions.

A reasonable set of SFN participants do not have adequate mechanisms to secure and monitor API services. The percentage of institutions that implement practices related to the development (Table 2.2.4), operation (Table 2.2.5), and security (Table 2.2.6) of IT solutions that use or provide API services is low. Key concerns include the low percentage of institutions that implement robust data validation, establish and test non-functional requirements, and monitor the performance and behavior of services used or provided through APIs. It is also important to highlight the low percentage of institutions that establish mechanisms to detect and respond to attempts to misuse, manipulate behavior, and extract data from API services. It is worth mentioning that these mechanisms are important to detect attempts to split and transfer funds during cyberattacks.

Table 2.2.4 – Development of IT solutions and services that use or provide API services – selected practices

Practice	%
Development of IT solutions that use API services	
Implementation of data validation to prevent injection of malicious data from API services	36.4
Definition and execution of tests to validate the proper integration of IT solutions with API services	43.6
Establishment of quality management to ensure compliance of IT solutions with the technical and operational specifications established for the use of API services	34.8
Development of IT solutions that provide API services	
Specification of API services	54.4
Establishment of non-functional requirements related to the provision of API services	46.3
Definition and execution of tests to validate the non-functional requirements of API services	47.0
Establishment of quality management to ensure compliance of IT solutions with the technical and operational specifications established for the provision of API services	40.1

Table 2.2.5 – Management of the operation of IT solutions and services that use or provide API services – selected practices

Practice	%
Operation of IT solutions that use API services	
Establishment of metrics and indicators to monitor the performance of IT solutions that use API services	**32.7**
Monitoring the performance, behavior and impact of IT solutions that use API services to detect any anomalies such as unforeseen behaviors or errors	40.2
Documentation, analysis and timely correction of anomalies detected that may indicate that IT solutions that use API services are not operating according to established criteria	34.1
Operation of IT solutions that provide API services	
Establishment of metrics and indicators to monitor the performance of IT solutions that provide API services	54.0
Monitoring the performance, behavior and impact of IT solutions that provide API services to detect any anomalies such as unforeseen behaviors or errors	57.8
Documentation, analysis and timely correction of anomalies detected that may indicate that IT solutions that provide API services are not operating according to established criteria.	52.3
Establishment of a channel to support customers or other institutions that use API services provided by the institution	46.0

Table 2.2.6 – Security management of IT solutions and services that use or provide API services – selected practices

Practice	%
Security of IT solutions that use API services	
Establishment of mechanisms to detect and respond to attempts to inject malicious data and information from API services	**39.3**
Periodic security assessments of IT solutions that use API services	**35.2**
Definition, establishment and monitoring of operational limits for IT solutions that use third-party API services	**37.3**
Security of IT solutions that provide API services	
Establishment of mechanisms to detect and respond to attempts to misuse API services	**58.5**
Establishment of mechanisms to detect and respond to attempts to manipulate the behavior of API services	**45.3**
Establishment of mechanisms to detect and respond to attempts to extract data from API services	**46.7**
Periodic security assessments of IT solutions that provide API services	**50.5**
Definition, establishment and monitoring of operational limits for IT solutions that provide API services to detect brute force attacks and manipulation attempts	**54.0**
Definition of operational and security requirements to be implemented by institutions that use API services provided	42.5
Certification of the implementation of the established operational and security requirements by institutions that use API services provided	29.3

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In this context, the BCB implemented measures to improve the cyber and operational resilience of the SFN, initially focusing on enhancing the requirements of security, risk management and operation of PSTIs, as well as establishing additional regulatory requirements for fraud prevention. Immediately after the notification of any relevant incident by the FIs/PIs, the BCB starts monitoring the situation. The information obtained in the monitoring of recent incidents supported the elaboration of a set of rules aimed at establishing controls to mitigate similar future occurrences. The anticipation of the schedule and the revision of the criteria for authorizing PIs,[96] the limitation of the value of transactions,[97] the definition of the rules to discipline the PSTIs[98] contracted for access to the RSFN and the establishment of provisions for the rejection of payment transactions when a well-founded suspicion of fraud[99] is identified are examples of actions in response to the incidents that have occurred, establishing mechanisms to prevent similar events and their implications for financial stability. In addition, the BCB has been expressing its concerns related to the provision and use of API services in forums and events with the industry, highlighting the importance of implementing adequate controls to manage the operation of these services. Finally, the BCB will continue to monitor and develop initiatives, including potential improvements to the regulatory framework, to ensure the cyber and operational resilience of the financial sector, responding to relevant cyber incidents that may impact the regular functioning of the SFN.

2.3 Climate Physical Risk Stress Test – Intensification of the *El Niño* Phenomenon

Losses associated with extreme weather events have intensified in recent years. Droughts and floods, such as those that occurred in southern Brazil, are more frequent and represent a growing risk to the financial system. The exposures of financial institutions (FIs) to physical risk[100] from droughts and heavy rains were assessed in the Financial Stability Report (FSR) editions of November 2022 and April 2023, when credit operations granted to borrowers located in Brazilian municipalities susceptible to these climatic events were analyzed, based on projections for the years 2030 and 2050.

This edition presents a climate stress test focused on the intensification of the El Niño phenomenon and assess potential adverse impacts on FIs. The analysis is concentrated on the possible increase in problem assets (PAs) in the rural credit portfolio for individuals, considering an adverse climate scenario.[101] Given the high exposure to climatic events, this credit modality is particularly suitable for conducting stress tests and climate scenario analyses within risk management framework.

The main challenge of the stress test is to isolate the various factors that influence the rural credit portfolio. Credit risk is related both to specific characteristics of each operation[102] and to macroeconomic factors such as interest rates and agricultural raw prices, which reinforces the complexity and importance of the analysis. In addition, Resolution

96 Resolution BCB 494, of September 5, 2025, and Resolution BCB 495, of September 5, 2025.

97 Resolution BCB 496, of September 5, 2025, and Resolution BCB 497, of September 5, 2025.

98 Resolution BCB 498, of September 5, 2025.

99 Resolution BCB 501, of September 11, 2025.

100 Physical climate risk refers to the possibility of losses to an institution, caused by events associated with frequent and severe weather conditions or long-term environmental changes that may be related to changes in climate patterns (Resolution CMN 4,557, of February 23, 2017).

101 Due to the methodological complexity and uncertainties involved, not all the outcomes of an extreme weather event were considered, such as the effects on prices, monetary policy, the local economy and the fiscal situation.

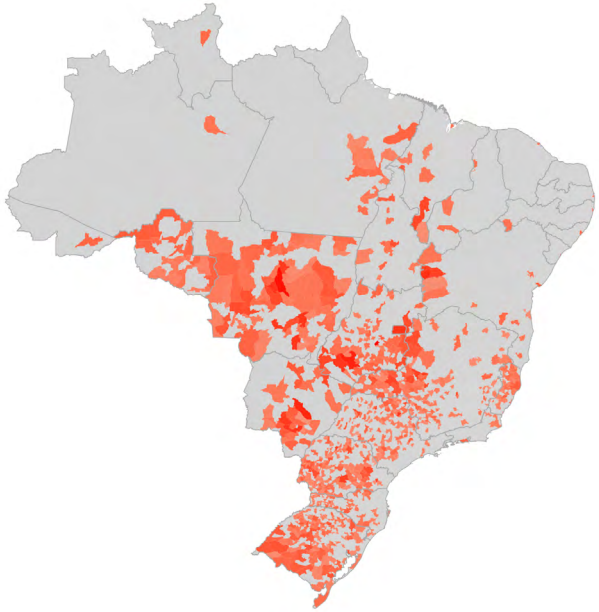
102 Rural credit operations are not homogeneous and comprise various purposes (financing, investment, commercialization, and industrialization), activities (agriculture and livestock), insurance (Proagro and Rural Insurance Premium Subsidy Programme), and sources of funding (public and private).

CMN 4,966, of November 25, 2021, introduced new rules for asset classification and provisioning based on expected loss.

The study covers municipalities that account for 75% of the rural credit operations. The sample consists of 828 municipalities that had active rural credit operations exceeding BRL50 million in 2015. These municipalities are concentrated in Brazil's Center-West, South, and Southeast regions (Figure 2.3.1).

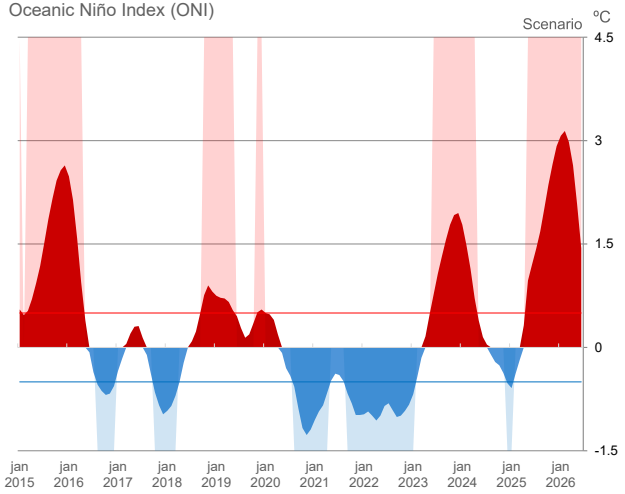
The model estimates the effect of El Niño intensity and macroeconomic variables on problem assets' variation by municipality. El Niño intensity is measured by deviations in Pacific Ocean surface temperature relative to a historical average (Oceanic Niño Index – ONI). Macroeconomic variables such as the Selic interest rate, GDP growth, and exchange rate were included. In addition to these variables, municipal characteristics and historical series of temperature and precipitation were analyzed.

Figure 2.3.1 – Map of municipalities selected for the study



The stressed climate scenario supposes the most intense El Niño of the last decade, accompanied by an increase in global average temperature. The short-term projection of a 1.5°C increase compared to the pre-industrial period would translate into an additional 0.6°C in the surface temperature of waters in the equatorial Pacific Ocean region.[103] This additional surface temperature was added to the most severe El Niño in the past ten years, which occurred in 2015 (Chart 2.3.1).

Chart 2.3.1 – Stressed Climate Scenario
Oceanic Niño Index (ONI)



103 Gutiérrez, J.M., R.G. Jones, G.T. Narisma et al (2021). Atlas in Climate Change: The Physical Science Basis Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte V., P. Zhai et al (eds.)] Cambridge University Press, p. 1927-2058. available at http://interactive-atlas.ipcc.ch/.

Two scenarios were simulated: (i) a stressed climate scenario; and (ii) a combined scenario, incorporating climate stress and economic deterioration resulting from a loss of confidence crisis scenario. The impact on PAs, by FI and by municipality, was calculated, and the increase in provisions for institutions most exposed to physical climate risk was estimated. The results obtained in these two scenarios were compared to the baseline scenario, characterized by stable macroeconomic conditions and a neutral climate scenario.[104]

The stressed climate scenario would cause a maximum increase of 1.5 p.p. in PAs for the system compared to the baseline scenario. Simultaneously with a confidence crisis scenario, the increase would be 2.5 p.p. For the one-year projection period, the accumulated increase in PAs compared to the baseline scenario would be around BRL30 billion. This increase originates from the combination of the stressed climate scenario with the macroeconomic confidence crisis scenario (Chart 2.3.2). The largest percentage losses would be concentrated in institutions in segments S1 and S3 (Chart 2.3.3) and would occur in the third quarter of the simulation.

Chart 2.3.2 – Impact on the Rural Credit's Problem Assets (System)
Absolute Impact and Percentual Variation

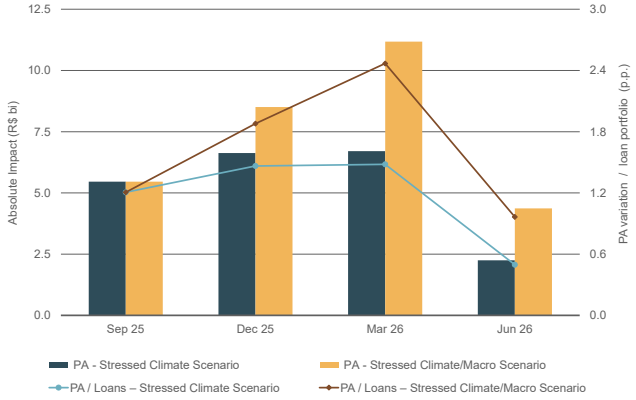
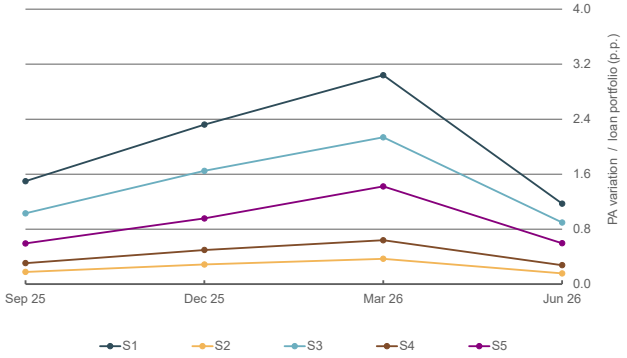
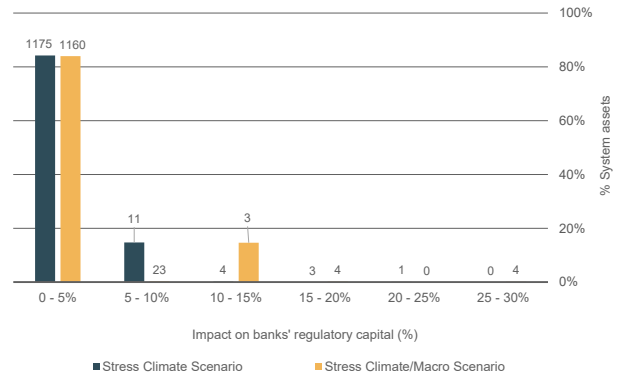


Chart 2.3.3 – Impact on Rural Credit's Problem Assets (PA)
Stress Climate/Macro Scenario by bank segment



The impact on institutions' capital is limited, as most institutions would have sufficient capital to absorb the losses. However, a small group of FIs, representing 0.5% of the system's total assets, would experience a loss greater than 10% in the event of an extreme climate event (Chart 2.3.4). If the climate event occurred simultaneously with a stressed macroeconomic scenario, losses exceeding 10% of the regulatory capital would affect FIs, which represent about 15% of the system's assets.

Chart 2.3.4 – Frequency distribution of the impact on banks' capital
Cumulative by four quarters



104 Neutral climate scenario: ONI close to historical average, i.e., no indication of El Niño or La Niña. The macroeconomic scenarios refer to the baseline and confidence crisis scenarios described in *Box – Scenarios used in the macroeconomic stress test* of this Report.

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Box – Methodology of the Climate Physical Risk Stress Test

The assessment of the potential impacts of a stressed climate scenario on FI's rural credit portfolios involved the following steps: data selection, choice of relevant variables, model definition and estimation, scenario construction, and finally, variable projection and impact calculation under the selected scenario (Table 2.3.1).

Quarterly data on rural credit portfolios for individuals and problem assets (PAs) were used. These data were obtained from the Credit Information System (SCR) and aggregated at the municipal level for the period from March 2015 to December 2024. Subsequently, the most relevant municipalities were selected based on their share in the total rural credit portfolio.

The model estimates the quarterly variation in PAs using variables related to macroeconomic conditions, climate, and municipal characteristics.[105] The macroeconomic variables selected were consistent with those used in the macroeconomic stress test scenarios: quarterly GDP variation (year-to-year), inflation, Selic interest rate, unemployment, and real/dollar exchange rate.

Several municipal characteristics were selected, including GDP per capita, agricultural share in municipal GDP, area, population density, geographic coordinates, and indicators at the microregion, region, and federation unit levels. These variables aim to control for the potential influence of specific municipal or regional characteristics on PA variation.

Table 2.3.1 – Methodology summary and results

Climate Physical Risk Stress Test
1. Data and Variable Selection Quarterly data on rural credit portfolio for individuals and problem assets (PAs) from 2015 to 2024. 828 most relevant municipalities. Macroeconomic, climatic, and municipal variables.
2. Model Estimation Linear panel data model (municipality and quarter). Dependent variable (y): variation in PAs. Independent variables (x's): El Niño intensity (ONI), macroeconomic variables and municipal characteristics.
3. Climate Scenario (i) stressed climate scenario based on the historical ONI series; (ii) combined scenario of climate stress and macroeconomic deterioration (confidence crisis).
4. Projection and Impact Calculation Projection of PA variation by municipality and by FI, based on the scenarios. Calculation of provision increase by FI.
5. Results The stressed climate scenario would cause an increase of 1.5 p.p. in PAs compared to the baseline scenario. Combined with a confidence crisis scenario, the increase would be 2.4 p.p. Most institutions would have sufficient capital to absorb the losses. Some FIs would experience losses exceeding 10% of capital.

105 Data source of precipitation and temperature: CRU TS4.09: Climatic Research Unit (CRU) Time-Series (TS) version 4.09 of high-resolution gridded data of month-by-month variation in climate (Jan. 1901- Dec. 2024). El Nino data: National Oceanic and Atmospheric Administration (NOAA). Municipal data: IBGE.

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Regarding climate variables, historical monthly series of temperature and precipitation by geographic coordinate were used. Precipitation data enabled the calculation of the Standardized Precipitation Index (SPI) for different periods (3 to 48 months). SPI is a widely used index to measure deviations in local precipitation relative to historical distribution.[106] Climate variables were combined with the geographic coordinates of the municipalities.

Given the strong influence of El Niño and La Niña phenomena on Brazil's climate,[107] variables related to the intensity of these phenomena – such as Oceanic Niño Index (ONI), Sea Surface Temperatures (SST), and Southern Oscillation Index (SOI) – were also analyzed. Specifically, ONI measures the deviation in Pacific Ocean surface temperature from a historical average, with values above +0.5°C indicating El Niño and below -0.5°C indicating La Niña.

Different linear and non-linear models were tested to estimate quarterly PA variation, including linear regression, Lasso, Ridge, and decision tree models such as Random Forest and XGBoost. Models were evaluated based on their ability to forecast PAs one quarter ahead, using mean squared prediction error as the comparison metric. Although decision tree models showed lower prediction errors, differences among models were not significant. Therefore, a linear panel data model was chosen for its lower variable requirements in future scenario projections and better interpretability compared to tree-based models.

In the selected regression model, El Niño intensity is represented by the ONI variable, which was statistically significant across different model specifications. The model estimates PA variation in the rural credit portfolio for individuals and by municipality, based on ONI and macroeconomic variables such as GDP growth, interest rate, and exchange rate. Using the estimated coefficients, projections were made for the period from September 2025 to June 2026 for each FI with rural credit operations in the selected municipalities.

The results of the stressed climate scenario and the combined climate scenario, which associates climate stress with a confidence crisis in the macroeconomic environment, were compared to the baseline macroeconomic and neutral climate scenario (ONI near historical average, i.e., no indication of El Niño or La Niña). The baseline and confidence crisis macroeconomic scenarios are described in *Box – Scenarios used in the macroeconomic stress test* of this Report.

106 In this study, SPI was calculated using historical data from 1990 to 2010.

107 Cai, W., McPhaden, M.J., Grimm, A.M. et al. (2020) Climate impacts of the El Niño–Southern Oscillation on South America. Nat Rev Earth Environ 1, 215–231.

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2.4 Individual prudential requirements (*solo basis*) for conglomerates

The BCB introduced individual prudential requirements to complement and strengthen the consolidated supervision of prudential conglomerates. Prudential regulation now considers, in addition to the consolidated view, individualized or sub-consolidated approaches in specific situations to ensure the proper allocation of financial resources among institutions within a conglomerate. This change broadens the scope of supervision by introducing requirements related to risk management, liquidity, and capital allocation.

The Basel Committee on Banking Supervision (BCBS), based on how risks accumulate and are managed, recommends prudential supervision both on a consolidated and individual basis.[108] However, the prudential framework adopted in Brazil was focused on the consolidated format, unlike in most BCBS member jurisdictions. This difference was highlighted in international assessments, emphasizing the need for improvement via the introduction of individualized prudential requirements.[109]

The objective is to increase the resilience of systemically important conglomerates. The new rules aim to mitigate risks associated with barriers to the transfer of resources among entities within a conglomerate, especially in scenarios of financial stress.[110]

New practices related to liquidity risk management are now required to ensure timely resource transfers. The CMN[111] reinforced the liquidity management framework[112] and expanded the scope of the short-term liquidity requirement[113] to include the sub-consolidated basis.[114]

The Leverage Ratio must now be calculated by all institutions[115] in segments 1, 2, 3, and 4, and it will also be calculated by institutions in segments 1 and 2 on an individual or sub-consolidated basis, with specific requirements in the latter case. All institutions in segments 1 through 4 will be subject to the Leverage Ratio requirement on a consolidated basis, and all institutions in segments 1 and 2 will also be subject to the Leverage Ratio requirement on an individual or sub-consolidated basis.[116]

The individual or sub-consolidated requirement will demand a minimum Common Equity Tier 1 Capital of 2.25% of total exposures, lower than the minimum Tier 1 Capital requirement of 3% of exposures on a consolidated basis. Payment

108 The recommendation is described in the document *Core Principles for Effective Banking Supervision*, (BCBS 2012), especially in the essential criteria 7 of the principle 12, which deals with consolidated prudential supervision. See *Core Principles for Effective Banking Supervision, Principle 12 (consolidated supervision)*: EC7, BCBS (2012).

109 Final report of the *Financial Sector Assessment Program* – FSAP conducted in Brazil in 2017 and 2018 by the International Monetary Fund and the World Bank (underscored by the paragraph 26 of Appendix I, p. 64), available in https://www.imf.org/en/Publications/CR/Issues/2018/11/30/Brazil-Financial-System-Stability-Assessment-46411.

110 As per discussion in the regulatory impact analysis report available in https://www.bcb.gov.br/estabilidadefinanceira/analise_impacto_regulatorio/solobasis_AIR.

111 Resolution BCB 477, of May 30, 2025, replicates Resolution CMN 5,222, of May 30, 2025, making the regulation, like the other CMN norms mentioned, applicable to institutions regulated by the BCB, classified as Type 3 institutions. Similarly, Resolution BCB 168, of December 1, 2021, as amended by Resolution BCB 483, of June 11, 2025, replicates Resolution CMN 4,950, of September 30, 2021.

112 Resolution CMN 4,557, of February 23, 2017.

113 Resolution CMN 4,401, of February 27, 2015.

114 Resolution CMN 4,950, of September 30, 2021, as amended by Resolution CMN 5,221, of May 30, 2025.

115 The Resolutions CMN 5,223, of May 30, 2025, and BCB 478, of May 30, 2025, broaden the calculation to all institutions, except those of low risk (Segment 5 or Type 2).

116 Resolution CMN 5,223, of May 30, 2025, and Resolution BCB 478, of May 30, 2025.

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institutions that lead a conglomerate assigned to Segment 2 will also be subject to the Leverage Ratio requirement on both consolidated and individual or sub-consolidated bases. Implementation will be gradual, from July 2026 to January 2028.

The Leverage Ratio calculated on an individual or a sub-consolidated basis excludes foreign branches and strengthens protection for domestic creditors. A prudential sub-conglomerate consists of entities established in Brazil without restrictions on resource transfers.[117] Restrictions on the movement of assets located abroad may materialize, justifying the exclusion of foreign branches from the calculation scope.

The updated metric aligns the calculation of the Leverage Ratio with international best practices. In line with the Basel III framework implementation schedule, improvements were made to the concept of exposure to enhance risk coverage by including earmarked assets and the balances of emergency programs in the list of exposures.

117 Resolution CMN 5,221, of May 30, 2025, and BCB 483, of June 11, 2025.

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Banco Central do Brasil Management

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Banco Central do Brasil Management

Board of Governors

Gabriel Muricca Galípolo
Governor

Ailton de Aquino Santos
Deputy Governor

Diogo Abry Guillen
Deputy Governor

Gilneu Francisco Astolfi Vivan
Deputy Governor

Izabela Moreira Correa
Deputy Governor

Nilton José Schneider David
Deputy Governor

Paulo Picchetti
Deputy Governor

Renato Dias de Brito Gomes
Deputy Governor

Rodrigo Alves Teixeira
Deputy Governor

Abbreviations

$ACCP_{Brasil}$
Countercyclical Capital Buffer for Brazil

AE
Advanced economy

AI
Artificial intelligence

API
Application Programming Interface

BaaS
Banking as a service

BCB
Banco Central do Brasil

BCBS
Basel Committee on Banking Supervision

CCP
Central counterparty

Comef
Financial Stability Committee

DI
Interbank deposit

DSTI
Debt service-to-income ratio

EBITDA
Earnings Before Interest, Taxes, Depreciation and Amortization

EME
Emerging market economy

FGC
Credit Guarantee Fund

FI
Financial institution

FMI
Financial market infrastructure

FSR
Financial Stability Report

FSS
Financial Stability Survey

FVA
Fair value adjustment

GDP
Gross Domestic Product

G-SIB
Global Systemically Important Bank

ICR
Interest Coverage Ratio

IL
Short-Term Liquidity Ratio

ILE
Structural Liquidity Ratio

IVG-R
Residential Real Estate Collateral Value Index

KYC
Know your customer

LCA
Agribusiness Credit Bill

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LCI
Real Estate Credit Bill

LCR
Liquidity Coverage Ratio

LGD
Loss given default

LGFV
Local Government Financing Vehicle

LTV
Loan-to-value

MSME
Micro, small, and medium-sized enterprise

NAC
Network Access Control

NII
Net Interest Income

NIM
Net Interest Margin

NSFR
Net Stable Funding Ratio

ONI
Oceanic *Niño* Index

PA
Problem asset

PD
Probability of default

PSTI
Information Technology Service Provider

PTC
Quarterly Credit Conditions Survey (*Pesquisa Trimestral de Condições de Crédito*, in Portuguese)

RoE
Return on Equity

RSFN
National Financial System Network

RWA_{OPAD}
Component of risk-weighted assets related to operational risk

S1
Segment 1

S2
Segment 2

S3
Segment 3

S4
Segment 4

SCR
Credit Information System

SFN
National Financial System

SOI
Southern Oscillation Index

SPB
Brazilian Payment System

SPI
Instant Payment System

SPI
Standardized precipitation index

SRisk
Systemic risk indicator

SST
Sea Surface Temperature

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STR
Reserves Transfer System

TPF
Federal Public Security

VaR
Value at risk

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Concepts and Methodologies

Broad credit – For the purpose of calculating the broad credit-to-GDP gap, the following sources of broad credit are considered:

- **Total loans – Households:** includes SFN bank credit, consortiums operations, pension funds loans (EFPC), constitutional funds (Fundo Constitucional de Financiamento do Nordeste - FNE, Fundo Constitucional de Financiamento do Norte – FNO, Fundo Constitucional de Financiamento do Centro-Oeste – FCO, and Fundo de Financiamento Estudantial – FIES). For constitutional funds, these are operations not considered in the SFN bank credit.

- **Total loans – Companies:** includes SFN bank credit, credit operations from Agência Especial de Financiamento Industrial S.A. (Finame) and BNDES Participações S.A. (BNDESPAR) – institutions from the Banco Nacional de Desenvolvimento Econômico e Social (BNDES) group -, consortiums operations, and constitutional funds.

- **Capital market:** includes debentures (except from leasing companies), commercial papers, CRI, CRA, FIDC (credit rights), CPR and CCB without co-obligation.

- **External market:** consists of the balance of funds raised abroad by loans (including intercompany) or bond issuance, i.e., the credit operations from non-residents to residents.

Broad credit-to-GDP gap – The broad credit-to-GDP gap is defined as the difference between the ratio of private nonfinancial sector broad credit to GDP and its long term trend, obtained with the use of a Hodrick-Prescott (HP) filter, with a λ parameter of 400,000. This calculation excludes the foreign exchange variation due to its impacts on the broad credit, as discussed in the April 2016 issue of FSR (box "Countercyclical Capital Buffer", section 4, "Credit-to-GDP gap in Brazil").[118]

Capital Buffer – Additional CET1 requirement corresponding to the sum of the following installments: conservation, countercyclical and systemic. The value of the conservation buffer corresponds to 2.5 per cent of RWA. The value of the countercyclical buffer is currently zero for exposures in Brazil and is limited to a maximum of 2.5% of RWA. The systemic buffer depends on the ratio between total exposure and GDP and is currently equal to 1% of RWA for S1 institutions, under the terms of Resolution CMN 4,553, of January 30, 2017. Failure to comply with the capital buffer results in the restrictions described in article 9 of Resolution CMN 4,958, of October 21, 2021. Resolution BCB 200, of March 11, 2022, established a similar conservation buffer requirement for conglomerates led by IPs and made up of a financial institution authorized to operate by the BCB, with two distinctions: the percentage to be applied to RWA to calculate the conservation buffer is zero between July and December 2023 and 1.25% of RWA during 2024; and there is no requirement for the systemic portion. As the excess of CET1 used to meet the other minimum requirements cannot be used to fulfil the capital buffer, this requirement is added to all three minimum requirements described in the previous items.

Capital stress tests – Comprised by a macroeconomic stress test and sensitivity analyses to risk factors deemed relevant, these stress tests are simulations to estimate losses arising from extreme events, though

118 References: (i) Drehmann, M., Borio, C., & Tsatsaronis, K. (2011). *Anchoring countercyclical capital buffers: the role of credit aggregates*, BIS Working Papers 355. (ii) Drehmann, M., and Juselius, M. (2013). *Evaluating early warning indicators of banking crises: Satisfying policy requirements*, BIS Working Papers 421. (iii) BCBS (2010). *Guidance for national authorities operating the countercyclical capital buffer.*

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plausible, and assess the resilience of an institution or the financial system. Hence, it is possible to determine the impact on the capital of institutions taking into consideration unexpected, and thus, not provisioned losses caused by acute changes in macroeconomic variables. For each stress scenario, new capital ratios (Total Capital Ratio, Tier 1, and CET1) are calculated. An FI is considered as non-compliant whether any of its capital ratios is below the minimum required and classified as insolvent in the case of total depletion of the CET1. The relevance of non-compliant and/or technically insolvent institutions is assessed, as well as the additional capital needed so that no bank might become non-compliant is calculated. The relevance of an institution is based on of its Total Assets (ATA) as a proportion to the banking system.

The positive effects of the eventual activation of Tier 2 and Additional Tier 1 capital triggers, in which values are converted into CET1 capital, are classified as income.

Furthermore, when computing capital shortfall, all applicable capital buffer requirements (ACP) are taken into account, as determined by Resolution CMN 4,958, of October 21, 2021.

Finally, the framework also considers the potential changes of registration and uses of deferred taxes and its implications on regulatory capital calculus, according to Resolution CMN 4,955, of October 21, 2021, and later modifications.

i) **Macroeconomic stress test** – The macroeconomic stress test framework is an exercise that consists of the application of adverse macroeconomic scenarios and simulation of balance sheet responses on an individual basis. Based on these results, capital shortfall for the entire financial system is estimated.

ii) **Scenario design** – Three macroeconomic scenarios are built, for a time horizon of twelve quarters, based on market information and the following macroeconomic variables: 1) economic activity (GDP); 2) exchange rate (quarter average of the Brazilian real vs US dollar parity); 3) Brazilian Benchmark Interest Rate (quarter average of the Selic rate); 4) inflation (consumer prices given by the Extended National Consumer Price Index – IPCA – cumulative twelve months) and 5) unemployment rate (calculated by IBGE – *Instituto Brasileiro de Geografia e Estatística*).

The baseline scenario is built upon the median of market expectations (Focus report). Scenarios stress 1 and stress 2 used for simulations are described in Box – Scenarios used in the macroeconomic stress test.

iii) **Stress simulation** – The stress simulation is conducted by projecting seven basic income statement accounts, representing operational performance, presented in the last income statement (non-operational income is not considered in the test): 1. Net interest income comprises net credit income, accrued income from bonds and securities and funding costs; 2. Noninterest incomes: mark-to-market effects, hedges and exchange rates fluctuations; 3. Fees & commissions; 4. Gains from non-consolidated companies; 5. Administrative expenses and; 6. Provision expenses; and 7. Other results.

In the 'net interest income' account, credit, and bonds/securities incomes as well as funding costs are modeled based on the Selic rate behavior. Funding volumes are adjusted according to loan portfolio volumes, in a 1:1 proportion. Provision expenses are estimated based on problem assets (PA) evolution given by each of the scenarios.

Non-interest incomes are modeled by the application of market risk shock on positions observed in the date the test starts and adds the historic average of this account. The stressed market risk factors are obtained out of the macroeconomic scenario, and positions are then recalculated. The result is the difference between stressed and initial values. This amount is applied on the first quarter of projection and incorporated to earnings.

"Fees & Commissions", "Non-consolidated companies" and "Administrative Expenses" accounts are modeled by use of dynamic panel data models, obtained with the same macroeconomic variables provided by the scenarios.

"Other results" account is modeled by the average of all other income statement items not included in the six previous accounts, e.g. non-operational results, other operational incomes and treasury results.

Besides the performance simulation, verified through income statement items, the BCB has incorporated the interfinancial contagion into the macroeconomic stress test framework. For each quarter in the test time horizon, it is verified whether any institution falls below the Core Tier 1 capital ratio minimum threshold of 4%. If this is the case, inter-financial contagion is estimated. Uncollateralized interbank exposures issued by the affected institution are assumed as losses into the creditors´ balance sheet, and its new capital position is recalculated. If any institution also falls below the abovementioned threshold, the process is repeated iteratively until there is no new institutions falling below the threshold. The stress test continues with the new affected capital levels and the process is repeated in all quarters of the projection, until the end of the time horizon.

iv) **Sensitivity analyses** are aimed at complementing the macroeconomic stress test. Sensitivity analyses assess the individual effects of credit or market risk factors that might affect institutions' regulatory capital, causing eventual capital shortfalls. Those analyses are conducted by applying incremental variations to individual risk factors, while keeping other factors fixed.

a. Sensitivity analysis – changes in market risk factors – exposures subject to interest rate changes (e.g., fixed rates, currency coupons, price indexes and interest rates) listed in the trading book are stressed. The positions at all vertices (from 21 to 2,520 days) are recalculated after the application of shocks as well as the financial impact on banks' capital positions. Stressed exposures also affect risk weighted assets components (RWA_{JUR1}, RWA_{JUR2}, RWA_{JUR3}, RWA_{JUR4}). In the case of fixed rates, new regulatory parameters of capital requirements are recalculated based on each yield curve generated by a shock.

Exposures to gold, foreign currency, and other instruments subject to changes are also stressed. Impacts due to exchange rate fluctuations on regulatory capital and capital requirements (RWA_{CAM}) are then recalculated. It is assumed that all exposures subject to exchange rate fluctuations are revalued following the percentage points projected for the stressed USD/exchange rate.

Shocks alter, individually, interest rates and the exchange rate, in 10 percentage points steps, downward until it reaches 10% of the original value, and upward until an increase of 100% of the original value is reached. After assessing impacts, new capital ratios are calculated, and then regulatory capital adequacy and the solvency of banks are verified.

b. Sensitivity analysis – increases in problem assets – This analysis aims at measuring the effect of problem assets increases on the regulatory capital of institutions. Problem assets are raised to 250% of its current level in several steps. For each step, additional provisions required are estimated, and regulatory capital and RWA_{CPAD} suffer the impacts from additional provisioning. After impacts are applied, new capital ratios are computed, and solvency and capital adequacy status of banks are evaluated.

c. Sensitivity analysis – fall in housing prices – The objective of this analysis is to estimate the impacts of falling residential real estate prices on the regulatory capital of institutions with mortgages to households in their loan portfolio. Prior to the simulations, real estate prices are updated using the IVG-R index, by the incorporation of the variations measured by the index since each loan's inception up to the date of the simulation.

Adverse shocks are applied to prices, in sequential steps of 5 percentage points. In each step, loans whose collaterals do not amount to 90% of the loan's outstanding balance are considered as delinquencies.

The loss of each delinquent loan is estimated as the difference between the outstanding balance and the present value of the amount recovered from the foreclosure process. To compute the recovered amount, residential real estate prices after applied shocks are considered, and deducting an estimate for taxes, maintenance, and auction costs. Furthermore, the auction sale is considered to occur at a discounted price proportionate to the price fall due to the applied shock. This amount's present value is obtained by discounting the sale proceeds by the 1-year future rate. New regulatory capital ratios of each institution are calculated considering the estimated losses associated to each step of housing prices decline.

Common Equity Tier 1 Ratio (CET1 Ratio) – It consists of the ratio between CET1 and RWA. The minimum CET1 requirement established by Resolution CMN 4,958, of October 21, 2021, and Resolution BCB 200, of March 11, 2022, is 4.5 per cent of RWA.

Companies' size – Defined by an intern algorithm, which considers three sources of information: i) size of micro and small enterprises set by Federal Revenue of Brazil; ii) size mode informed by FIs in the Credit Information System (in case of tie, it is considered information of the FI in which the company has the greatest volume of debt); (iii) corporate indebtedness amount (bank credit, capital market, internalized external debt) to enclose size's boundaries. The criteria (i) and (ii) take into consideration annual gross revenue standards of Complementary Law 123, of December 14, 2006, and Law 11,638, of December 28, 2007. The criteria (iii) are residual and classifies companies' sizes not set by criteria (i) or (iii).

Concentration indicators – To systematically monitor the concentration levels of different segments of the SFN, the BCB uses the Normalized Herfindahl-Hirschman Index (HHIn), the "HHIn equivalent number" (EN), and the Concentration Ratio of the Top Four Financial Institutions (CR4) in the accounting aggregates related to total assets, credit operations, and total deposits in Brazil.

The HHI is used by domestic and international antitrust authorities as an auxiliary tool for assessing levels of economic concentration. In its normalized version, the HHIn is obtained by the sum of the square of each financial institution market share, in the decimal form, resulting in a number between 0 and 1. According to Communiqué 22,322, of April 27, 2012 (BCB's Merger Review Guidelines, 2012), the BCB considers markets that register values corresponding to the HHIn to be situated:

a) between 0 and 0.10 are of low concentration;

b) above 0.10 to 0.18 are of moderate concentration; and

c) above 0.18 to 1 are of high concentration.

The "HHIn equivalent number" (EN) indicates which would be the number of financial institutions (FI) with equal share in the market that would generate the same observed HHIn (HHIn = 1/EN).

The CR4 measures the concentration degree by adding up the market shares of the top four financial institutions in each market.

These indicators are analyzed for three accounting aggregates[119] and consider the following adjustments:

a. for total assets, it is used the Adjusted Total Assets (ATA), which excludes investments in interfinancial deposits, interfinancial transfers, and investments in institutions authorized by the BCB;

119 The monetary values of the accounting aggregates considered the IF.data prudential conglomerate concept, available at https://www3.bcb.gov.br/ifdata/. Prudential conglomerates include, in addition to the institutions belonging to the financial conglomerate: i) consortium management; ii) payment institutions; iii) companies that perform the acquisition of credit operations, including real estate or credit rights; iv) other companies headquartered in the country whose exclusive corporate purpose is to hold equity stakes in the aforementioned institutions; v) investment funds in which the institutions that make up the prudential conglomerate substantially assume or retain risks and benefits.

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b. for total deposits, it is used total deposit (-) interfinancial deposits (+) Agribusiness Credit Bills (LCA) (+) Real Estate Bills (LCI) (+) Financial Bills, and, in the case of the non-banking segment (b3 + b4 + n1 + n2 + n4), Exchange Bills are included; and

c. for credit operations, the balances of the outstanding portfolio of all the institutions' credit operations are considered.

Regarding the concentration level in credit operations, in addition to the general analysis, an assessment is also carried out for each relevant market, i.e. for each set of close substitute products.[120] This type of analysis contributes to greater transparency of the environment in which competition takes place in the SFN and to the improvement of the BCB's role in defending competition. The set of relevant markets is made up of:[121] rural and agribusiness financing (household + corporate),[122] housing financing (household + corporate),[123] infrastructure and development financing (corporate),[124] operations with acquired receivables (corporate),[125] working capital (corporate),[126] payroll-deducted personal credit (household),[127] non-payroll-deducted personal credit (household),[128] vehicle financing (household),[129] credit card (household + corporate),[130] and overdraft facility (household + corporate).[131] Together, the relevant markets analyzed account for 75.01% of the total outstanding SFN credit operations on December 31, 2024. Indicators refer to credit operations granted with both non-earmarked and earmarked resources[132] in the banking and non-banking segments (b1+b2+b3+b4+n1+n2+n4).[133]

In addition, the concentration of the relevant markets of brokerage and distribution of retail investment products is analyzed.[134] The source of brokerage market data is the B3 and refers to the annual financial volume, while the distribution market data is the Brazilian Financial and Capital Markets Association (Anbima) and refer to the consolidated annual financial volume of distribution of traditional retail and high-income products, except savings.

120 For details on the definition of a relevant market, see the BCB's Merger Review Guidelines.

121 Data from Document 3040 – Credit Risk Data, whose information is incorporated into the Credit Information System (SCR) database – were used for the modalities analyzed.

122 It covers sub-modalities 801 (costing and pre-costing), 802 (investment and working capital for agribusiness financing), 803 (sale and pre-sale), and 890 (project financing).

123 It covers sub-modalities 901 (housing finance from the Housing Finance System – SFH) and 902 (housing finance - mortgage portfolio).

124 It covers sub-modalities 1101 (infrastructure and development financing), 1190 (project financing), and 490 (project financing – BNDES). Sub-modality 490 includes other types of BNDES operations, in addition to those directly related to infrastructure and development.

125 It covers sub-modalities 250 (loan-acquired receivables), 450 (financing-acquired receivables), and 1350 (other receivables-acquired receivables).

126 It covers sub-modalities 215 (working capital with a maturity of less than 30 days) and 216 (working capital with a maturity of 30 days or more).

127 It covers sub-modality 202 (payroll-deducted personal credit).

128 It covers sub-modality 203 (non-payroll-deducted personal credit).

129 It covers sub-modality 401 (acquisition of goods - motor vehicles).

130 It covers the following sub-modalities: 204 (revolving credit linked to a credit card); 210 (purchase, invoice in installments or withdrawal financed by the card-issuing institution); 406 (purchase or invoice in installments by the card-issuing financial institution), 1304 (cash purchase and in installments from a shopkeeper), and 218 (not migrated).

131 It covers sub-modality 213 (overdraft facility).

132 Credit operations granted with non-earmarked resources, except housing, rural, and agribusiness, and infrastructure and development financing, whose resources are both earmarked and non-earmarked.

133 Tables A to J in Annex C present the participation of the top four institutions in each relevant credit market considered and show the evolution of the relevant markets by type of control and by source of funds.

134 The following products are considered: investment funds 555 (fixed income, multimarket, mutual privatization fund (FMP), foreign exchange and shares, except those arising from Decree-Law 157, of February 10, 1967), structured funds (credit rights investment funds, real estate investment funds, equity investment funds, and fixed and variable income Exchange Traded Fund (ETF), and securities (shares, government securities, private securities, and structured operations certificates).

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The brokerage segment encompasses relevant markets of stocks and of commodities and futures due to the low level of substitutability between the products traded on the stock market and those traded on the commodities and futures market. This reflects the differences concerning traded assets, business environments, operating platforms, and customers profiles.

Household debt service-to-income ratio (DSTI) – Defined as the ratio between monthly debt service and monthly income. A methodological review of the measure presented in the FSR issues of September 2014, March 2015 and October 2015, this measure uses data from BCB's Credit Information System (SCR) to calculate the ratio for each debtor in the SFN and, from individual data, calculates measures of central tendency for the SFN and other aggregation levels.

Leverage ratio (LR) – Basel Committee on Banking Supervision international concept, consisting of Tier 1 Capital to Total Exposure ratio. In Brazil, the Circular BCB 3,748, of February 27, 2015, established the LR methodology. This index intends to complement the current prudential requirements, through a simple, transparent and non-sensitive risk metric. The leverage ratio minimum requirement of 3.0% was established by the Resolution CMN 4,615, of November 30, 2017, which is effective from January 2018 on, applicable for institutions classified as S1 or S2, accordingly to the Resolution CMN 4,553, of January 1, 2017.

Loan-to-Deposit ratio (LTD) – It measures the ratio between the loans granted by the Financial Institution and the volume of deposits of its customers, constituting a complementary metric for liquidity assessment. A high LTD ratio means that the volume of loans granted corresponds to a relevant portion of the Financial Institution's deposit base, which may lead to an increase in its liquidity risk. Conversely, a low LTD ratio may be an indication that the Institution is not adequately monetizing its assets, as a significant proportion of its deposits may be allocated to less profitable assets than credit ones. The scope for calculating the LTD ratio is that of the prudential conglomerate and repo operations are excluded from the funding base for calculating the indicator.

Monthly debt service – Credit outstanding due in 30 days, except for: a) real estate financing, whose 30-day due amount is estimated by a constant amortization system; b) overdraft, whose debt service is defined as its monthly interest; and c) other revolving facilities, whose 30-day due amount is estimated by a Price amortization system. It considers all household loan modalities, except for rural and business modalities, even when loaned by an individual. Even though it is calculated, 30-day due amount in credit card purchases are not considered in the DSTI base measure, being included only in alternate measures of the indicator.

Monthly income – As a customer's income may vary when informed by different FIs, the following procedure applies: i) in case of more than one income bracket, the mode is used to select a single income bracket for the customer – if there is a tie among income brackets, the one with the largest amount of credit outstanding is chosen; ii) among the FIs which informed the selected income bracket, the largest informed income is chosen, capped by the lower and upper bounds of the income bracket; and iii) an estimate of income tax and social security contribution is deducted from the selected income.

Short-Term Liquidity Ratio (IL) – Conceptually like the Liquidity Coverage Ratio (LCR), it is the ratio between the stock of liquid assets held by the institution and the net stressed cash flows (estimated disbursements in the next 21 business days under a stress scenario). Therefore, institutions with IL above one (100%) have enough liquid assets to withstand this stress scenario.

i) **Liquid assets** – liquid resources available for each conglomerate/institution to meet its stressed cash flows for the next 21 business days. The methodology does not consider different accounting classification methods. In other words, it marks securities to market or by the price disclosed for collateral under repurchase agreement operations with the BCB. It is the sum of highly liquid assets, release of required reserves (due to deposits run-off) and supplemental resources.

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a. Highly liquid assets – these include: i) unencumbered Brazilian sovereign bonds held by the institution or received as a collateral in reverse repurchase agreement operations (reverse repos); ii) stocks listed in Ibovespa index; iii) liquid quotas of investment funds; iv) cash; v) free central bank reserves and vi) voluntary deposits at the BCB.

b. Release of required reserves – amount of the required reserves that would be released to the institution due to the deposit run-off estimated in the stressed cash flows calculation.

c. Supplemental resources – other options for monetization in the scenario's time-horizon, such as: Bank Deposit Certificate (CDB), Bank Deposit Receipt (RDB), Interbank Deposit (DI), long positions in box strategies (options), reverse repurchase agreements (reverse repos) backed by private securities.

ii) **Stressed cash flows** – an estimate of the amount of cash that the institution needs within the scenario's timeframe (21 business days) under a stress scenario. The analyses take into account retail deposits run-off, wholesale funding run-off, market stress and net contractual cash flows.

a. Retail deposits run-off – estimate of the necessary amount to cover the retail-customers withdrawals in demand deposits, term deposits, savings accounts, box strategies, securities issued by the bank, and repurchase agreements (repos) backed by private securities.

b. Wholesale funding run-off – estimate of the necessary amount to cover the possibility of early redemption of the liability positions from the three largest market counterparties.

c. Market stress – estimate of the necessary amount to cover losses arising from market movements affecting the liquid assets or others positions that may cause a cash outflow of the institutions in the stress scenario. The losses comprise: i) margin calls; ii) pre-settlements of derivatives contracts; iii) losses on the marked-to-market values of the liquid assets.

d. Net contractual cash flow – payments due in derivatives positions and in contractual cash flows (assets and liabilities positions) with market agents, maturing within the horizon of the scenario.

Structural Liquidity Ratio (ILE) – It is the ratio between the available stable funding (part of the equity and liabilities on which the institution can rely for a one-year horizon) and the required stable funding (part of the assets, including off-balance-sheet assets, which must be financed by stable funding because they have long maturities and/or low liquidity). Institutions with ILE equal or above one (100%) are less susceptible to future liquidity problems. The calculation methodology is based on the final version of the Net Stable Funding Ratio (NSFR), which was introduced as a minimum mandatory compliance in October 2018.

i) **Available stable funding** – the funding that shall remain in the institution for at least a year. The main sources of banks' stable funding are the capital; non-redeemable liabilities with residual maturities above one year regardless of counterparty; and funding with no maturity or with a maturity of less than a year coming from retail customers.

ii) **Required stable funding** – the amount of stable funding needed to finance the long-term activities of financial institutions (FIs). Therefore, it takes into account the liquidity and the maturity of the assets of the institution. The long-term assets are mainly the credit portfolio maturing in over a year; nonperforming assets; less liquid or encumbered securities (i.e., margin requirement in clearings); fixed assets; and the items deducted from the regulatory capital.

Tier 1 Capital Ratio (T1 Ratio) – It consists of the quotient between Tier 1 Capital and RWA. The minimum T1 Ratio requirement established

by Resolution CMN 4,958, of October 21, 2021, and Resolution BCB 200, of March 11, 2022, is 6%. However, the latter standard defined a transition rule for conglomerates whose leading institution is a PI and integrated by a financial institution authorized to operate by the BCB on the date of publication of the standard, whereby the factor is reduced to 5.5% between July and December 2023.

Total Capital Ratio (TCR) – Basel Committee on Banking Supervision international concept, consisting of the system regulatory capital (RC) divided by the system RWA. The minimum RC requirement in relation to RWA is defined by Resolutions CMN 4,958, of October 21, 2021, and CMN 4,606, of October 19, 2017, and Resolutions BCB 198 and 200, both of March 11, 2022. For S1 to S4 institutions, the default value of the factor is 8.0%. For conglomerates led by PIs and with no member institution authorized to operate by the BCB, the factor is 8% from July to December 2023, 10% during 2024 and 12% from 2025 onwards. For conglomerates led by PIs and made up of a financial institution authorized to operate by the BCB on the date of publication of Resolution BCB 200, of March 11, 2022, the factor applied is 6.75% from July to December 2023, 7.5% during 2024 and 8% from 2025 onwards. Single credit unions not affiliated to central credit unions and not opting for the simplified methodology defined in Resolution CMN 4,606, of October 19, 2017, have their minimum capital requirements increased by 4%. For institutions adopting the simplified methodology, the value of the factor is 12% for single credit unions affiliated to central credit unions and 17% for other institutions.

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619 **The Effect of Instant Payments on the Banking System**
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BC Blog (in Portuguese)

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