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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 has started publishing, 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

Uncertainty remains high, but there is no significant risk to financial stability

Uncertainty regarding the external environment remains high. The conflict in the Middle East continues to be the main source of risk to the global outlook. The flow of oil and petroleum products from the region has improved, but remains below the historical averages, volatile, and vulnerable to disruptions. Despite geopolitical tensions and uncertainties associated with the domestic election period, the supply of external funding remained abundant and exceeded demand.

Domestically, the economy has been expanding at a more moderate pace. This slowdown is part of a broader trend of declining economic activity momentum since late 2024, when the monetary tightening cycle began. The labor market remains strong, though some indicators point to moderation. The unemployment rate remains historically low and is at its lowest level in decades.[1]

The *Banco Central do Brasil* (BCB) assesses that there is no relevant risk to financial stability. The National Financial System (SFN) maintains comfortable capital and liquidity positions, and adequate provisions relative to expected losses. Capital and liquidity stress tests corroborate the soundness of the banking system.

Financial market confidence in the stability of the SFN remains high. A BCB survey on financial stability indicates that 73% of the institutions surveyed are very or fully confident in the SFN's resilience. The primary concerns of financial institutions (FIs) are fiscal risk and risk of default and economic activity; these reflect, respectively, uncertainty regarding the sustainability of public debt and the high levels of household and corporate indebtedness, against a backdrop of persistently high interest rates.

Credit market slows down, and FIs show greater caution

Lending to the real economy slowed, in line with tighter financial conditions and the moderation in economic activity. Bank lending to households cooled in the higher-risk portfolio and remained stable in the lower-risk portfolio. On the corporate side, bank credit slowed for micro, small, and medium-sized enterprises (MSMEs). Credit incentive programs continue to account for a significant share of new loans to smaller firms.

Although slowing down, the capital market continues to grow at a much faster pace than bank credit. The issuance of debentures and commercial paper continued to absorb part of the demand from large companies, and Rural Product Notes (CPRs) maintained a significant role in rural financing. Credit rights investment funds (FIDCs) and certificates of receivables also continued to grow. FIDCs maintain significant ties with institutions regulated by the BCB through asset transfer and investment in fund shares. The BCB and the *Comissão de Valores Mobiliários* (CVM) have been engaging in dialogue to improve the regulatory framework and address information gaps that make it difficult to identify risks associated with these instruments.

FIs' risk appetite showed signs of declining, yet the outlook calls for additional caution. The cooling of bank credit was accompanied by a slight improvement in the quality of new loans to businesses, suggesting greater caution in loan origination. Signs of a higher risk appetite persist in the credit card modality, which continues to grow at a rapid pace. The Quarterly

1 The first two paragraphs of this Executive Summary contain information adapted from the September 2026 Monetary Policy Report, available at https://www.bcb.gov.br/en/publications/rpm-en.

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Credit Conditions Survey (PTC) indicates even more restrictive credit conditions for both businesses and households in the second half of 2026. In line with the guidance of the Financial Stability Committee (Comef), the environment of contractionary interest rates, high indebtedness, and increased risk materialization calls for additional caution and diligence in credit granting, both in loan quality and risk appetite.

The challenging financial situation of households and businesses increases the likelihood of risk materialization

Payment capacity of businesses and households remains a challenge. Although there are no signs of significant deterioration among most corporations, the number of companies with lower net income and higher net financial expenses increased, indicating a narrower safety margin for servicing debt. On the household side, debt service-to-income reached its highest level in 21 years, with a severe impact on lower-income borrowers.

Risk materialization increased and is expected to remain under pressure in the short term. Problem assets (PAs) rose in household credit and reached their highest level since 2012 across most modalities. Delinquency was the main driver of this trend and would have risen even if write-off policies had not been changed in 2025. Probability of default (PD) estimates indicate that pressure will continue across most modalities in the second half of 2026. In corporate lending as well, risk materialization increased, and PDs remained high, particularly in loans to MSMEs.

The *Crédito do Trabalhador* program (Worker Credit) significantly expanded access to private payroll-deducted loans and increased credit origination. On average, the *Crédito do Trabalhador* is granted in smaller amounts, with shorter terms, and at higher interest rates than the previous private-sector payroll-deducted loans, but offers borrowers a more affordable cost of credit than the non-payroll-deducted loans without guarantee. Delinquency rates for this modality still face operational challenges.

The BCB is considering measures to mitigate risks associated with an inadequate or excessive supply of credit. BCB's regulations have evolved to protect citizens against practices that encourage inappropriate borrowing. However, a BCB study indicates that the growing digitalization of financial services has significantly increased the exposure of lower-income consumers to credit offers, contributing to rising levels of indebtedness. In response, the BCB is considering adopting macroprudential measures targeting higher-risk credit segments with the aim of reducing over-indebtedness and strengthening the sustainability of credit and the resilience of the SFN.

The SFN remains resilient, despite the increased risk materialization, while continuing to implement regulatory adjustments that strengthen the system

Provisions remained in line with estimates of expected losses. FIs increased their provisions to absorb a higher volume of losses, while maintaining a stable coverage ratio in the SFN. Individually, some FIs have provisions below the BCB's estimates, but their capital levels are sufficient to accommodate any adjustments in most cases.

The SFN remains profitable and resilient, but profitability declined in the first half of 2026. The decline in profitability has been more pronounced at public institutions, due to the high level of risk materialization associated with rural and personal loans. The net interest margin remained under pressure from increased expenses related to provisions for loan losses. Earnings are expected to remain subdued in the coming periods due to high credit risk and a slowdown in portfolio growth.

The SFN's capitalization remains robust to ensure financial intermediation. The slight decline in capitalization in January resulted from regulatory changes and was reversed in the following months through retained earnings. The SFN is being impacted in 2026 by two significant changes: the first relates to

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the new dynamics of deferred tax asset realization, and the second is the new methodology for calculating minimum capital. Despite its overall robustness and the gradual transition period, a significant portion of institutions – which account for a small share of total assets – may need to raise capital or make other adjustments to meet the minimum requirements within the established timeframes.

Stress test results indicate that the banking system has adequate capital levels and resilience in all simulated scenarios. Capital stress tests indicate that there would be no relevant non-compliances under adverse macroeconomic scenarios. The results of sensitivity analyses also indicate strong resilience to foreign exchange, interest rate, and credit risks, and reductions in residential property prices when simulated individually. The liquidity stress test indicates a comfortable level of liquid assets in the event of cash outflows under adverse conditions or a short-term shock to market parameters. Furthermore, a BCB study suggests that, in general, the institutions that will be affected by the new minimum liquidity requirement already have liquidity levels consistent with the new requirements set to take effect in 2027.

Financial market infrastructures (FMIs)[2] contributed to the safe and efficient operation of markets. The SFN maintained sufficient intraday liquidity to ensure seamless transactions in the Brazilian Payment System (SPB). Pix continued to increase its relevance and accounted for around 31% of total retail payments. The financial risks arising from financial asset, securities, and foreign exchange markets were adequately managed by the FMIs. Credit and liquidity exposures were adequately managed by the central counterparty (CCP) throughout the period.

The regulation established the payment scheme owner (PSO) as the entity responsible for centralized and integrated risk management, the preservation of financial flows, and the settlement of transactions. Regulatory developments have strengthened mechanisms for supervision, centralized settlement, legal protection of funds, and the proportional sizing of collateral, thereby expanding the capacity to mitigate credit, liquidity, operational, and legal risks. Participants remain responsible for the risks associated with their activities, while the PSO must monitor the interdependencies within the scheme, maintain adequate safeguards, and ensure the continuity of settlements.

The BCB continues to take action to mitigate cyber risks and to identify and measure nature-related risks

Cyber incidents caused significant losses in specific cases but did not compromise the SFN's operations. These incidents increased, reaching 99 records by September 2026. This increase should be viewed in the context of improved monitoring and detection capabilities. Fraud accounts for 73% of incidents, highlighting vulnerabilities related to third-party management, privileged credentials, and Application Programming Interfaces (APIs). The BCB continues to monitor and respond to significant cyber incidents and will continue to develop initiatives to strengthen the SFN's cyber and operational resilience.

Environmental degradation poses a significant risk to the SFN, particularly for the agricultural sector. The BCB analyzed credit operations with companies and rural credit operations with households and developed a metric to support supervisory activities. The risks stem both from the impact that economic activities have on natural resources and from these activities' dependence on ecosystems, such as water

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

availability, soil quality, and vegetation integrity. Agriculture is the sector that depends most on ecosystem services and that places the greatest pressure on the natural environment upon which it relies.

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Decisions of the Financial Stability Committee (Comef) on the Countercyclical Capital Buffer ($ACCP_{Brasil}$)

At its 65th and 66th regular meetings, on May 26-27 and August 25-26, 2026, 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 and 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.

In the Committee's view, the current environment, characterized by a restrictive policy interest rate and rising levels of delinquency, debt service-to-income and indebtedness among households and firms, calls for additional caution and diligence in credit origination, both in terms of loan quality and risk appetite. Comef recommends that supervised entities continue to pursue prudent capital and liquidity management policies in light of economic uncertainty and current conditions.

Given the share of higher-cost credit modalities in household debt, which has already been highlighted as a point of attention in recent Comef minutes, the BCB is preparing measures aimed at mitigating the risks arising from this trend, with a view to strengthening the sustainability of credit and the resilience of the financial system.

Comef monitors international financial conditions, with particular attention to the implications of monetary and fiscal policy paths in advanced economies, shifts in trade policies, global financial asset repricing, and geopolitical developments.

Therefore, considering financial conditions, asset prices, and expectations regarding credit market behavior, at its 65th and 66th regular meetings, Comef considered it appropriate to hold $ACCP_{Brasil}$ at 0% (zero percent). If Comef increases $ACCP_{Brasil}$, financial institutions (FIs) have twelve months to comply. If Comef reduces it, FIs 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 45,313, of May 27, 2026, available, in Portuguese, at https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=45313, and 45,824, of August 26, 2026, available, in Portuguese, at https://www.bcb.gov.br/estabilidadefinanceira/exibenormativo?tipo=Comunicado&numero=45824.



I

Assessment of National and International Financial Systems

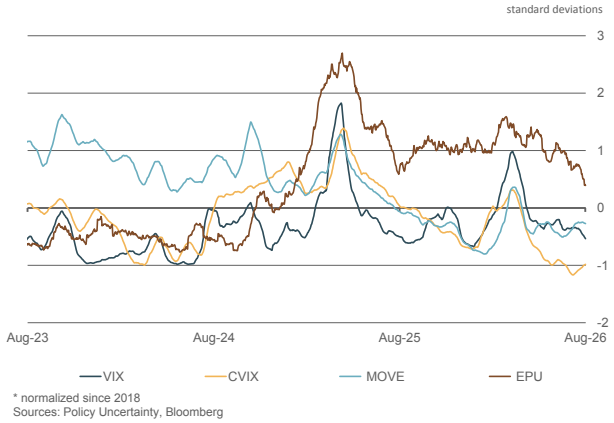
1.1 International financial system

The international financial system continues to demonstrate resilience. The ongoing conflict in the Middle East continues to keep uncertainty about the global outlook elevated, although uncertainty, volatility, and stress indicators have declined from previously observed peaks (Chart 1.1.1). Financial markets continue to function in an orderly manner, but forward-looking risks associated with the interaction between the effects of the supply shock and pre-existing financial vulnerabilities remain. Credit dynamics remain moderate in aggregate terms, although they are heterogeneous across economies and segments. Global liquidity remains ample, supporting asset valuations and risk appetite, even amid high interest rates and an orderly reduction in the balance sheets of major central banks. The banking system in major economies remains highly capitalized, contributing to its resilience. Investment allocation, in turn, remains concentrated in certain asset classes and markets, in some cases at historically high valuations, while the role of nonbank intermediaries continues to grow.

Long-term interest rates in advanced economies (AEs) have risen further since the last FSR. The increase largely reflects higher real interest rates and risk premia, which remain elevated by historical standards, while higher inflation expectations have played a comparatively smaller role. The greater presence of price-sensitive investors and the concentration of issuance in shorter maturities increase risks. The rise in the term premium and the decline in the convenience yield point to a deterioration in the macrofinancial outlook. Movements in yield curves have been accompanied by exchange-rate adjustments, with the US dollar depreciating moderately against its peers over the period, except against the yen. In this context, the depreciation of the yen and recent foreign-exchange interventions increase the risk of reversals in positions funded in the Japanese currency, with potential repercussions for international capital flows and asset prices. So far, however, low exchange-rate volatility has kept hedging costs down and favored carry-trade operations directed toward emerging market economies (EMEs).

Financial asset price volatility has declined from the peaks observed after the escalation of the conflict in the Middle East, although episodes of heightened risk aversion persist. Over the period, equity markets in AEs continued to post gains, with some sectoral reallocation, while the US dollar recently depreciated against most of its peers and longer-term interest rates remained elevated. As uncertainty regarding the fiscal and monetary policy paths of major economies remains high, the combination of such uncertainty and current asset valuations continues to make the risk of sharper repricing episodes in financial markets material.

Chart 1.1.1 – Uncertainty and volatility measures*



* normalized since 2018
Sources: Policy Uncertainty, Bloomberg

Systemic risk (SRisk)[4] has declined in most AEs since the previous FSR. The increase in the market value of financial institutions (FIs) made the largest contribution to the decline in SRisk. Over the same period, SRisk increased slightly in most EMEs.

4 Systemic risk indicator that measures FIs' capital shortfall in a global stress event. The concept was presented in the April 2021 FSR.

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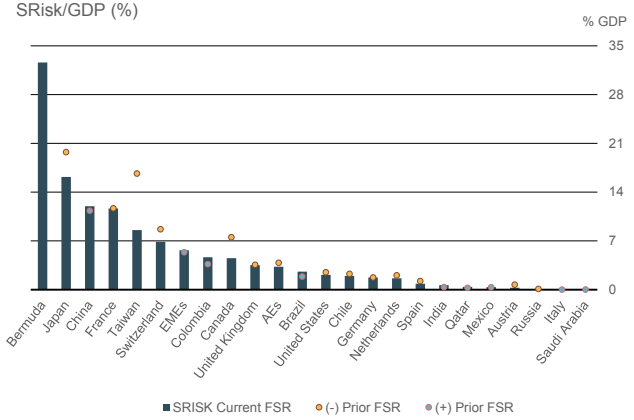
SRisk is estimated at 3.3% of gross domestic product (GDP) in AEs and 5.6% of GDP in EMEs[5] (Chart 1.1.2).

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



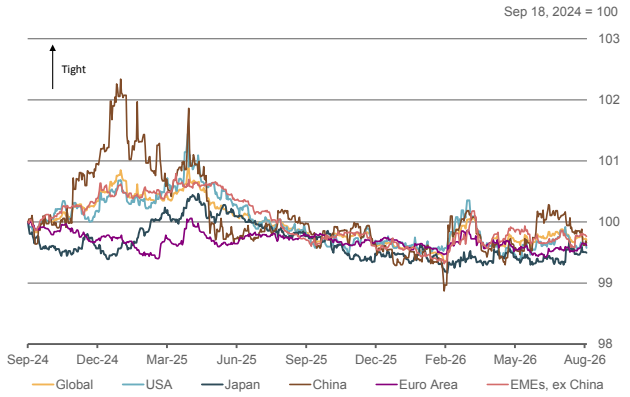
Source: Bloomberg
Calculation: BCB.

The profitability of Global Systemically Important Banks (GSIBs) increased in the second quarter to levels well above historical standards. Stronger capital-market activity and a more favorable composition of assets and liabilities boosted the median return on equity (ROE) of this group of banks. Interconnections between banks and nonbank FIs remain significant, particularly with hedge funds. These funds have increased their reliance on repo funding and swap-based strategies.

Financial conditions have fluctuated since the previous FSR, with some easing at the margin. These movements largely reflects the uncertain outlook associated with the unresolved conflict in the Middle East, the expected fiscal and monetary policy responses, and the effects of this combination of shocks and policy responses on asset and commodity prices and on key macroeconomic indicators. The net effect of these fluctuations was an increase in long-term interest rates, moderate depreciation of the US dollar over the period, and relative stability in credit spreads (Chart 1.1.3).

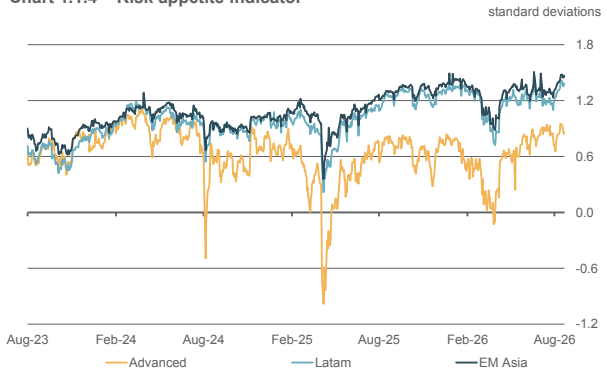
Risk appetite has increased since the previous FSR in both advanced and emerging market economies. In AEs, the main driver was lower volatility. In EMEs, in addition to lower volatility, equity-market movements also had a positive effect on risk appetite (Chart 1.1.4). This occurred against a backdrop of still-ample global liquidity and generally positive performance of risk assets. Despite improved risk appetite, uncertainty and repricing risks remain elevated, particularly given the persistence of high long-term interest rates and elevated valuations in some market segments.

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 and Fed St.Louis. Calculation: BCB

5 Among the countries monitored, Bermuda appears for the first time with a high SRisk value solely because an institution previously domiciled in Canada changed its domicile.

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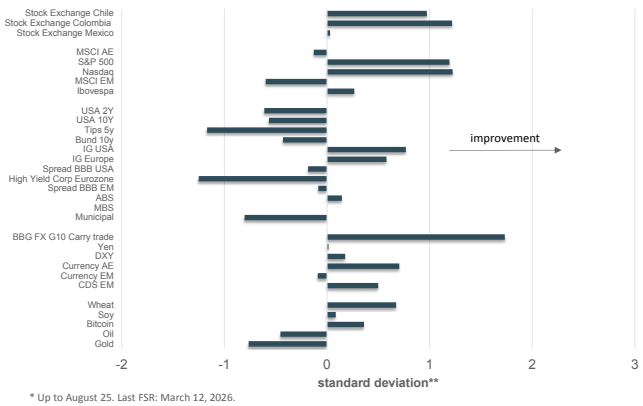
In financial markets, the generally positive performance of risk assets stood out, alongside mixed equity-market results and higher long-term interest rates in AEs (Chart 1.1.5). Equity-market gains were significant, particularly in the United States, Chile, and Colombia, while the Morgan Stanley Capital International (MSCI) index for advanced economies, Brazil, and Mexico posted negative performance. Despite volatility associated with geopolitical tensions, risk assets generally ended the period with positive returns. Gold declined after reaching nominal highs in the previous period, while bitcoin continued on an upward path. Spreads on higher-risk corporate debt remained historically compressed, despite some widening. The US dollar followed a downward path, contrasting with the appreciation against major currencies observed in the cycle before last. Oil prices remained elevated but declined relative to the previous FSR, whose cut-off date was close to the price peak reached as a result of the war in the Middle East.

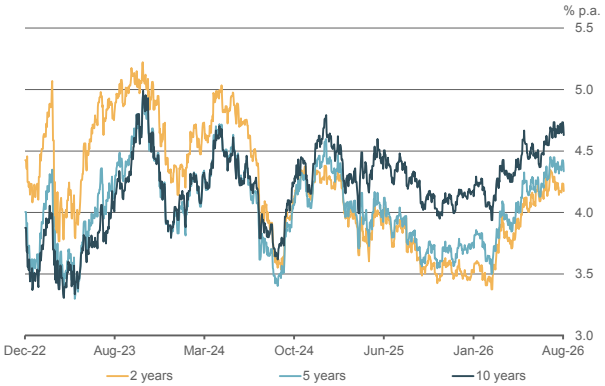
Long-term interest rates in the United States have increased since the previous FSR (Chart 1.1.6). The movement reflected revisions to inflation expectations and to the expected paths of fiscal and monetary policies, amid persistent uncertainty associated with the conflict in the Middle East and the conduct of US monetary policy. Rates rose across the yield curve, while risk premia at longer maturities remained high. Consequently, long-term borrowing costs remain elevated and demand for long-term credit remains subdued.

Chart 1.1.5 – Assets Performance since last FSR *



* Up to August 25. Last FSR: March 12, 2026.
**Normalized to the days range in each analysis window.
Sources: Bloomberg, Refinitiv, Fed St.Louis

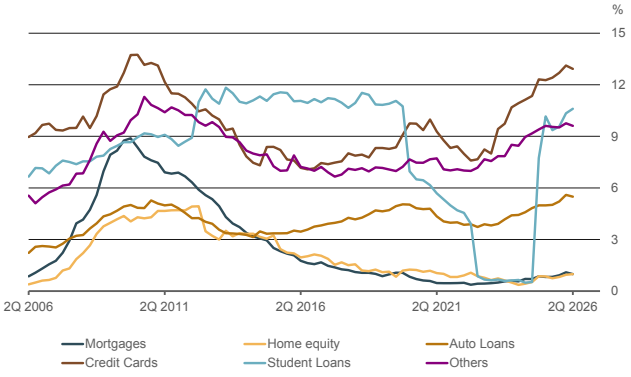
Chart 1.1.6 – US: Long term rates



Source: Bloomberg

In the United States, indebtedness levels have remained contained, contributing to a moderate easing in debt-service burdens despite high interest rates and rising delinquency rates in recent years. The household saving rate remains low, as does household liquidity buffers. Delinquencies have increased mainly in credit card and auto loans (Chart 1.1.7), but remain contained in mortgage credit. Since early 2025, student-loan delinquency has also risen following the expiration of credit-relief measures, reaching rates close to those prevailing before the pandemic. Real-sector leverage has remained low, but pressures are disproportionately greater among lower-income groups, which may give rise to localized vulnerabilities.

Chart 1.1.7 – US: Loans to households, 90 days past due
Share of Total Loans



Source: Fed NY

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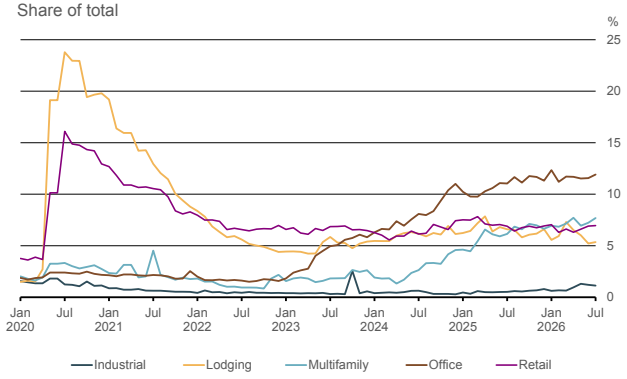
Commercial real estate credit in the United States remains vulnerable. Structural changes since the pandemic have reduced demand, occupancy, and the prices of properties used as collateral. Although risks have not yet materialized to a significant extent, delinquencies continue to rise moderately (Chart 1.1.8). Banks have extended troubled loans for short periods, but vulnerabilities persist as these new maturity dates approach, particularly at less-capitalized institutions with greater exposure to the sector. High long-term interest rates aggravate the situation by making refinancing more expensive and reducing real estate transactions.

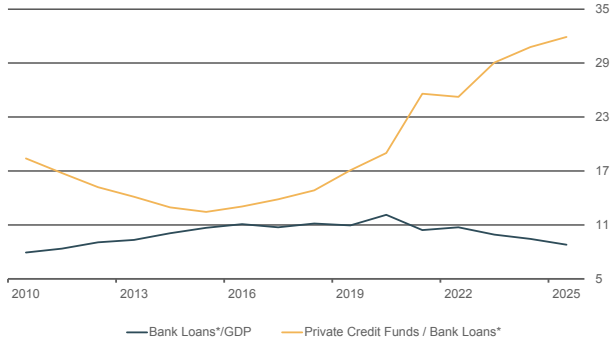
Chart 1.1.8 – US: Commercial mortgage backed securities 30 days past due
Share of total



Source: Trepp

Vulnerabilities in private credit have increased in the United States, in line with the segment's strong expansion over the past two decades. The search for yield, competition with bank credit, and demand for faster and more flexible long-term financing, particularly among smaller firms, have driven this growth (Chart 1.1.9). The expansion has also increased interconnections with banks through both the assets and liabilities of these institutions. A greater share of below-investment-grade credit and less-liquid vehicles increases the sector's sensitivity to deteriorating credit quality and supply of liquidity.

Chart 1.1.9 – Private Credit Funds vs Bank Loans in the US

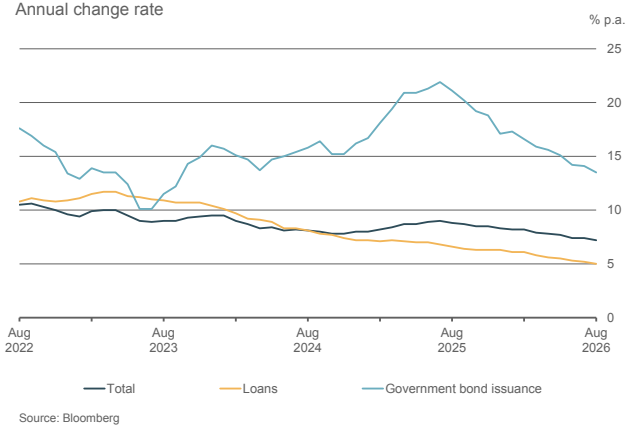


* Commercial and Industrial Loans
Source: BIS

The expansion of investment in artificial intelligence (AI) has generated exceptionally strong financing demand among technology companies. This higher demand has led these companies to use a combination of bank lending, private credit, and debt and equity issuance. Since 2025, the technology sector has gained importance in corporate issuance, particularly in the high-yield segment. At the same time, bank and nonbank financing, including private credit, has responded to the increase in capital needs. More complex financing structures have emerged, involving off-balance-sheet commitments and circular financing arrangements among participants in the AI ecosystem. Taken together, higher leverage, stronger financial interconnections, and greater correlation between corporate bonds and equities may make the segment more sensitive to changes in financial and debt-rollover conditions. In this context, the sector presents material concentration and opacity risks, with potential prudential challenges related to asset valuation, leverage, and liquidity.

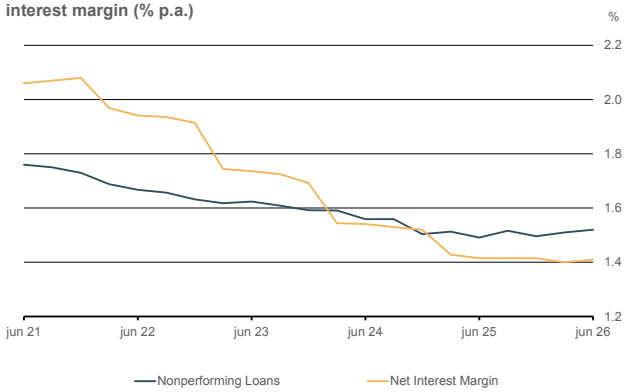
Financing to the Chinese economy continued to decline. Local-currency bank lending has continued to decelerate over the past five years. The main driver of low and declining credit growth is weaker domestic demand, both for consumption and investment. Since March, bank lending to households has contracted, while bank lending to firms has continued to decelerate. Government bond issuance, which accelerated between 2023 and 2025, recorded its lowest growth rate since December 2023 (Chart 1.1.10).

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



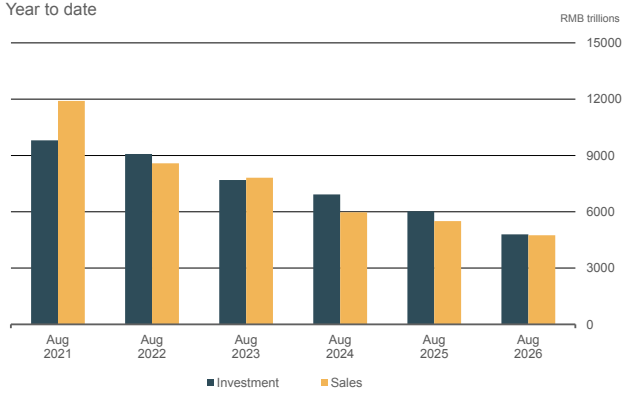
Source: Bloomberg

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

The Chinese banking system remains sound and resilient. Basel and Tier 1 capital ratios remain high and stable, while nonperforming loans and loan-loss provisions remain broadly stable. Liquidity continues an upward trend, and foreign exchange exposure is at its lowest level in ten years. By contrast, profitability remains low and declining: the net interest margin is stable but historically low (Chart 1.1.11) and return on assets (ROA) and ROE reached their lowest levels since 2011 in the second quarter of 2026. Overall, small banks have less robust indicators than medium-sized and large banks. The government responded with facilities to recapitalize state-owned banks and insurers.

China's real estate development sector remains in a contractionary structural adjustment. In the first eight months of the year, the value of properties sold was the lowest since 2015 (Chart 1.1.12); the floor area sold was the lowest since 2010, and the area of new construction starts was the lowest since 2003. In August, the stock of completed and unsold units declined year over year for the first time since 2021. The contraction in sales reflects the persistent decline in new-home prices, which encourages households to postpone purchases, and the financial weakness of developers, which creates uncertainty about the completion and delivery of properties still under construction.

Most jurisdictions have kept their countercyclical capital buffers unchanged since the previous FSR. However, some countries announced an increase or the possibility of raising them. Since the previous FSR, seven jurisdictions have increased their countercyclical capital buffer, while the United Arab Emirates reduced its buffer from 0.5% to 0%, effective immediately, highlighting the instrument's role both in building resilience preemptively and in rapidly releasing capital in response to adverse shocks. An increasing number of jurisdictions are moving toward establishing a positive neutral buffer to strengthen financial-system resilience against a backdrop of accumulating global financial and geopolitical risks and domestic economic uncertainty (Chart 1.1.13).

Chart 1.1.13 − Countercyclical Capital Buffer (CCyB)



Sources: BIS, ESRB, central banks

Residential/commercial real estate sectors are issues of concern in the prudential reports analyzed

The external environment has been characterized by overlapping global shocks and the persistence of their effects over time. This environment is prone to the materialization of significant macrofinancial risks with the potential for abrupt repricing of financial assets and a further tightening of financial conditions. There are still uncertainties regarding economic activity and inflation dynamics in major economies, including the pass-through of supply shocks – such as tariffs and energy prices – to prices, as well as the paths of fiscal and monetary policies. A prolonged conflict in the Middle East heightens geopolitical uncertainty and may affect global trade flows, with consequences for commodity and currency markets. Uncertainty surrounding the equilibrium levels of long-term interest rates and pressures associated with interest-rate differentials across economies continue to influence asset pricing and international capital flows. In this context, elevated valuations and greater concentration of investment in certain segments increase markets' sensitivity to disappointments in expectations, raising the risk of sharper price corrections. Concerns about sovereign debt sustainability also warrant attention, particularly in economies with high debt levels and greater refinancing needs, as increased government bond-market volatility may intensify financial tightening and reignite adverse interactions between sovereign risk and the banking sector. This environment may also amplify excessive global imbalances in current accounts and international investment positions. The accumulation of vulnerabilities in bank and nonbank FIs, as well as stronger linkages between these segments, constitutes an important channel for shock amplification. Episodes of heightened risk aversion may trigger forced sales, liquidity pressures, and deleveraging, with contagion across markets and jurisdictions. Although EMEs have shown relative resilience, they remain exposed to asymmetric exchange-rate pressures and disorderly capital outflows, particularly in countries with more limited macroeconomic buffers. In this environment, sound risk, capital, and liquidity management remains central to mitigating systemic risks.

The *Banco Central do Brasil* (BCB) continues to closely monitor developments in the international environment and assesses that the National Financial System's (SFN) exposure to exchange-rate risk is low and its reliance on external funding is limited. The BCB remains prepared to act to minimize any disproportionate spillovers to domestic asset prices.

1.2 National Financial System[6]

1.2.1 Liquidity

The banking system holds sufficient liquidity for the regular functioning of financial intermediation. The FIs in the S1 segment maintain comfortable liquidity buffers, while the vast majority of FIs in the S2 to S4 segments hold buffers compatible with the continuity of their activities. Funding continues to grow, with costs remaining relatively stable across segments and access to external funding sources remaining intact. Asset and liability structures also remain free of material maturity mismatches, contributing to the structural resilience of the banking system.

6 The scope of the analyses varies depending on regulatory requirements and data availability, among other factors, while always seeking the broadest possible coverage to ensure more reliable risk assessments.

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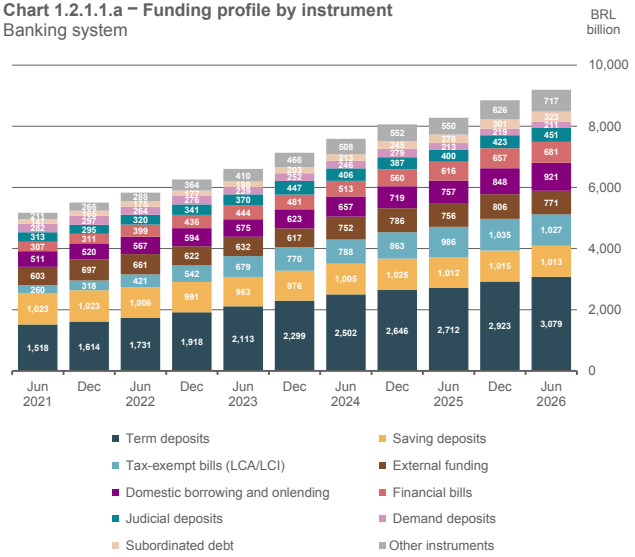
Domestic and external funding

Funding growth over the last twelve months accelerated compared to the previous period, amid stable rates and unconstrained external conditions. In the period from July 2025 to June 2026, funding grew by 9.7%, up from 9.0% in the preceding twelve months.[7] During the same period, funding rates remained close across different financial institution (FI) segments, with no significant changes in the pricing pattern. Regarding external funding, despite geopolitical tensions, the supply of credit lines remains abundant and exceeds demand, with no signs of short-term price pressure.

Time deposits and Real Estate Credit Bills (LCIs) stood out as the main funding instruments. Time deposits are the main funding instruments and accelerated from 8% to 14% over the last twelve months. LCIs continued to contribute to real estate credit expansion and to the rebalancing of the funding mix, despite a moderation in its twelve-month growth rate (20%, down from 28%). In contrast, there was a contraction in the stock of Agribusiness Credit Bills (LCAs) (-9% versus a 23% growth in the previous twelve months), a movement consistent with lower issuer appetite amid tighter rural credit supply since 2025, in addition to regulatory changes that discouraged issuances.[8] In line with nominal funding, aggregate net funding also increased more sharply over the last twelve months compared to the same prior period (11.6% versus 10.5%, as shown in Charts 1.2.1.1.a, b, and c).[9]

Chart 1.2.1.1.a – Funding profile by instrument
Banking system



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

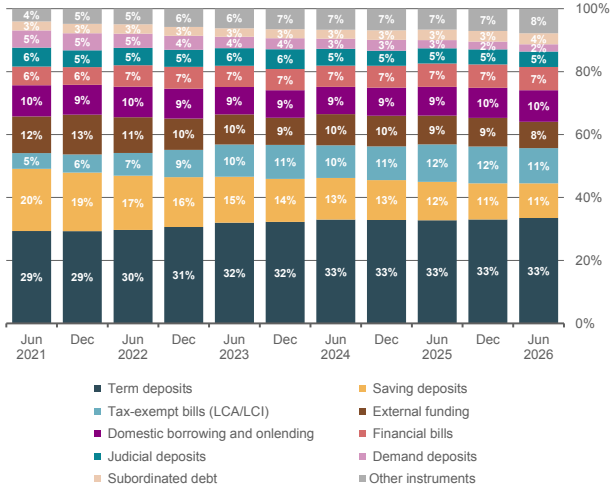
Term deposits: certificates of deposit, receipts of deposit, time deposits with special guarantee by the Credit Guarantee Fund (Fundo Garantidor de Crédito – FGC). Subordinated debt: subordinated certificates of deposit, subordinated financial letters and other capital instruments. Other instruments: 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.

7 Growth calculations exclude interbank deposits, as these resources both originate and terminate within the banking system itself.

8 In particular, Resolution CMN 5,119, of February 1, 2024, which prohibited, as of July 1, 2025, the use of rural credit operations with controlled resources as collateral for LCA issuances, and Resolutions CMN 5,087 of June 29, 2023, and 5,216, of May 22, 2025, which increased the mandatory allocation percentage of LCA funds to rural credit.

9 Net funding and net stock are estimated by excluding interest accruals, based on the estimated average rates of the funding stock. For this calculation, funding from the following instruments was excluded: interbank deposits, loans and onlending, subordinated debt not registered in central depositories, external funding, and funding instruments eligible for core or complementary capital (IECI and IECP). The difference in behavior between net and nominal funding is due to the aforementioned exclusion, as well as distinct samplings (nominal only for the banking system, net for the National Financial System (NFS).

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



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.

In the longer term, competition for funding within the National Financial System (NFS) persists, in spite of the distribution of resources across different segments having changed little over the last twelve months.[10] Private S1 banks showed a slight gain in market share in the last semester, while public S1 banks saw a slight loss, influenced by the slowdown in tax-exempt instruments, particularly LCAs. Meanwhile, the share of digital FIs remained stable during the period: despite the fact thar over a longer timeframe their annual net funding[11] consistently outperforms that of private S1 and public FIs, there is a more pronounced deceleration trend over the last twelve months. In the meantime, funding by investor type remained virtually stable during the period (Charts 1.2.1.2.a and b, and 1.2.1.3).

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

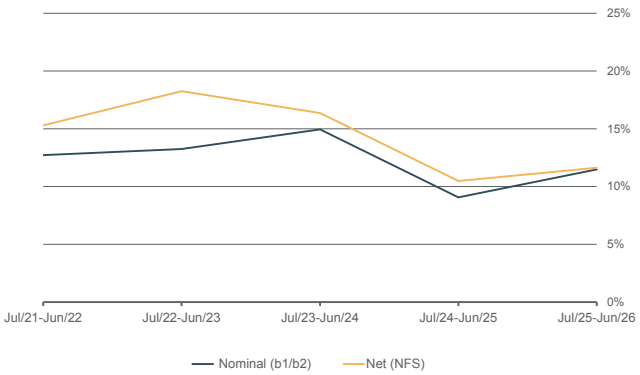


Chart 1.2.1.2.a – Funding profile by type of segment

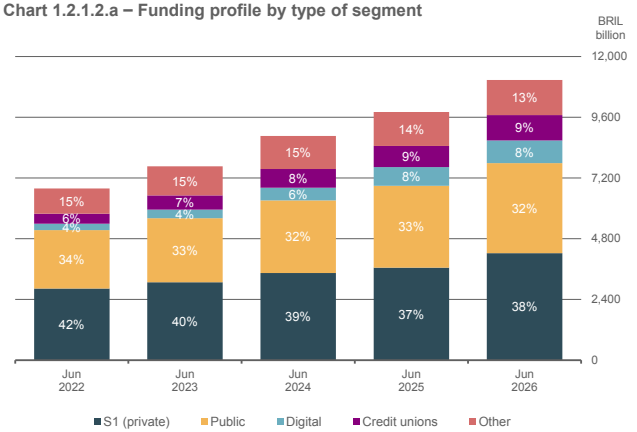
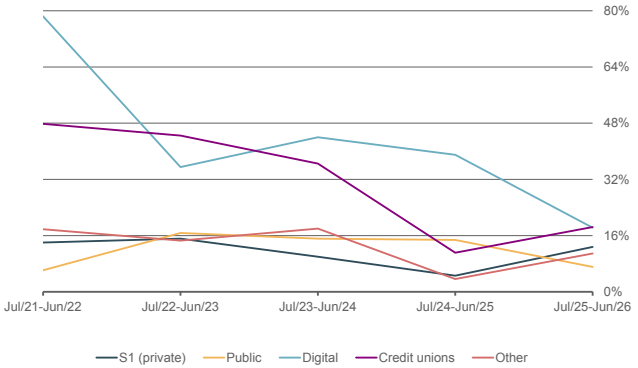


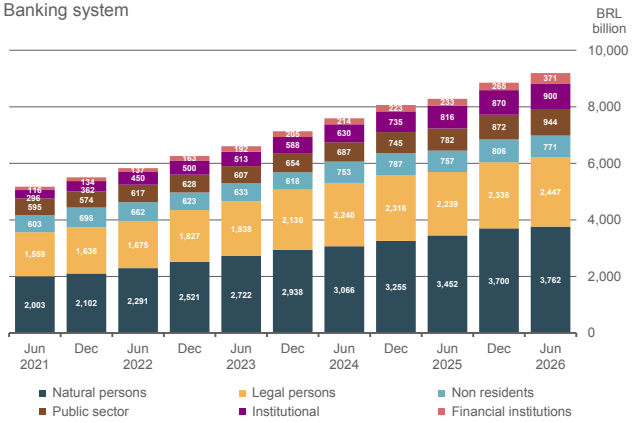
Chart 1.2.1.2.b – Net accum. funding on year (estimated) / previous year's funding stock (%)



10 The information produced in this paragraph adopts the NFS as its scope, rather than focusing solely on institutions within the b1 and b2 banking segments.

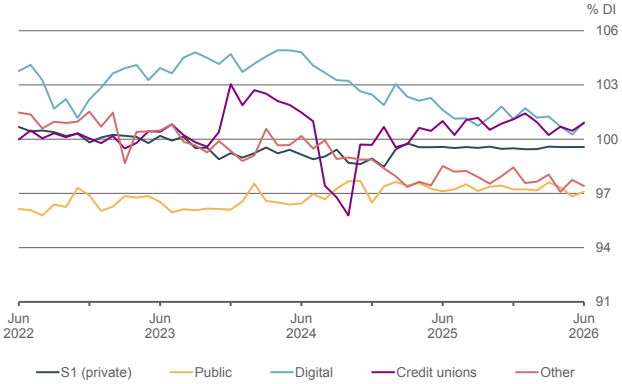
11 Expressed as a percentage of the net stock on the last business day of the previous year. Net funding and net stock estimated according to the previously described methodology.

Chart 1.2.1.3 – Funding profile by type of investor
Banking system



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

Chart 1.2.1.4 – Monthly average funding rates (*)



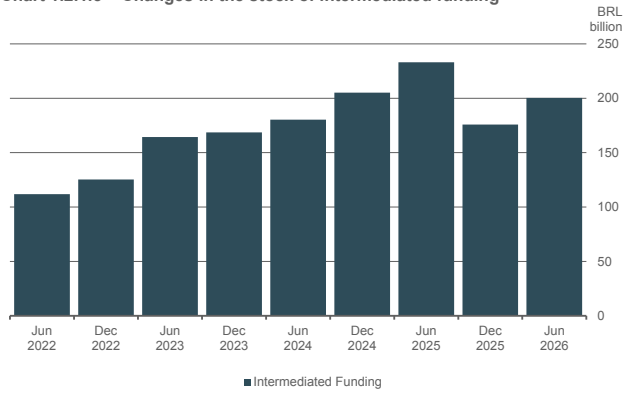
* Weighted average rate of the following instruments: bank deposit certificates, bank deposit receipts, time deposits with special guarantee from the Credit Guarantee Fund (FGC), interbank deposits (excluding those subject to specific regulatory requirements, such as rural interbank deposits), agribusiness credit bills, real estate credit bills, financial letters (including those with subordination clause), guaranteed real estate bills.

Funding rates remained stable across different segments during the last semester. Funding rate spreads relative to the interbank deposit (DI) rate remained virtually unchanged for all segments, with a minor decrease only for the other FIs segment, when comparing half-year ends. Overall, the curves suggest that funding conditions remained similar across segments, with no significant changes in funding costs (Chart 1.2.1.4).

Investment platforms maintained a significant role in funding for smaller institutions, despite high market concentration among few distributors. This channel remains one of the primary funding sources for a substantial share of institutions in the digital and other FIs segments, while the public segment has been expanding its use to target specific client niches. Despite a reduction in the volume of intermediated funding at the end of 2025,[12] a slight recovery was recorded in the first half of 2026 among institutions with a dependency of over 20% on this channel.

Although a gradual increase in the market share of smaller platforms is observed, the market remains concentrated among the six largest distributors. In this context, platforms continue to expand institutions' funding capacity and intensify competition for resources; however, high market concentration maintains potential risks associated with reliance on these intermediaries and the propagation of shocks among system participants (Charts 1.2.1.5 to 1.2.1.10).

Chart 1.2.1.5 – Changes in the stock of intermediated funding*



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

12 A reduction largely associated with the out-of-court liquidation of institutions with a high volume of funding distributed through platforms.

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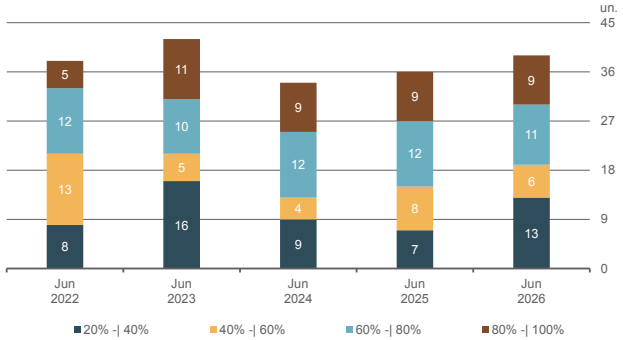
Chart 1.2.1.6 – Intermediated funding – Number of Financial Institutions by dependence of issuer on total funding – Banks



1 The values on the bars refer to the number of financial institutions belonging to the corresponding interval.

Sources: BCB (Own methodology), [B][3]

Chart 1.2.1.7 – Intermediated funding stock by segment

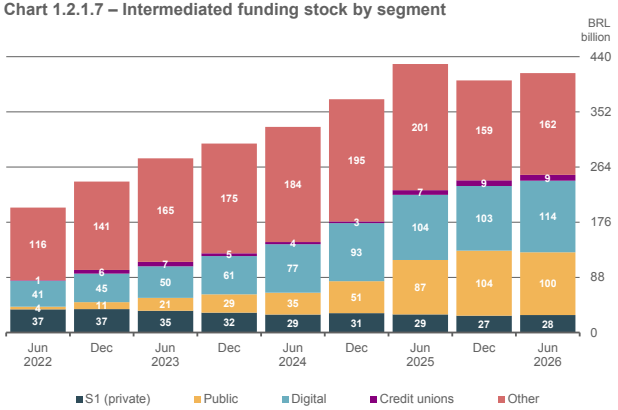


Chart 1.2.1.8 – Intermediated funding stock by segment (% of total)

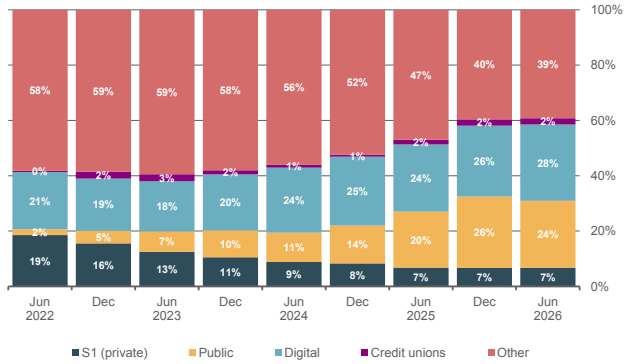


Chart 1.2.1.9 – Net accumulated intermediated funding by segment

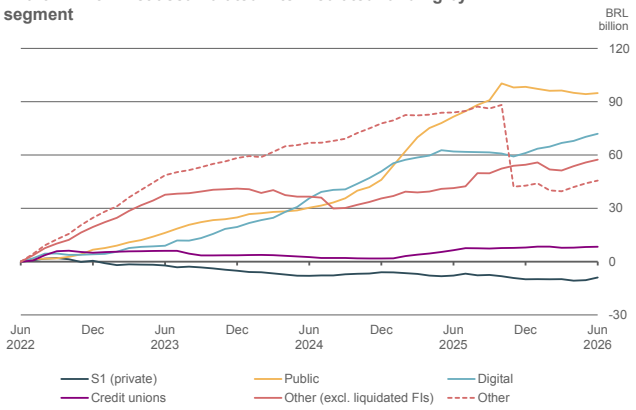
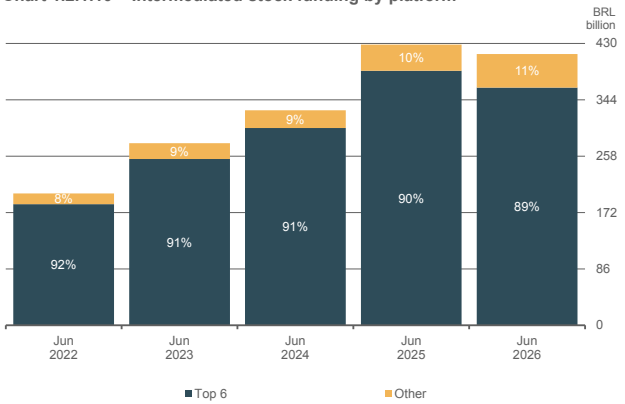


Chart 1.2.1.10 – Intermediated stock funding by platform



Sources: BCB (Own methodology), [B][3]

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Box 1 – Reference Assets: alignment between funding covered by the Credit Guarantee Fund (FGC) and financial intermediation assets

In 2023, the National Monetary Council (CMN) issued Resolution CMN 5,114, of December 21, 2023, which introduced measures designed to discourage aggressive growth strategies in funding covered by the FGC. It established mechanisms that link the volume of guaranteed liabilities to the institutions' equity capacity, focusing initially on indicators based on the balance sheet's liability side and Adjusted Equity (PLA). The regulation sought to mitigate the moral hazard associated with funding anchored by the FGC guarantee.

Although these measures help limit the growth rate of funding, its evolution is not always accompanied by an equivalent expansion of assets associated with financial intermediation activity. In this context, Resolution CMN 5,295, of April 23, 2026, introduced the concept of Reference Assets (AR), aiming to strengthen the alignment between retail funding covered by the FGC and its allocation into assets compatible with the institutions' financial activities. The AR broadens the prudential framework by incorporating aspects related to asset composition and quality, helping mitigate risks arising from exposure concentration and the allocation of resources into less transparent assets. Thus, the indicator seeks to reduce vulnerabilities and strengthen the resilience of the financial system.

In essence, the classification of assets as components of the AR is based on the premise of aligning FGC coverage with a system that performs transparent financial intermediation and adequate liquidity management; it is expected that the FI's assets composition will reflect the expected quality in the allocation of funding raised. Consequently, entities must demonstrate that the funding raised was invested in quality assets, evidenced by maintaining assets equal to or greater than the Reference Value (VR), even after excluding assets associated with excessive risk-taking strategies, linked to funding instruments not covered by the FGC, or lacking financial intermediation characteristics.

The methodology for measuring the AR and its relationship with the VR demonstrated that the SFN's resource allocation profile possesses high quality and comfortably meets the criteria. The methodology thus becomes fundamental for market discipline and for the preventive and prudential reorientation of the most atypical cases that demonstrate any deficiency. Results of the impact study, conducted with around two hundred institutions, suggest that ten entities would be subject to a reserve requirement in government bonds due to the criteria linked to the AR.

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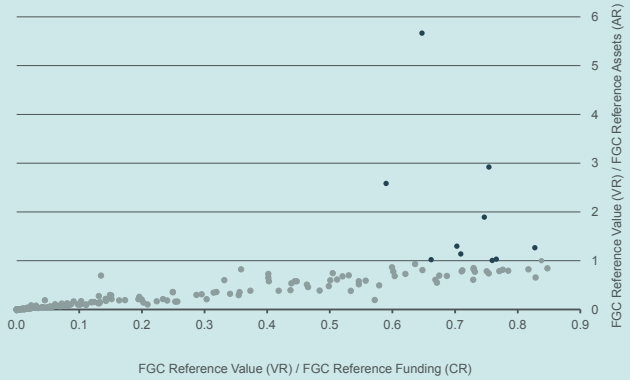
Table 1.2.1.1 – Boxe Reference Assets

FGC Indicators

Segment	Tota Assetsl (AT) (R$ bi)	Adjustments (R$ bi)	AR (R$ bi)	VR (R$ bi)	VR / AT (%)	VR / AR (%)
S1	10,655	5,011	5,644	872	8%	15%
S2	2,306	1,077	1,228	197	9%	16%
S3	1,660	607	1,054	319	19%	30%
S4	262	73	188	65	25%	35%
S5	12	4	8	3	27%	40%

Chart 1.2.1.11 – FGC indicators



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Despite ongoing geopolitical tensions and an environment of uncertainty ahead of the elections, the supply of external funding remained abundant and exceeded demand. The stock of these funds grew 4.6% when measured in US dollars. There was an increase across all modalities of external funding, and a highlight for funds held abroad. However, there was a reduction in the relative share of external funding in total funding of the National Financial System (NFS). The appreciation of the real against the dollar over the period, reflected in a 5.9% decline in the US dollar exchange rate, offset the growth in the dollar-denominated stock and led to a 1.6% decrease in the same stock when expressed in reais. This movement, combined with the expansion of total NFS funding, resulted in a drop in the relative share of external funding, which changed from 14.0% to 13.2% in the half-year. The cost of extra-conglomerate external credit lines tied to exports increased slightly in the half-year, tracking international benchmark rates, with a 0.1 percentage point rise in the spread over the risk-free rate (Charts 1.2.1.12 to 1.2.1.14).

Chart 1.2.1.12 – Profile of external funding
Monthly outstanding principal

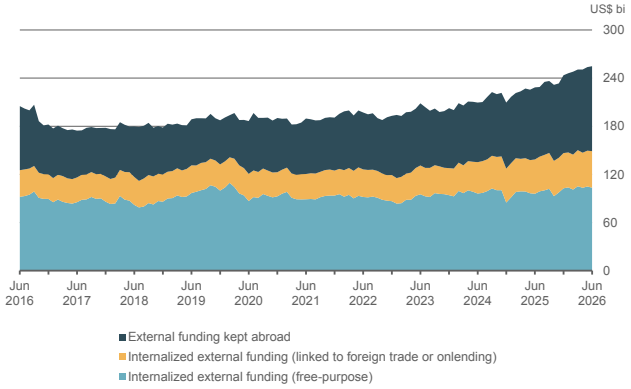


Chart 1.2.1.13 – Profile of external funding
As a percentage of total funding

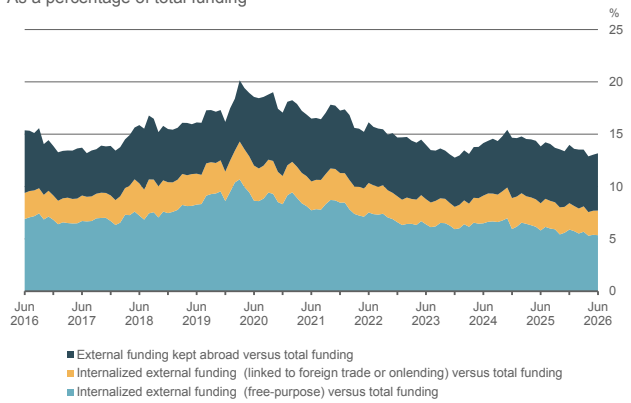
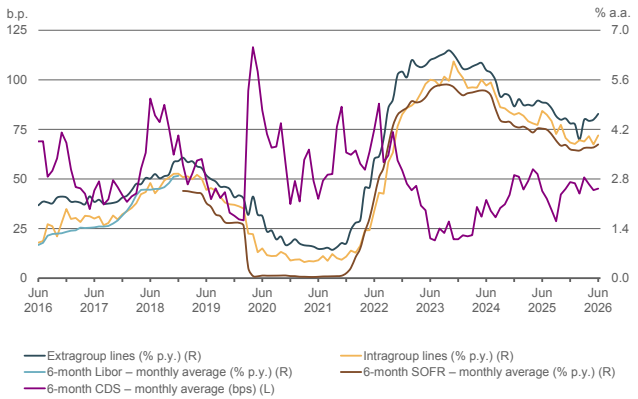


Chart 1.2.1.14 – Export-linked external credit lines
Cost x reference rates



Short-term liquidity

Banking system liquidity remains at comfortable levels, conducive to preserving the regular functioning of the intermediation system. Liquidity buffers remain stable, reflecting the slowdown in credit growth and a more moderate pace of funding rollovers and new issuance. Liquidity management at FIs remains conservative, with liquid asset buffers maintained at levels compatible with their operational needs (Chart 1.2.1.15). The results of complementary analyses of market stress and bank run exercises indicate that a liquidity surplus is maintained, corroborating the system's resilience (Chart 1.2.1.16).

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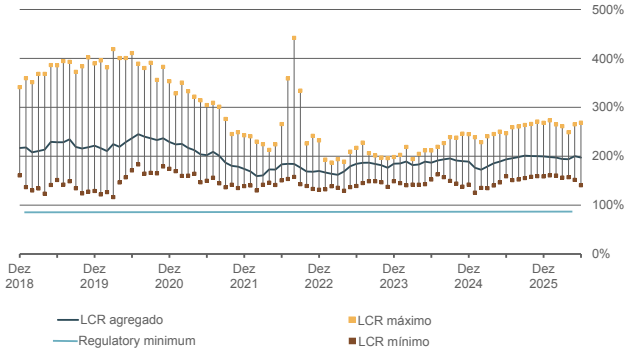
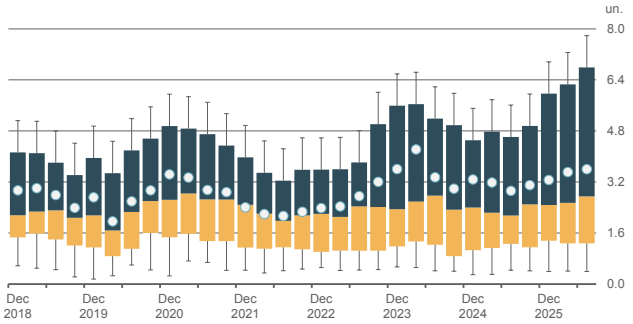
Chart 1.2.1.15 – Liquidity Coverage Ratio (LCR)
High, low and aggregated[1/]



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

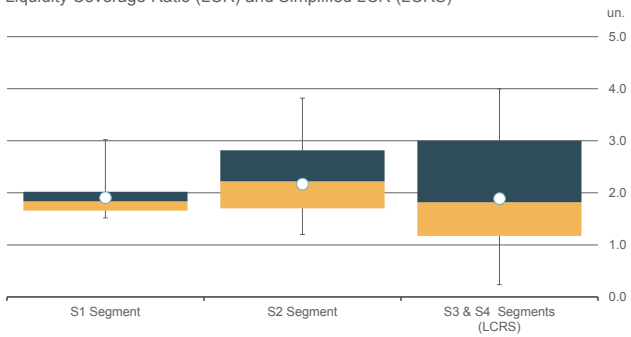
Chart 1.2.1.16 – Short-term Liquidity Ratio
Banking System, statistic data from individual conglomerates[1]



1 For each month, the Short-term Liquidity Ratio of each financial institution is capped at that month's 80th percentile. The statistics are then calculated using the capped values. The box-and-whisker plot shows the 10th, 25th, 50th, 75th, and 90th percentiles, respectively. The circles represent the mean.

The introduction of a new minimum liquidity requirement aims to ensure higher standards of liquidity management for a wide range of FIs. In 2027, institutions in the S2 segment will be required to comply with the Liquidity Coverage Ratio (LCR), while those in the S3 and S4 segments will be required to comply with the Simplified Liquidity Coverage Ratio (LCRS), as defined in Resolution CMN 5,296, of April 23, 2026, expanding the regulatory perimeter for liquidity risk requirements to those segments. Impact studies conducted by the BCB suggest that, in general, the FIs subject to this regulation have liquidity levels compatible with the new requirements (Chart 1.2.1.17).

Chart 1.2.1.17 – LCR and LCRS*
Liquidity Coverage Ratio (LCR) and Simplified LCR (LCRS)

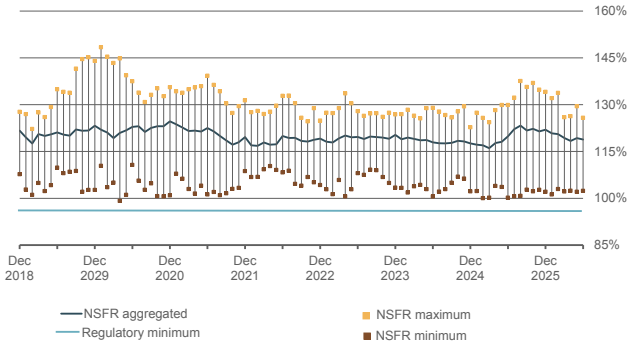


*LCR proxy for Segment S2. Simulated LCRS for Segments S3 and S4, in accordance with CMN Resolution No. 5,296/2026. Indicators are capped at 300%. The whiskers and bars correspond to the 10th, 25th, 50th, 75th, and 90th percentiles, respectively. Circles indicate the mean.

Long-term liquidity

The funding structure remains compatible with the financing of long-term assets, demonstrating the absence of material mismatches between asset and liability maturities. Over time, there has been no material change in FIs' capacity to maintain a sustainable balance between their long-term assets and liabilities, avoiding excessive reliance on short-term funding sources (Charts 1.2.1.18 and 1.2.1.19).

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



1/ The Net Stable Funding Ratio (NSFR) is a regulatory metric introduced by CMN Resolution 4,616 of November 30, 2017, with its methodology established by Circular 3,869 of December 19, 2017. It came into effect on October 1, 2018. The NSFR is the ratio of Available Stable Funding (ASF) to Required Stable Funding (RSF). The numerator comprises regulatory capital and funding considered stable, while the denominator consists mainly of credit operations. Financial institutions (FIs) classified in Segment 1 (S1) must meet a minimum regulatory requirement of 100% of FIs classified in S1 (currently 6 FIs).

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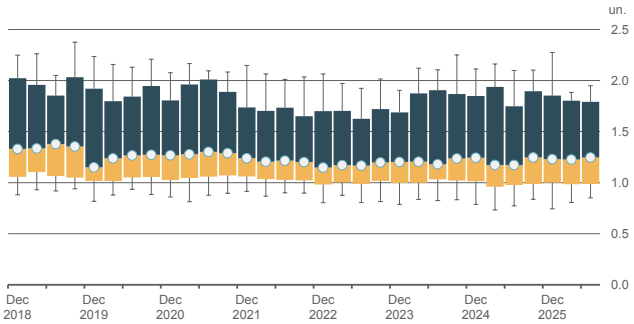
Chart 1.2.1.19 – Structural Liquidity Ratio[1/, 2/]
Banking system, statistic data from individual conglomerates



1/ The Structural Liquidity Ratio, a managerial metric covering the entire banking system, assesses whether banks have sufficient stable funding sources (numerator) to finance their long-term assets (denominator). Institutions with a ratio equal to or greater than 1 therefore exhibit a lower maturity mismatch between assets and liabilities and are less susceptible to future liquidity problems. For further details on the definition of this metric, see the Concepts and Methodologies appendix.
2/ For each month, the Structural Liquidity Ratio of each financial institution is capped at that month's 80th percentile. The statistics are then calculated using the capped values. The box-and-whisker plot shows the 10th, 25th, 50th, 75th, and 90th percentiles, respectively. The circles represent the mean.

1.2.2 Credit[13, 14]

Introduction

Financing to the real economy slowed, reflecting tighter financial conditions and a moderation in economic activity. In bank credit to households, there was a cooling in portfolio growth at the margin, with a slowdown in higher-risk portfolios and stable growth in lower-risk portfolios. In the case of corporations, bank credit decelerated for MSMEs. Slower growth was also observed in capital markets, which nonetheless continue to expand at rates well above those of bank credit, increasing their share in financing, particularly for large companies.

The debt-servicing capacity of companies and households remains under pressure. The labor market remained strong, although showing signs of moderation. Even so, household income commitment levels remained elevated, reaching the highest level in the historical series in the first half of 2026, with a greater impact on lower-income borrowers and a strong contribution from more expensive credit modalities. In the case of companies, especially larger firms, median leverage and debt-servicing indicators were not significantly affected by tighter financial conditions, reflecting the resilience of revenues for most companies. Nevertheless, some companies faced difficulties and filed for judicial reorganization. Companies' payment capacity is expected to deteriorate over the medium term, even at the beginning of a monetary easing cycle, particularly in a scenario of cooling economic activity.

Financial institutions' risk appetite showed signs of a marginal decline. The slowdown in bank credit was accompanied by a slight improvement in the quality of new corporate lending, suggesting greater caution in credit origination. Even so, signs of higher risk appetite persist in specific credit modalities, with credit cards continuing to post high growth rates.

The outlook for the next quarter points to continued restrictive credit supply conditions. The Quarterly Credit Conditions Survey (PTC) indicates that conditions are expected to become even more restrictive for corporate credit, especially for large companies, and for household credit in the second half of 2026.

Risk materialization increased in both household and corporate credit and is expected to remain under pressure in the short term. For households, problem assets (PAs) increased across all credit modalities. Delinquency remains the main driver of this increase and would have risen even under a hypothetical scenario in which financial institutions' charge-off policies had not changed in 2025. Looking ahead, the probability of default (PD) estimates indicate that this upward trend is likely to persist for

13 Throughout this section, whenever we refer to bank credit or credit portfolio, we mean the domestic bank credit portfolio.

14 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).

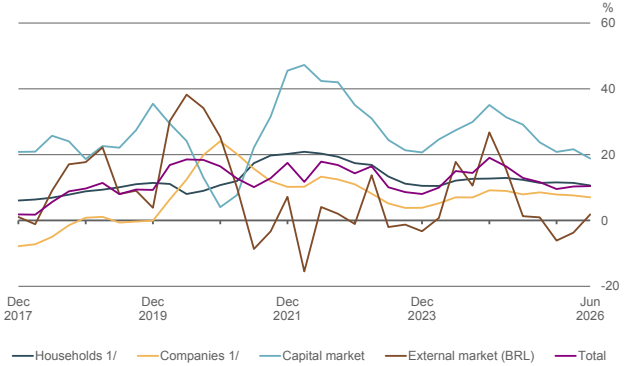
most household credit modalities. In corporate credit, risk materialization increased across most company sizes, and PDs remained elevated, particularly among micro, small, and medium-sized enterprises (MSMEs).

At the aggregate level, provisions constituted by financial institutions remain consistent with expected losses in the credit portfolio and with minimum regulatory requirements. The increase in risk, reflected in higher levels of PAs and PDs, led to higher expected losses in both household and corporate portfolios. This increase was accompanied by an expansion of provisions, preserving the overall level of coverage in the financial system. Although there are isolated cases of provisions below the expected-loss ranges estimated by the BCB, most institutions have capitalization levels sufficient to absorb potential adjustments.

Broad credit and its long-term trend

Broad credit continued to decelerate. Year-on-year growth in broad credit was 10.4% in June 2026, compared with 12.9% in June 2025. Bank credit to firms and households continued to ease slightly over the year, while capital markets decelerated more sharply since the beginning of 2025. External market debt, after a sharp slowdown in December 2025, resumed growth in June 2026 (Chart 1.2.2.1). Despite the deceleration, the main capital market instruments grew faster than bank credit portfolios to households and firms (Charts 1.2.2.1 and 1.2.2.2 and Table 1.2.2.1). Thus, capital markets continue to record relevant growth, absorbing part of large corporations' credit demand through the issuance of debentures and commercial notes, as well as part of rural credit through the issuance of Rural Product Notes (CPRs). This growth takes place in a heated market, marked by an expansion in the number of issuers and compression of spreads.

Chart 1.2.2.1 – Broad credit
Year over year growth



1/ Bank credit

Chart 1.2.2.2 – Capital market
By instrument

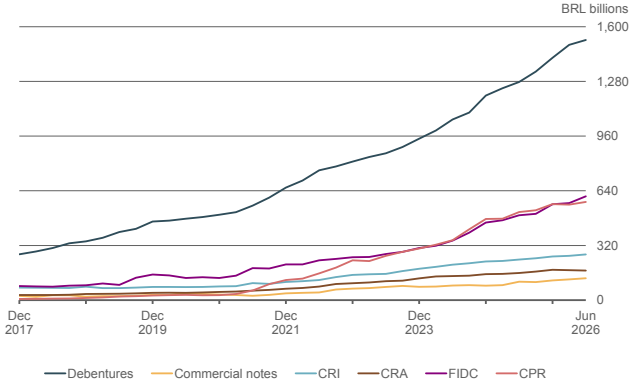


Table 1.2.2.1 – Capital market
By instrument

Instrument	Outstanding balance (BRL billions) Jun 2026	%	Δ12 m Jun 2026	Δ pp Jun 2026 vs Dec 2025
Debentures	1,522	44	19.3%	0.8 pp
FIDC	608	18	22.3%	-1.3 pp
CPR	575	17	11.5%	-6.8 pp
CRI	268	8	12.6%	-0.2 pp
CRA	173	5	9.0%	-7.5 pp
CCB without co-obligation	149	4	69.6%	-12.2 pp
Commercial notes	129	4	19.3%	-16.7 pp
Total	3,424	100	18.8%	-2.0 pp

The broad credit gap declined in the first half of 2026. This outcome mainly reflects lower contributions from capital markets and the household credit portfolio (Chart 1.2.2.3). Even as credit growth

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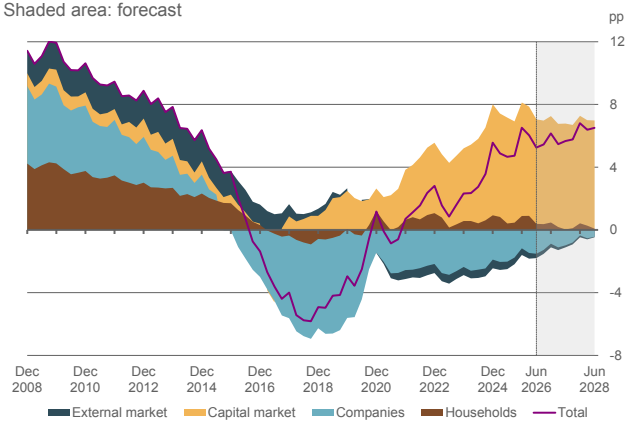
eases, the broad credit gap is likely to continue on a slight upward trajectory for a prolonged period, reflecting a resilient capital market.[15]

Chart 1.2.2.3 – Broad credit-to-GDP gap
Shaded area: forecast

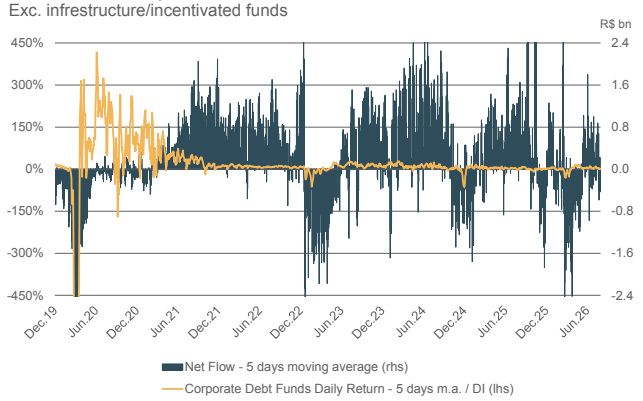


Companies

The capital market remains the largest contributor to the growth of the broad credit-to-GDP gap, and securitization instruments present several challenges for regulators, supervisors, and markets. Credit Rights Investment Funds (FIDCs) and Certificates of Receivables have shown steady growth and make up the portfolio of financial intermediaries such as funds and financial institutions (FIs) but still present some relevant information gaps that hinder the identification of risks associated with these instruments. The BCB and the Comissão de Valores Mobiliários (CVM) have maintained ongoing discussions aimed at improving the regulatory framework.

Corporate debt funds continue to finance companies, even with greater volatility between net inflows and outflows. Investment funds, or more specifically corporate debt funds,[16] are important holders of domestic corporate debt. Widening and narrowing spread movements starting from October 2025 and default events in the first half of 2026 led to fluctuations in returns and aggregate inflows of these funds (Chart 1.2.2.4), reducing the volume of resources available for the acquisition of new securities.

Chart 1.2.2.4 – Corporate debt funds return and net flow
Exc. infrestructure/incentivated funds



Sources: BCB, CVM

The companies' debt-servicing capacity has proven resilient, despite the continuation of tight financial conditions. The median Net Debt-to-EBITDA and Interest Coverage Ratio (ICR) indicators remained broadly stable over the past six months (Chart 1.2.2.5), suggesting no relevant deterioration for most companies, especially larger ones. This resilience reflects, in part, the still favorable performance of corporate revenues. However, median indicators do not rule out difficulties in specific groups of companies. An increase was observed in the number of companies with declining net income and rising net financial expenses, while the ICR remained below the levels seen in previous years, indicating narrower safety margins for debt service payments. In this context, some companies continued to face financial constraints and resorted to judicial reorganization proceedings.

15 As discussed in previous editions of the REF, although the broad credit-to-GDP gap is the reference indicator proposed by the BCBS to support ACCP decisions, BCBS itself does not advocate its mechanical use due to a number of limitations inherent in the metric.

16 Corporate debt funds are defined as fixed income financial investment funds governed by Resolution CVM 175, of December 22, 2022, that have the expression "private credit" in their names and that possess more than 50% of the portfolios composed of corporate debt securities (such as debentures, promissory notes, commercial papers, export notes, CCB, CPR, WA, NCA, CDA and CDCA) and FI term deposits and other securities issued by FI.

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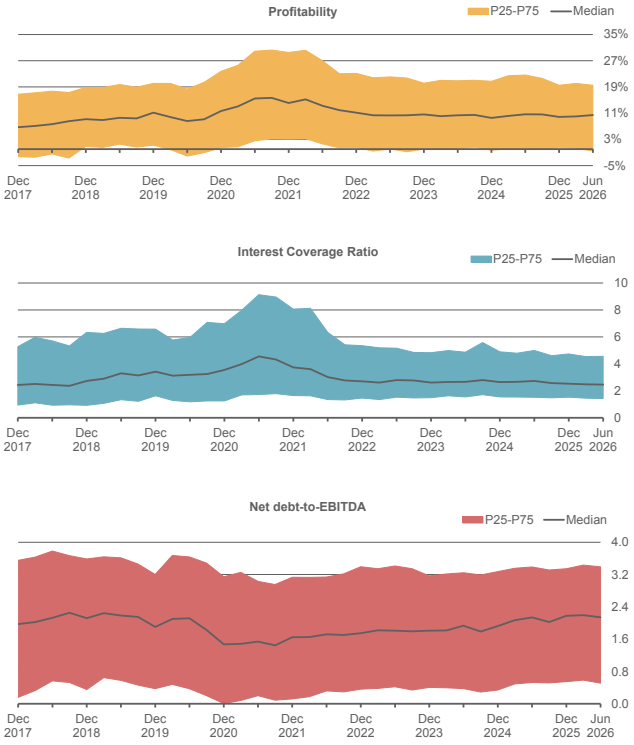
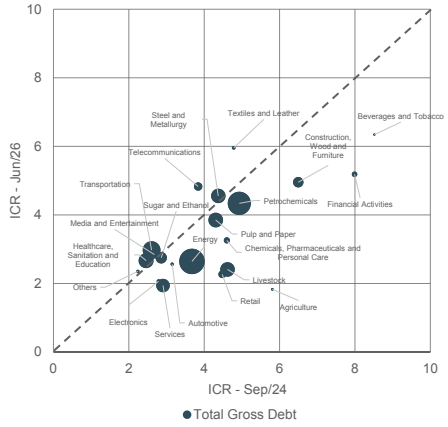
Chart 1.2.2.5 – Financial-economic indicators (medians and interquartile range)
Publicly traded companies



Source: Economatica, with the BCB's own methodology

Most companies continue to show resilience, although signs of pressure on payment capacity have widened in some sectors. The comparison with the beginning of the period of tighter financial conditions, in September 2024, reveals a heterogeneous evolution of sector-level interest coverage indicators. Despite the deterioration in certain segments, especially among sectors more sensitive to funding costs, most companies continue to show ICR at adequate levels (Chart 1.2.2.6). The recent cuts in the policy rate have not yet produced relevant effects on aggregate indicators of corporate payment capacity, which continue to reflect the restrictive financial environment observed in previous periods.

Chart 1.2.2.6 – Interest Coverage Ratio
Sep/2024 vs. Jun/2026



Bank credit to companies continued to slow down, especially for MSMEs. The growth of the MSME portfolio declined over the past six months, in line with the moderation in economic activity and with more restrictive credit conditions (Chart 1.2.2.7). Among smaller companies, credit incentive programs continued to account for a relevant share of new loans, notably the Emergency Credit Access Program (PEAC-FGI) and the National Support Program for Microenterprises and Small Businesses (Pronampe). The slowdown was accompanied by a gradual improvement in the credit quality indicators for new loans, consistent with greater caution by FIs in credit origination, in line with Comef's guidance (Chart 1.2.2.8). Prospectively, the PTC[17] indicates that more restrictive supply conditions will persist for credit to companies, in an environment characterized by persistently high credit risk levels and signs of weakening payment capacity among companies.

17 See *Pesquisa Trimestral de Condições de Crédito – Resultados de junho 2026*, available at https://www.bcb.gov.br/content/publicacoes/ptc/202606/RelatorioPTC-Junho2026.pdf.

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Chart 1.2.2.7 – Bank credit
Year-over-year Growth – By Company Size

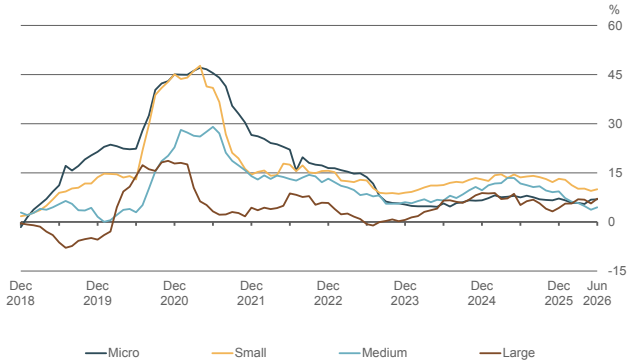
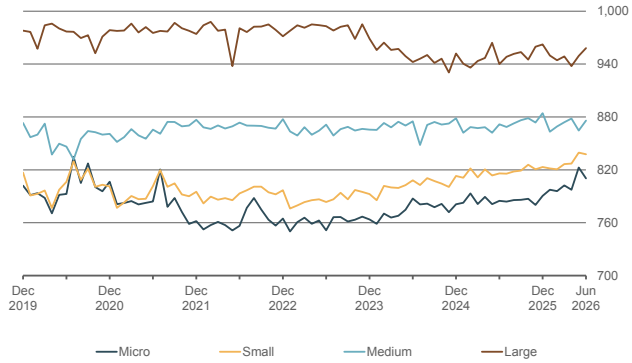


Chart 1.2.2.8 – Credit granting average score
By Company Size



Credit risk materialization in the corporate credit portfolio increased, while new loans showed improved quality. The level of problem assets (PA) rose across most company size segments over the past six months, mainly due to higher delinquency, as a result of greater pressure on payment capacity (Chart 1.2.2.9). PDs[18,19] remained elevated across all firm sizes, especially among MSMEs (Chart 1.2.2.10). From a forward-looking perspective, the improvement in the quality of newly originated credit in the most recent vintages is not expected to be sufficient to change the risk materialization trajectory in the short term. Risk materialization in the corporate credit portfolio is expected to remain elevated in the coming quarters, especially among smaller companies.

18 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 migration to PA status). 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 an estimate unconditional on the economic cycle and, by construction, depends on the recent performance of portfolios with the same risk profile.

19 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.

Chart 1.2.2.9 – Problem Assets
Companies

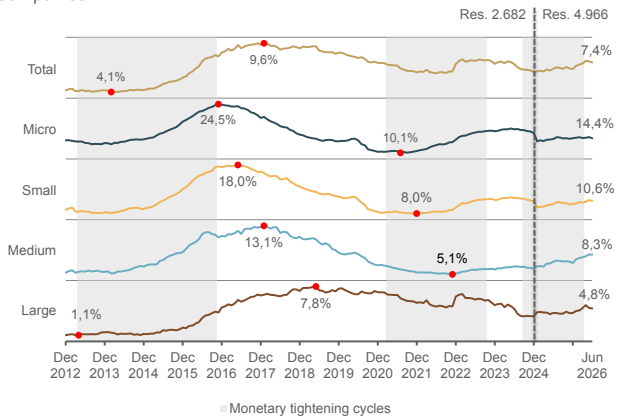
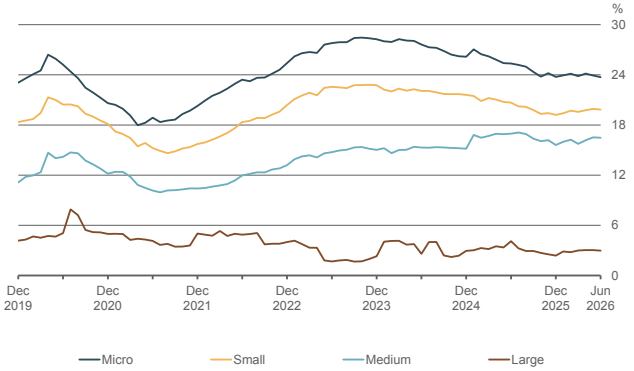


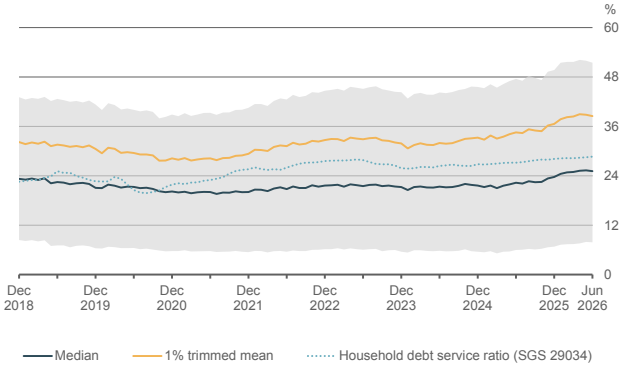
Chart 1.2.2.10 – Credit outstanding – Probability of default
Performing loans – By Company Size



Households

Household payment capacity remains challenging, with the debt service-to-income ratio at a historical high and a growing share of more expensive credit modalities. Despite a heated labor market, with declining unemployment and growth in average wages, the individual debt service-to-income ratio (DSTI)[20] of credit borrowers increased again in the first half of 2026 (Chart 1.2.2.11), with a greater impact on lower-income borrowers (Chart 1.2.2.12). Households used the increase in disposable income to raise their indebtedness, with greater demand for more expensive modalities, such as credit cards and non-payroll deducted loans. The use of higher-cost credit and riskier modalities is expected to keep the DSTI under pressure (Chart 1.2.2.13). As with the DSTI, the individual debt-to-income ratio of credit borrowers increased in the first half of 2026 (Chart 1.2.2.14).[21,22]

Chart 1.2.2.11 – 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 1.2.2.12 – Individual debt service-to-income ratio
1% trimmed mean – By income bracket – Seasonally adjusted

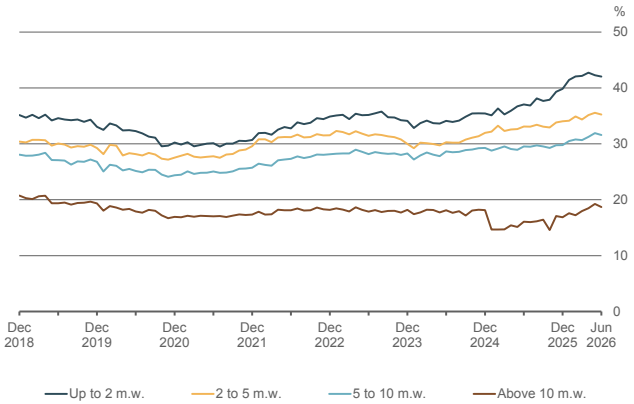
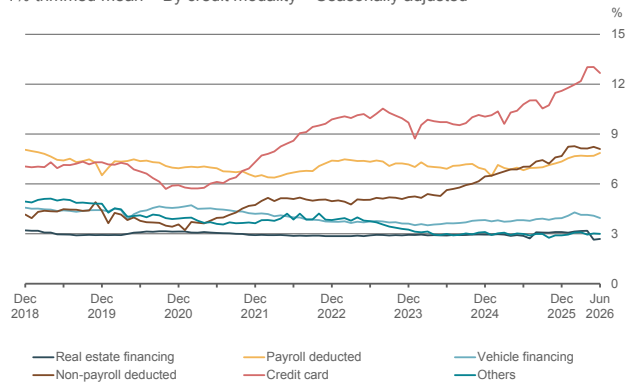


Chart 1.2.2.13 – Individual debt service-to-income ratio
1% trimmed mean – By credit modality – Seasonally adjusted

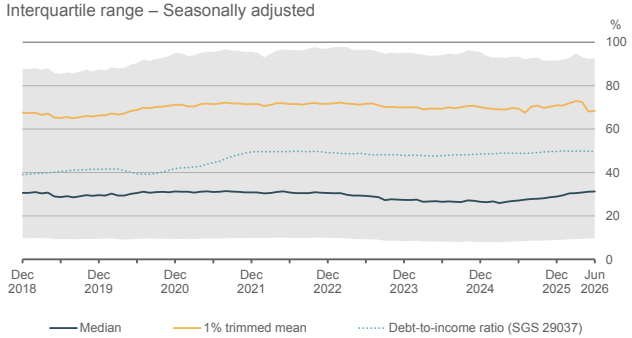


20 As set out in Selected Topic 2.2 – *Household debt-to-income and debt service-to-income ratios* – from the October 2021 FSR, debt service-to-income (DSTI) metrics can be calculated either for households as a whole (in aggregate terms) or individually, based on data for each credit borrower. The aggregate calculation compares total debt service with restricted Gross Disposable Household Income (see Time Series 29034). With respect to the individually calculated metric, see the *Concepts and Methodologies* annex. For a better understanding of the difference between the metrics, see notes 1 and 2 to Chart 1.2.2.11.

21 Break in the 1% trimmed mean series in May 2026 owing to the reclassification of income for a significant share of credit borrowers. For the individual debt-to-income ratio methodology, see notes 1 and 2 to Chart 1.2.2.14.

22 See Selected Topic 2.2 – *Household indebtedness and financial stability.*

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

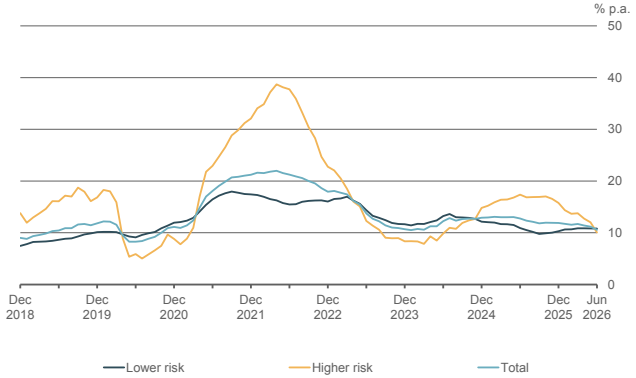


1/ The interquartile range, the median and the 1% trimmed mean refer to data of the distribution of measures of the individualized debt-to-income of SFN borrowers. For this individualized calculation, all credit of individuals are considered, except rural and corporate operations. The amount of these 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 accumulated in the last 12 months.

Financial institutions have shown signs of reduced risk appetite, with a marked slowdown in higher-risk modalities in the first half of 2026, while lower-risk modalities maintained stable growth (Chart 1.2.2.15). Despite this movement, credit cards continue to show high growth rates. In payroll-deducted loans, recent growth has been driven mainly by private payroll-deducted lending.[23] Due to the environment of high indebtedness and high DSTI,[24] the PTC indicates that FIs have shown greater restraint in the supply of credit to households. Overall, the expectation is for tighter conditions in the second half of 2026.[25]

Chart 1.2.2.15 – Bank credit – Year over year growth
By modality group



Risk materialization increased and is expected to remain under pressure in the short term. PA increased across all modalities during the first half of 2026 (Chart 1.2.2.16). Delinquency continues to be the main factor behind this increase and would have risen even in a hypothetical scenario in which financial institutions' write-off practices had not changed in 2025.[26] Risk materialization increased in all segments except the digital segment (Chart 1.2.2.17). Prospectively, PD estimates (Chart 1.2.2.18) suggest that PA is likely to remain elevated for most modalities throughout 2026.

Chart 1.2.2.16 – Problem assets
By credit modality

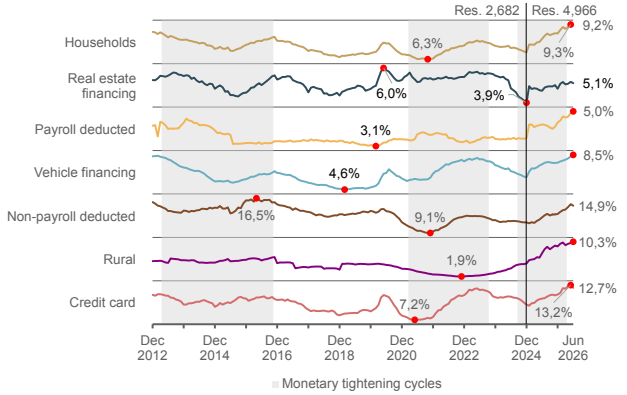
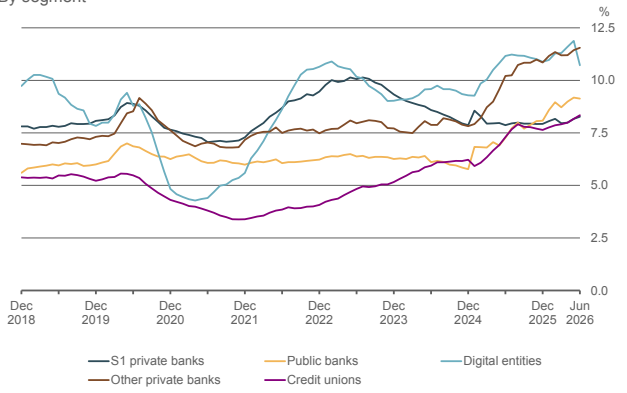


Chart 1.2.2.17 – Problem assets
By segment



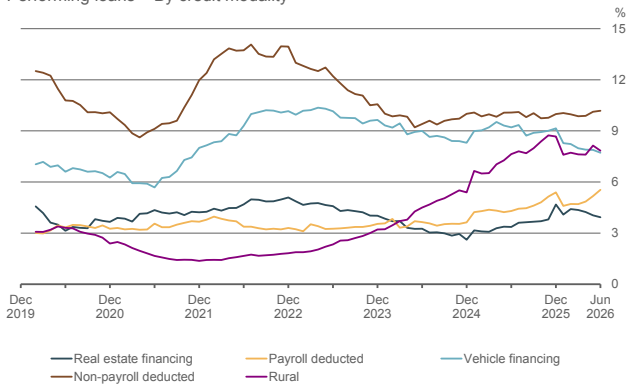
23 See Selected Topic 2.1 – *Private payroll-deducted loans.*

24 See Selected Topic 2.3 – *Developing more sustainable conditions for the responsible supply of credit in Brazil.*

25 See "PTC – Resultados de junho de 2026", available at https://www.bcb.gov.br/content/publicacoes/ptc/202606/RelatorioPTC-Junho2026.pdf.

26 See box *Delinquency: effects of the new write-off dynamics.*

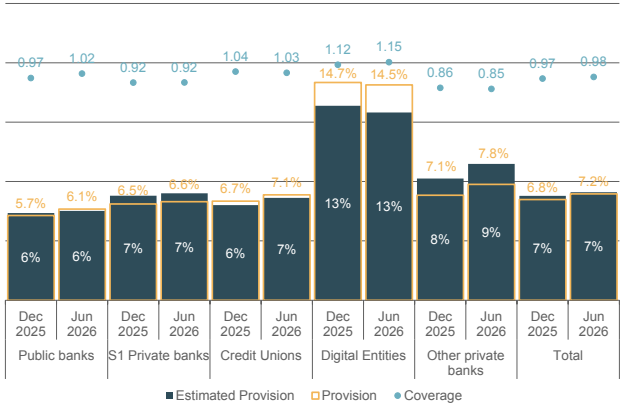
Chart 1.2.2.18 – Credit outstanding probability of default
Performing loans – By credit modality



Provisions for credit losses

Provisions remained in line with expected credit loss estimates. The increase in the risk of the credit portfolio – reflected in high levels of problem assets and Probability of Default (PD) – led to a rise in expected losses in both the household and corporate portfolios.[27] To absorb the higher expected losses, financial institutions increased their provisioning levels, while maintaining overall coverage ratios stable across the National Financial System (SFN) (Chart 1.2.2.19). At the individual level, some institutions report provisioning numbers below the expected loss ranges estimated by the BCB. Nevertheless, in most cases, capital buffers are sufficient to absorb potential additional provisioning needs.[28]

Chart 1.2.2.19 – Expected Loss and Provision
By segment



27 The current scope of the BCB's expected loss estimates encompasses domestic credit operations and non-cancelable undisbursed credit commitments. Credit card and overdraft facilities granted to households, credit limits, guarantees provided, debt securities, and other financial assets subject to expected credit loss provisioning are not included in the scope.

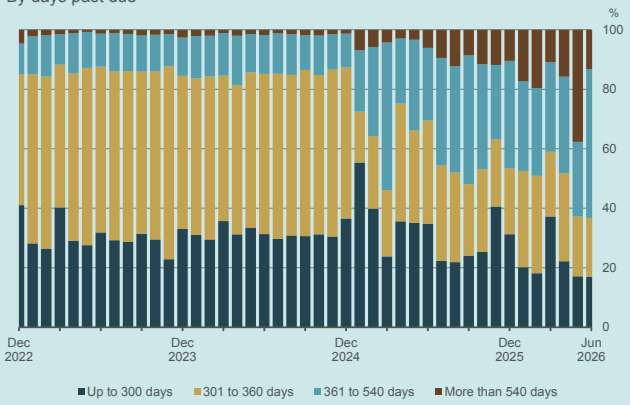
28 Expected losses are generated using econometric models and therefore constitute a statistical estimate rather than a deterministic calculation. Accordingly, the analyses are based on ranges of expected loss coverage by provisions, rather than on specific levels.

Box 2 – Delinquency, effects of the new write-off dynamics

With the entry into force of Resolution CMN 4,966, of November 25, 2021, at the beginning of 2025, financial institutions (FIs) began defining the criteria used to determine when to write off credit as a loss, affecting delinquency indicators for credit portfolios.[29] The previous regulation required an operation to be written off six months after being classified at risk level H. In line with *International Financial Reporting Standard* 9, the current regulation adopts a less prescriptive criterion for writing off financial assets, providing for write-off when there is no reasonable expectation of recovery.

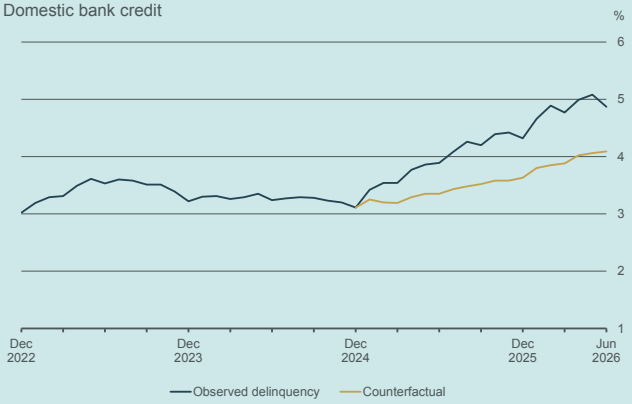
The pattern of write-offs changed significantly from 2025 onward. Until December 2024, the distribution of amounts written off remained relatively stable and concentrated in the 301-to-360-days-past-due range. From 2025 onward, the distribution gradually shifted toward longer periods past due (Chart 1.2.2.20). This change reflects the shift in FIs' policies and indicates that past-due operations remain on their balance sheets for longer, contributing to the observed increase in delinquency.

Chart 1.2.2.20 – Distribution of write-offs
By days past due



The results of the counterfactual exercise[30] **indicate, however, that delinquency would also have increased in the absence of regulatory changes.** It is estimated that, in June 2026, the National Financial System's (SFN) delinquency rate would have been 0.78 percentage points lower if the write-off criteria in effect through 2024 had been maintained. This effect represents approximately 45% of the 1.76 percentage point increase observed since December 2024 (Chart 1.2.2.21.a). Similar patterns are observed in household and corporate portfolios (Charts 1.2.2.21.b and 1.2.2.21.c).

Chart 1.2.2.21.a – Delinquency
Domestic bank credit



29 For details, see the boxes "Impact on the delinquency rate resulting from the new accounting rules for financial instruments," included in the September 2025 Monetary Policy Report, and "Change in the proxy for problem assets," included in the November 2025 Financial Stability Report.

30 See Table 1.2.2.2 in the Statistical Annex.

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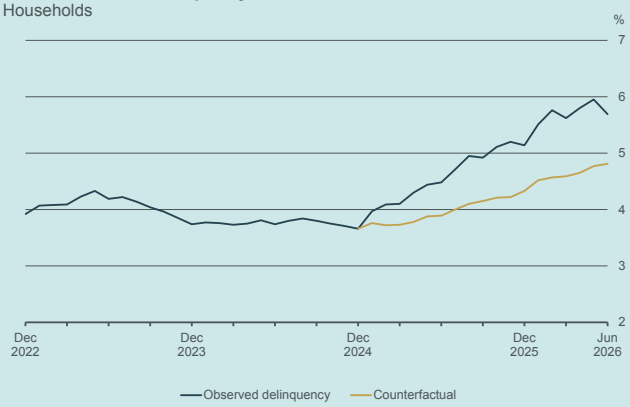
Chart 1.2.2.21.b – Delinquency
Households



The effect of the regulatory change on the change in delinquency is likely to diminish over time. Considering the cumulative 12-month change in delinquency in domestic bank credit, the observed series increased by 25%, while the counterfactual series increased by 22% (Chart 1.2.2.22.a). Household and corporate portfolios show similar patterns (Charts 1.2.2.22.b and 1.2.2.22.c). The results suggest that the change in write-off criteria primarily affected the level of observed delinquency, with a more limited impact on its growth dynamics. However, significant policy changes by major FIs may lead to changes in observed delinquency.

Chart 1.2.2.22.b – Year over year delinquency growth
Households

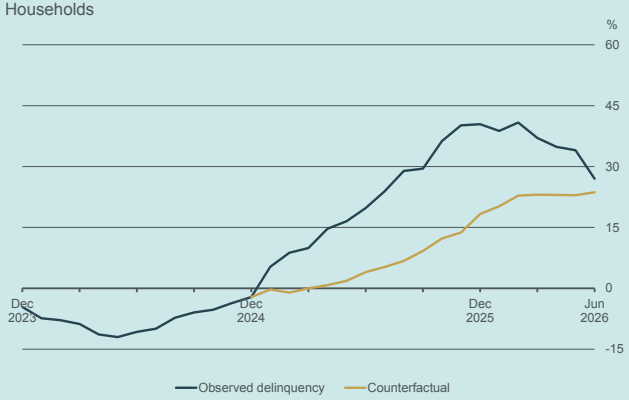


Chart 1.2.2.21.c – Delinquency
Companies

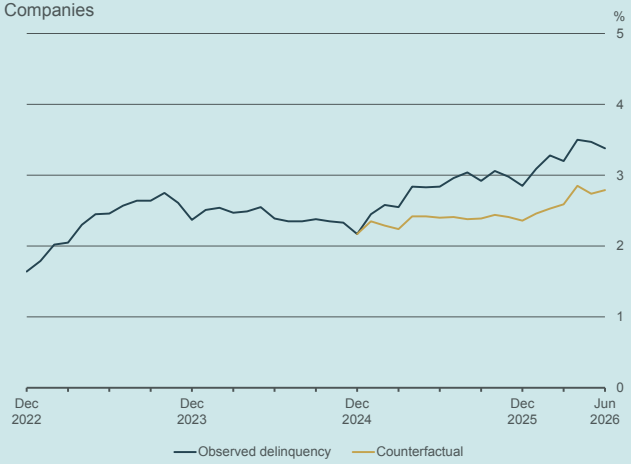


Chart 1.2.2.22.a – Year over year delinquency growth
Domestic bank credit

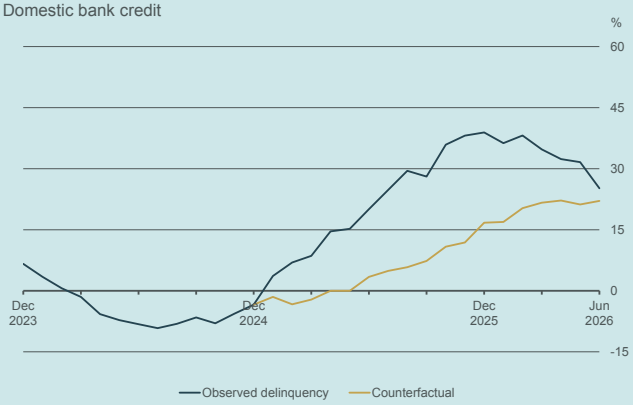
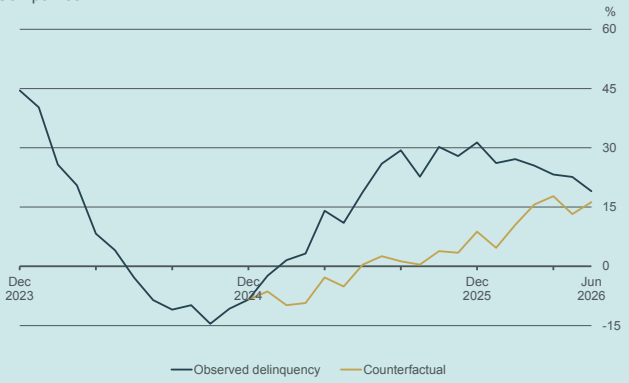


Chart 1.2.2.22.c – Year over year delinquency growth
Companies



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Box 3 – Individual debt service-to-income ratio

The individual debt service-to-income ratio (DSTI) has followed an upward trajectory, alongside an increase in the share of more expensive credit modalities for borrowers, especially those with lower incomes. These trends have been observed since December 2023 (Charts 1.2.2.11 and 1.2.2.13). Among lower-income borrowers, particularly those earning up to two minimum wages, the share of credit card and non-payroll deducted loans has increased even more sharply (Charts 1.2.2.23.a and 1.2.2.23.b).

Chart 1.2.2.23.a – Individual DSTI – credit card
By income bracket – Seasonally adjusted

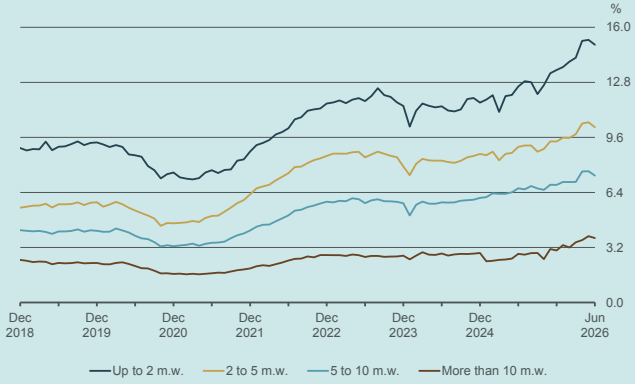
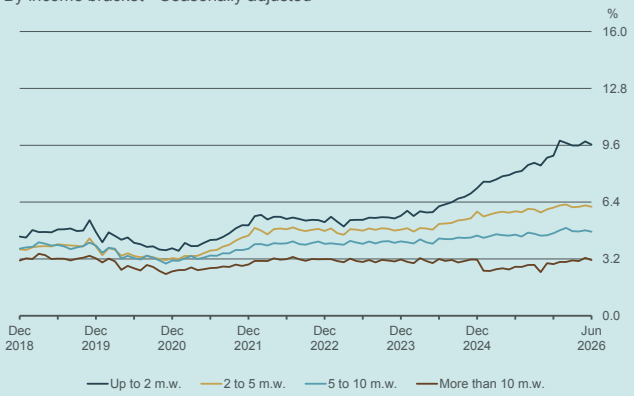
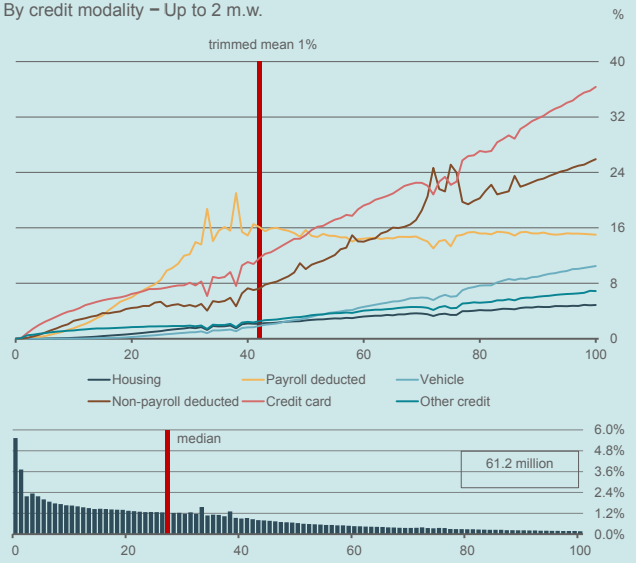


Chart 1.2.2.23.b – Individual DSTI – Non-payroll deducted
By income bracket – Seasonally adjusted



Credit cards and non-payroll deducted loans are the most significant contributors to higher DSTI levels. The composition of DSTI varies according to both income bracket and DSTI level.[31] As income increases, financing modalities such as vehicle and housing credit account for a larger share of the average DSTI. Regardless of income bracket, credit cards and non-payroll deducted loans are the most significant modalities for borrowers with higher DSTI. In other words, borrowers with limited payment capacity devote a large share of their income to payments on credit card and non-payroll deducted loan operations, across all income brackets.

Chart 1.2.2.24.a – DSTI decomposition by DSTI level
By credit modality – Up to 2 m.w.



31 Charts 1.2.2.24.a to 1.2.2.24.d show the composition by credit modality and the distribution of borrowers at each DSTI level, for each income bracket.

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Chart 1.2.2.24.b – DSTI decomposition by DSTI level
By credit modality – 2 to 5 m.w.

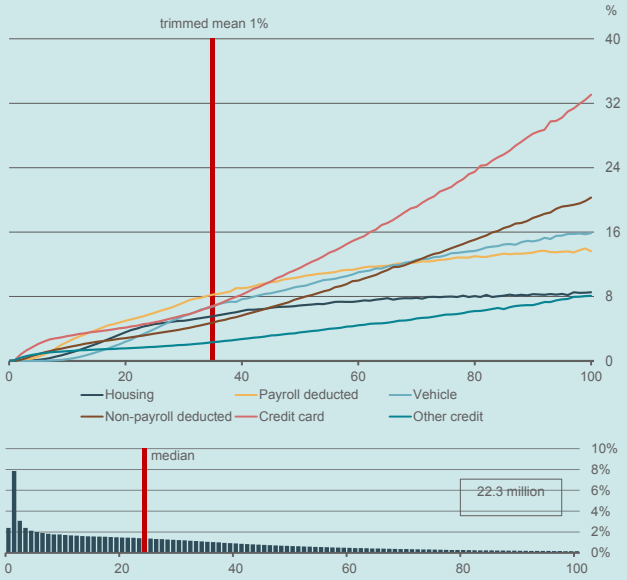


Chart 1.2.2.24.c – DSTI decomposition by DSTI level
By credit modality – 5 to 10 m.w.

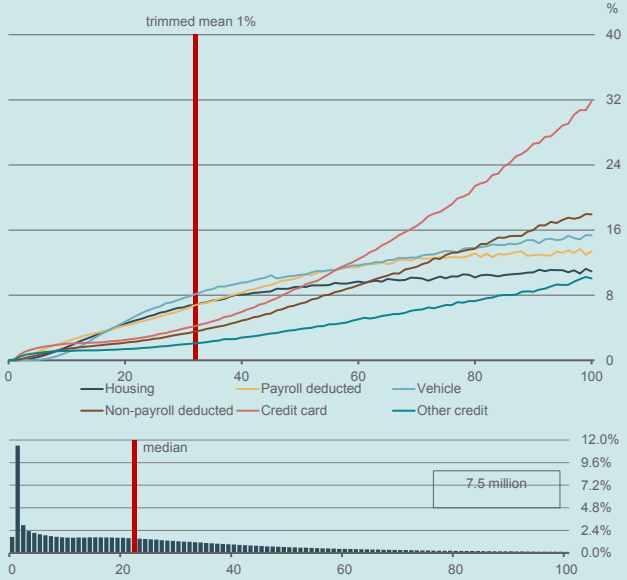
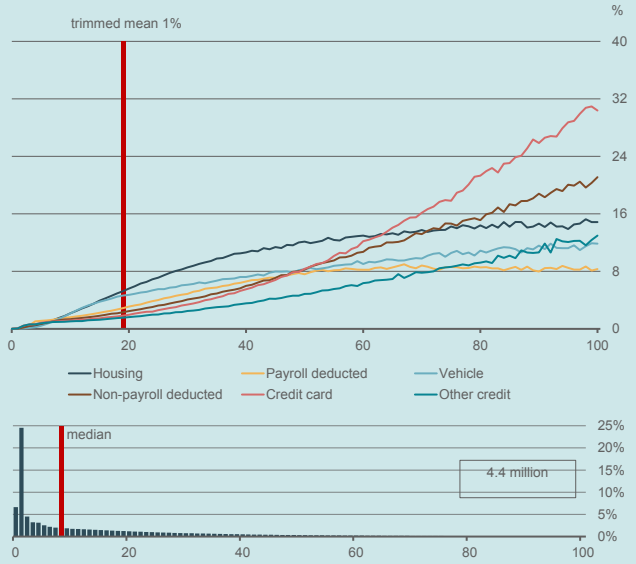
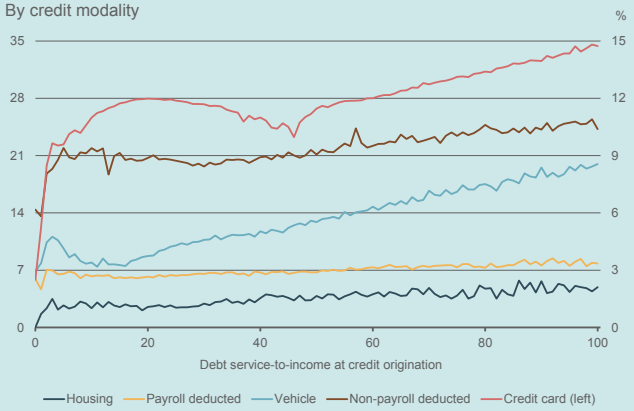


Chart 1.2.2.24.d – DSTI decomposition by DSTI level
By credit modality – More than 10 m.w.



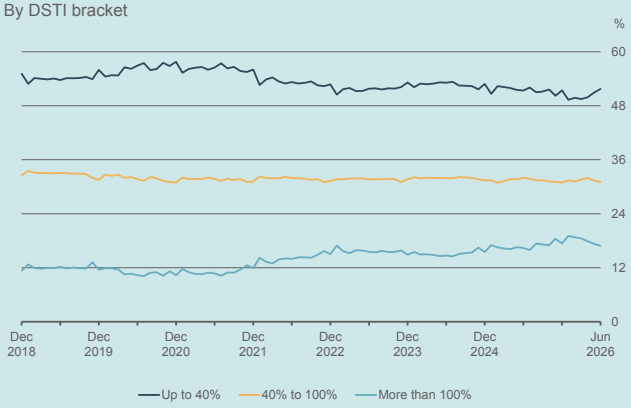
For the same DSTI level, risk materialization varies significantly across credit modalities.[32] While the risk associated with modalities such as housing and payroll-deducted loans is relatively insensitive to borrowers' DSTI at the time of origination, the risk associated with vehicle financing, non-payroll deducted loans (without guarantees), and credit cards (interest-bearing operations only) increases linearly, particularly at DSTI levels above 40%.

Chart 1.2.2.25 – PA cohort (%) by DSTI at origination
By credit modality



The share of the portfolio accounted for by borrowers with limited payment capacity has declined in recent months but remains at historically high levels. Borrowers with DSTI above 100% have accounted for an increasing share of the household credit portfolio (Chart 1.2.2.26). This increase took place in two phases: one in mid-2021 and another in mid-2024. Despite the decline in recent months, this share reached an all-time high in 2026 and remains elevated.

Chart 1.2.2.26 – Credit outstanding
By DSTI bracket



32 Chart 1.2.2.25 shows future risk materialization for each credit modality, measured over the 12 months following origination and based on borrowers' DSTI at the time of origination. A revolving credit card operation is considered originated when there is a balance on a revolving operation, or on an operation financed by the financial institution (FI) that originated as revolving credit, and the balance was zero on the immediately preceding reference date.

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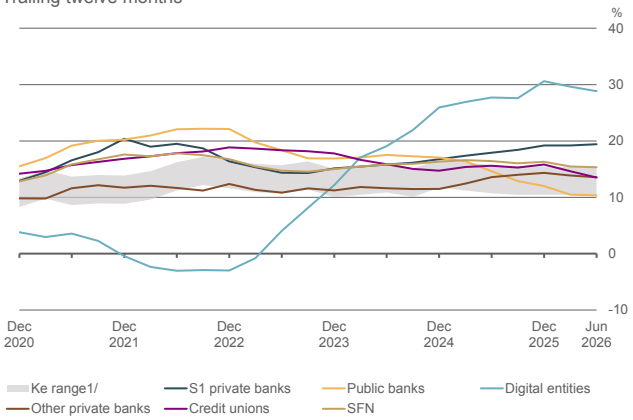
1.2.3 Profitability

The National Financial System (SFN)[33] remains profitable, supporting capital resilience; however, rising provision expenses have weighed on profitability. Throughout the first half of 2026, SFN profitability declined, mainly due to weaker results among public banks. The Credit Net Interest Margin (NIM) was under pressure from higher provision expenses, established to address a scenario of greater risk materialization, although this increase became less pronounced in the second quarter of 2026. The SFN's operational efficiency remained stable. Looking ahead, pressure on financial institutions' results is expected to persist amid greater credit risk materialization and a slowdown in bank credit growth, particularly in products with higher spreads.

Following a period of stability, the SFN's Return on Equity (RoE) declined in the first half of 2026 across all segments, except for the "S1 Private banks" segment. In this segment, stable provisioning expenses contributed to maintaining profitability (Chart 1.2.3.1). In the remaining segments, the decline in RoE was primarily driven by higher provision costs. The "Public banks" segment faced the greatest pressure on profitability, reflecting increased provisioning and credit risk materialization, particularly in rural and personal credit modalities.

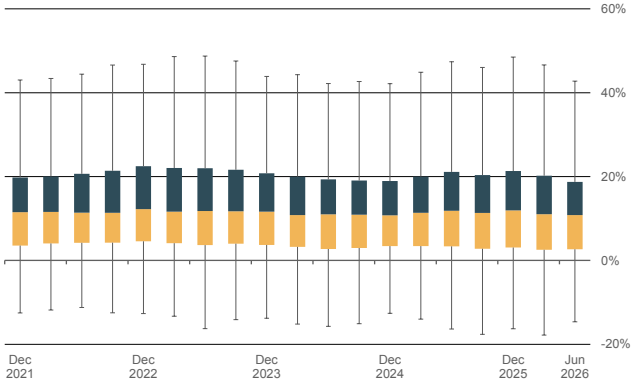
Chart 1.2.3.1 – ROE
Trailing twelve months



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

Although a significant share of SFN assets remains concentrated in profitable entities, profitability declined among institutions in the S1 segment. Institutions representing approximately 27% of total system assets moved to RoE levels below 10%. Profitability dispersion within the SFN remains high, reflecting, among other factors, the large number of institutions operating in the system, the variety of business models, and the different stages of business maturity across entities. Nevertheless, institutions with RoE above 10% continue to account for a significant share of total system assets, while loss-making institutions (negative RoE) represent around 1% of total SFN assets (Charts 1.2.3.2 and 1.2.3.3).

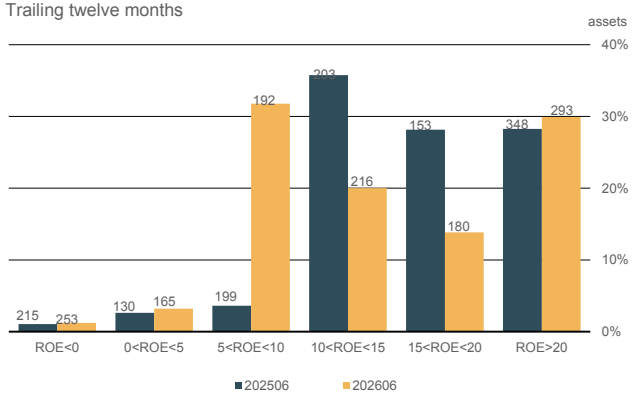
Chart 1.2.3.2 – ROE Dispersion[1/]
Trailing twelve months



1/ 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.

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

Chart 1.2.3.3 – ROE Frequency Distribution[1/]
Trailing twelve months



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

Chart 1.2.3.4 – Credit margin
Components
Trailing twelve months

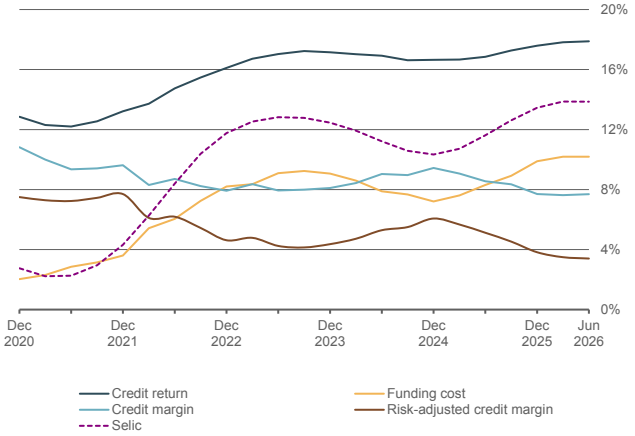
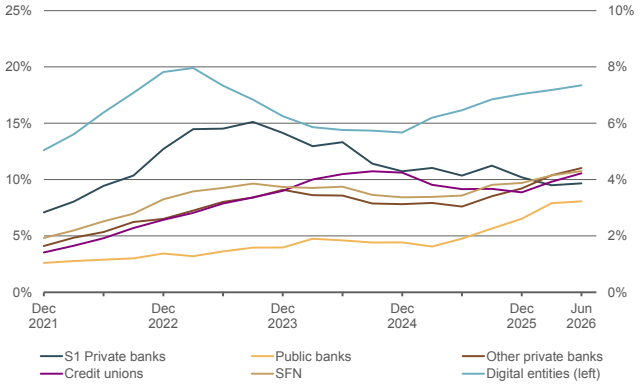


Chart 1.2.3.5 – Provisioning cost[1/]
Trailing twelve months



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

Credit NIM remains under pressure from provision expenses and still-elevated funding costs. In the first half of 2026, expected loss provisions increased across all segments, except for "S1 Private banks", weighing on the risk-adjusted credit margin (Chart 1.2.3.4). At the same time, the recent cycle of policy interest rate cuts allowed funding costs to stabilize, albeit at a still elevated level, leaving the SFN's credit margin broadly stable but under pressure. In this context, the ongoing downward trajectory in policy interest rates could provide some relief to credit margins.

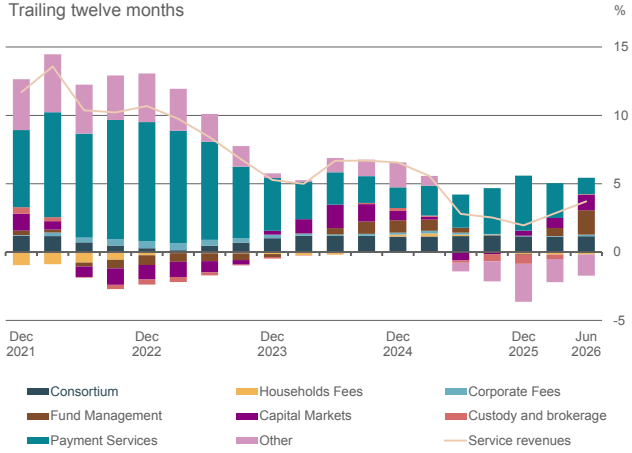
The SFN's provisioning costs[34] increased, reflecting expectations that risk materialization will remain elevated. Except for the "S1 Private banks" segment, all other segments recorded higher provisioning costs in the first half of 2026 (Chart 1.2.3.5). This movement suggests a broader dissemination of rising credit risk, particularly in higher-risk and higher-spread credit modalities, which have greater potential to increase borrowers' debt-service burden. In this context, it is worth noting that "Digital entities" segment recorded a large increase in provisions, reflecting its greater exposure to riskier credit modalities that are more sensitive to restrictive financial conditions.

Service revenues resumed growth following a period of deceleration. Growth in the first half of 2026 was supported mainly by higher fund management and capital markets revenues (Chart 1.2.3.6). Conversely, some revenue sources remain under pressure from structural factors, particularly the intensified competition in the payments market, which has affected fee and payment-services revenues. In addition, lower

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

collection-related revenues and other less significant revenue streams constrained the recovery in service revenue growth. Over the coming periods, the recovery in service revenue growth may not be sustained if economic activity moderates further.

Chart 1.2.3.6 – Service revenues
Annual growth and factor decomposition
Trailing twelve months



The SFN's operational efficiency[35] remained stable, reflecting a balance between operational results and administrative expenses. Throughout the first half of 2026, the system's operating income grew at a pace similar to that of administrative expenses. These expenses, in turn, slowed their expansion rate, particularly those related to personnel (Chart 1.2.3.7). In the "Digital entities" segment, the efficiency indicator stabilized after several periods of gains associated with operational leverage.[36] In the remaining segments, efficiency remained broadly stable (Chart 1.2.3.8).

Chart 1.2.3.7 – Administrative expenses
Annual growth and factor decomposition
Trailing twelve months

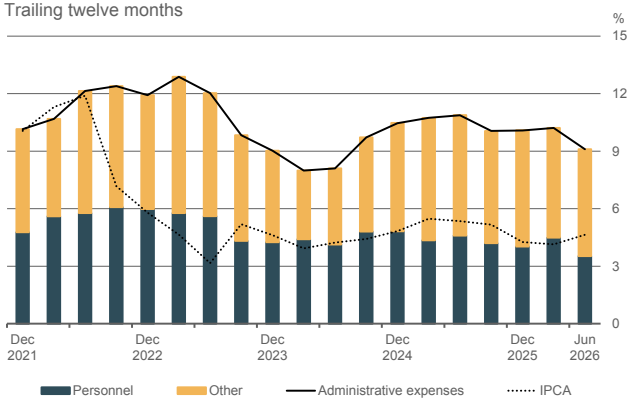
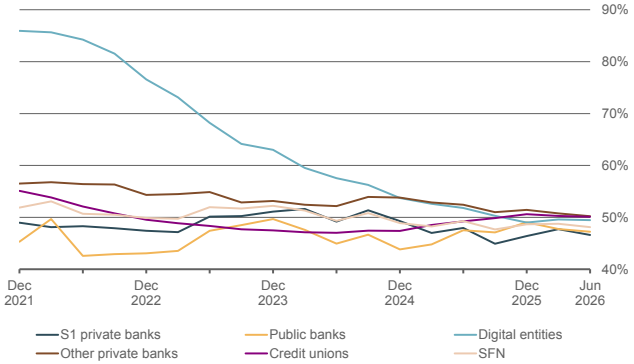


Chart 1.2.3.8 – Operational Efficiency Index[1/]
Trailing 12 months



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

1.2.4 Solvency

The National Financial System (SFN) remains sound and capable of ensuring the smooth functioning of financial intermediation. Aggregate capital ratios remained well above regulatory minimum requirements (Charts 1.2.4.1 and 1.2.4.2). The frequency distribution of the Regulatory Capital Adequacy Ratio[37] (RCAR) shows that more than half

35 The system's operational efficiency is measured by the Operational Efficiency Index (OEI), calculated by dividing administrative expenses by operational results, excluding the effects of provisioning expenses.

36 Operational leverage refers to the degree to which changes in revenues translate into amplified changes in profit, given the importance of fixed costs in an entity's results. The higher the operational leverage, the greater the impact of increases or decreases in revenues on the entity's results.

37 The RCAR is defined as the ratio between regulatory capital and total required regulatory capital, including the Common Equity Tier 1 capital buffer and Basel Pillar 2 requirements. The ratio allows for a joint analysis of institutions subject to different minimum regulatory capital requirements. For a detailed description of the capital requirements applicable to the various entities within the system, see the Concepts and Methodologies annex.

of the institutions hold capital exceeding twice the required level and that institutions with insufficient regulatory capital to meet prudential requirements[38] account for less than 1% of total system assets (Chart 1.2.4.3). Taken together, the system's substantial capital buffers and profitability support the assessment that solvency risk remains low and does not constitute a vulnerability to financial stability.

Chart 1.2.4.1 – Evolution of capital ratios

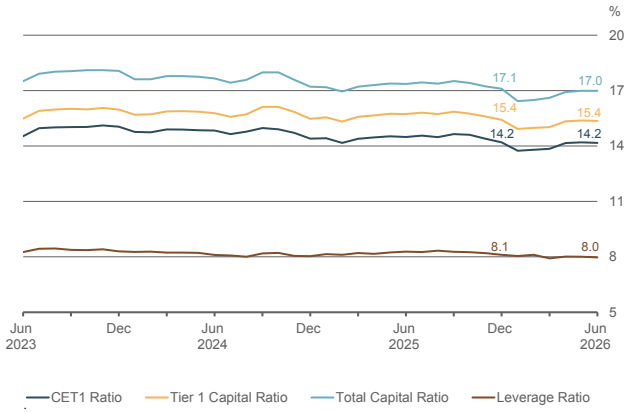
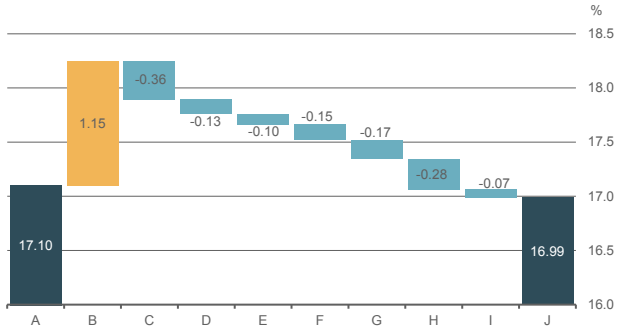
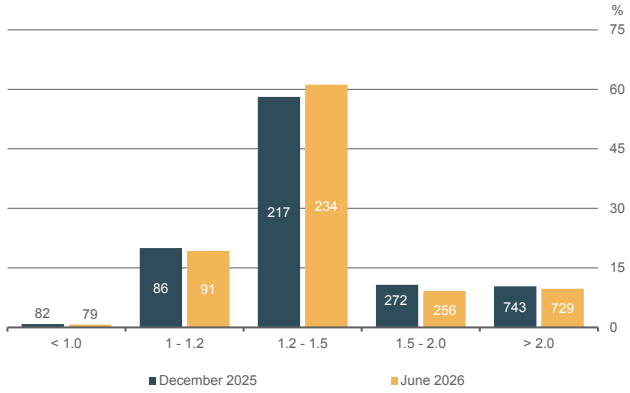


Chart 1.2.4.2 – Total Capital Ratio variation



A = Total Capital Ratio - Dec 2025
B = Half-year net profit
C = Paid-up capital and retained earnings
D = Prudential adjustments
E = RWA - Securities
F = RWA - Fixed assets and equity investments
G = Credit RWA - Others
H = Operational RWA
I = Others
J = Total Capital Ratio - Jun 2026

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



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

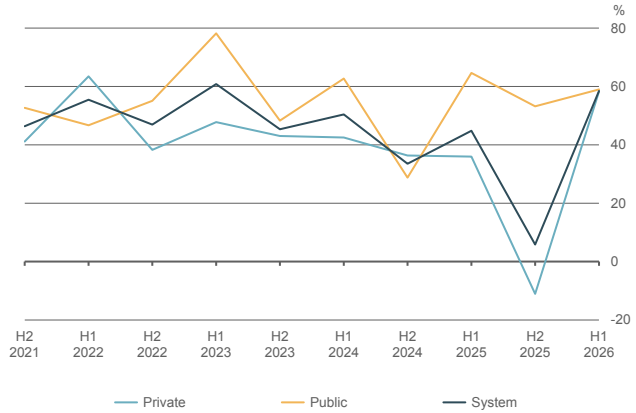
The slight decline in capital ratios during the half-year period was concentrated in January, reflecting regulatory changes that are currently being phased in, and was largely reversed over the course of the period through higher earnings retention. The various prudential regulations currently in their transition period[39] resulted in a 0.60 percentage point decline in the Total Capital Ratio in January 2026. In addition, there was a significant increase in prudential adjustments associated with deferred tax assets arising from tax loss. This impact was largely offset by lower capital distributions, reversing the downward trend in earnings retention observed over the previous five years, particularly in the second half of 2025 (Chart 1.2.4.4). As a result, the

38 Considering the requirements applicable to the other tiers of regulatory capital, the capital shortfall of 78 institutions, which together hold 0.7% of total system assets, amounts to BRL2.9 billion, corresponding to 0.16% of consolidated regulatory capital.

39 The regulations that had a material adverse effect on Total Capital Ratio, either by reducing regulatory capital or by increasing Risk-Weighted Assets (RWA), were: (i) the reduced recognition in capital of the amount reinstated following the negative adjustment to equity resulting from the recognition of expected credit loss provisions under the criteria established by Resolution CMN 4,966, of November 25, 2021, as provided for in Article 4, paragraph 9, of Resolution CMN 4,955, of October 21, 2021; (ii) the reduced recognition of constitutional funds eligible for Tier 2 Capital at public banks, in accordance with the phase-in schedule established in Article 31 of the same regulation; (iii) the progressive increase in the RWA component related to operational risk, resulting from the implementation of Resolution BCB 356, of November 30, 2023, pursuant to Article 19 of that regulation; and (iv) the application of a higher risk weight to equity exposures, in accordance with the phase-in schedule established in Article 85 of Resolution BCB 229, of May 16, 2022.

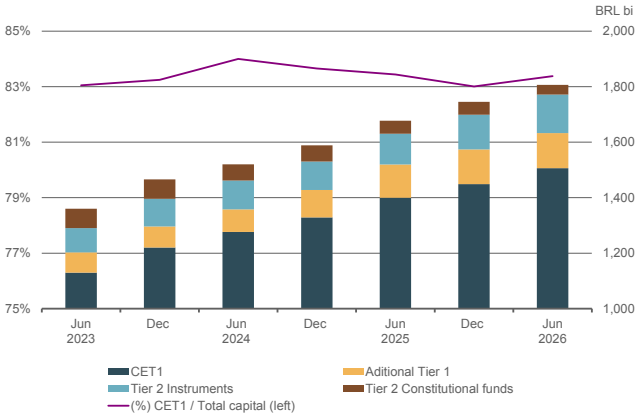
share of Common Equity Tier 1 capital in regulatory capital increased slightly (Chart 1.2.4.5).

Chart 1.2.4.4 – Profit retention by ownership[1/]



1/ Credit union surplus data were not included.

Chart 1.2.4.5 – Capital structure



The growth in the system's Risk-Weighted Assets (RWA) was driven by increases in the operational risk component and in credit risk exposures. Credit exposures increased, but their effect on RWA was mitigated by a decline in the average risk weight. As expected, the operational risk component increased its share of total RWA, mainly reflecting the gradual implementation of Resolution BCB 356, of November 28, 2023. The components associated with other risk types remained relatively stable at the aggregate level (Table 1.2.4.1).

Table 1.2.4.1 – RWA Composition

	System					Var. (%)	
BRL billion	Dec/25		jun/26		Var. (%)	Public	Private
Total RWA	10,206		10,634		4.2%	1.4%	5.6%
Credit RWA	8,346	81.8%	8,600	80.9%	3.1%	0.3%	4.6%
Credit-related operations[1]	5,460		5,496		0.7%	-0.1%	1.2%
Leasing	31		32		2.2%	5.1%	2.1%
Interbank investments	179		181		1.1%	-6.3%	2.9%
Securities	644		702		9.0%	-1.3%	11.7%
Derivatives	177		193		9.1%	-28.0%	11.7%
Fixed Assets	579		670		15.6%	11.5%	18.4%
Tax assets	542		538		-0.7%	-5.1%	1.8%
Guarantees provided	734		789		7.5%	0.3%	10.1%
Other	649	6.4%	643	6.0%	-0.9%	-7.3%	0.7%
Market RWA	1,115	10.9%	1,286	12.1%	15.4%	11.7%	17.7%
Operational RWA	97	1.0%	104	1.0%	7.6%	-4%	7.7%
Payment Services RWA							

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

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The new dynamics of deferred tax assets (DTAs) realization is expected to improve capital quality, while exerting moderate downward pressure on the system's capital ratios. Law No. 14,467 of November 16, 2022, changed the tax treatment of credit loss expenses for purposes of calculating taxable income and the tax base for the Social Contribution on Net Profit. Tax deductibility is now based on loan delinquency, bringing it closer to the accounting criteria for minimum loan-loss provisioning. Beginning in January 2026, the stock of DTAs related to expected-loss provisions on past-due exposures accumulated through 2025 became deductible at a monthly rate of 1/84 or 1/120, depending on the framework adopted by the institution[40] which, together with current losses arising from risk materialization, increases the flow of deductible expenses. For institutions whose taxable income is insufficient to absorb these deductions, DTAs arising from tax loss are recognized and fully deducted from regulatory capital, explaining the increase in prudential adjustments observed in the first half of 2026. Although some institutions may be able to reduce their RWA without a corresponding reduction in capital, the continuation of this process over the coming years is expected to contribute to a decline in consolidated capital ratios. At the same time, the capital base is expected to become less dependent on DTAs, resulting in a higher-quality capital composition.

Despite the measures adopted in recent months to comply with the new minimum capital requirements, a significant number of institutions with a small share of the SFN's assets may not meet the required minimum levels within the prescribed timelines. As discussed in Box 2 of the previous report, Joint Resolution 14, of November 4, 2025, introduced substantial increases in the minimum requirements for paid-in capital and adjusted net worth. For institutions already operating when the resolution was issued, the new thresholds will be phased in gradually between July 2026 and January 2028. Against this backdrop, the BCB has received a higher volume of applications for capital increases, transfers of control, and mergers in recent months. These initiatives have reduced the number of institutions projected to fall short of the requirements, particularly over the near-term horizon. Based on capital levels observed in June 2026, an estimated 242 institutions may fail to meet the individual requirements scheduled to take effect in the following month (Table 1.2.4.2), down from the 339 institutions reported in December 2025. Institutions with projected capital shortfalls account for only a small share of the SFN's assets; consequently, the estimated shortfall of BRL585 million represents just 0.03% of consolidated regulatory capital. The transition period provides these institutions with time to comply with the new requirements, while supervisory authorities monitor progress and take the measures deemed appropriate within the scope of their responsibilities.

40 Paragraph 5 of Article 74-F of RFB Normative Instruction No. 2,281 of September 15, 2025 allows, in the event of loan recovery, the immediate deduction of the remaining undeducted installments, provided that the recovered amounts are included in the taxable base. This alternative may accelerate the utilization of the DTA stock at institutions with sufficient taxable income, but it also increases the likelihood of recognizing DTAs arising from tax loss at institutions with a limited tax base and requires individual tracking of exposures to support the corresponding deductions.

Table 1.2.4.2 – Estimated non-compliance with minimum capital by segment

Segment	Number of FIs	Non-Compliant jul/26	Non Compliant (%)	Shortfall (BRL million)
Consortium Administrator	124	29	23.4%	18.3
Commercial Bank	14	1	7.1%	4.3
Foreign Commercial Bank Branch in Brazil	4	1	25.0%	14.3
Multiple-Purpose Bank	128	2	1.6%	12.2
Service Confederation	2	1	50.0%	1.9
Credit Unions	758	20	2.6%	40.0
Foreign Exchange Broker	51	20	39.2%	25.6
Securities Broker	59	9	15.3%	45.7
Microcredit Company	22	10	45.5%	25.5
Direct Credit Company	142	53	37.3%	108.1
Finance Company	79	5	6.3%	22.3
Peer-to Peer Lending Company	12	7	58.3%	14.3
Securities Dealer	106	28	26.4%	54.7
Payment Institutions	207	56	27.1%	197.2
Total	**1708**	**242**	**14.2%**	**584.5**

The system's capital position remains consistent with continued credit growth and with the absorption of the effects of ongoing regulatory changes. Aggregate capital ratios remain sufficient to absorb the expected impact of the various regulations still being phased in, as well as the new DTA realization framework, although some institutions may require additional capital or adjustments to their exposures. The system's consolidated capital surplus,[41] amounting to BRL525 billion and equivalent to 29% of total regulatory capital, provides substantial capacity for further credit expansion without the need, at the aggregate level, for additional capital injections to meet prudential requirements.

41 For each institution, the capital surplus corresponds to the lower of the excess capital observed relative to prudential requirements based on risk-weighted assets (RWA) and those based on the leverage exposure measure.

1.2.5 Stress tests

Stress tests[42] 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[43] 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.

Macroeconomic stress test

Macroeconomic stress tests comprise two sets of analyses. The solvency stress test is a dynamic exercise which projects banks' balance sheet data, subject to macroeconomic shocks pertaining to predetermined scenarios triggering multiple risk factors, simultaneously. Sensitivity analyses complement the stress test framework.

42 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.

43 A bank is considered non-compliant if any of the three capital adequacy indices are not met: Total Capital Ratio (TCR), Tier 1 (IPR1) and Common Equity Tier 1 (ICP).

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Box 4 – Description of the scenarios used in the macroeconomic stress test[44]

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 2026 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 significantly decline, and a slow recovery would follow, so that mid-2026 GDP levels would be recovered in 2028. 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, 2026. 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 occurred 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, 2027 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.

44 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.

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Chart 1.2.5.1 – Inflation

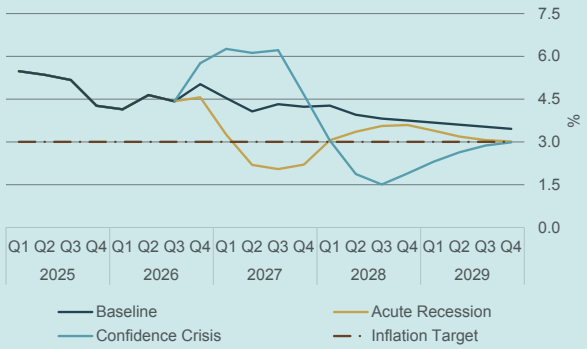


Chart 1.2.5.2 – Exchange Rate

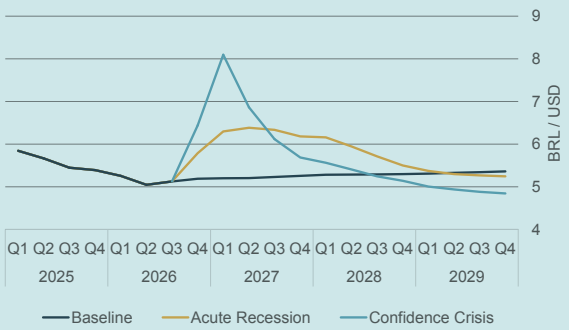


Chart 1.2.5.3 – GDP Change

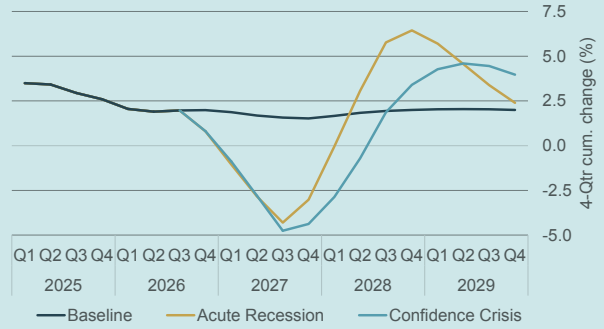


Chart 1.2.5.4 – Unemployment

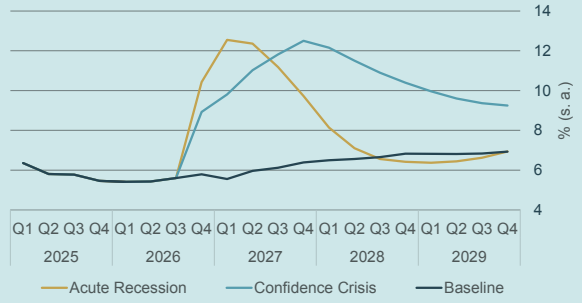
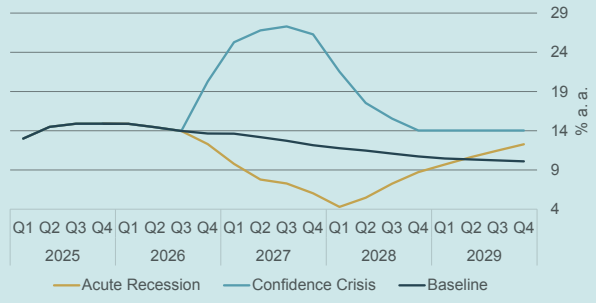


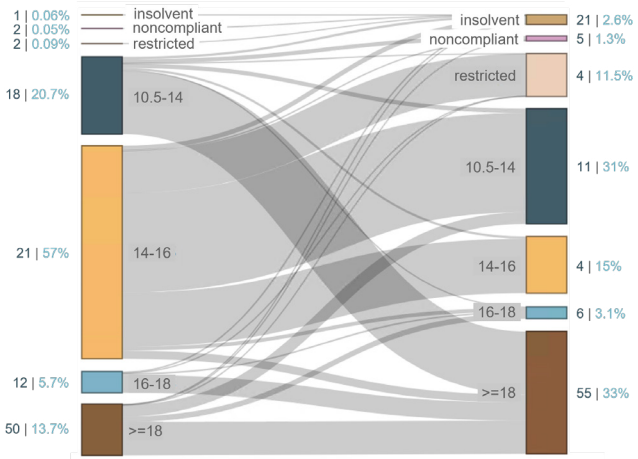
Chart 1.2.5.5 – Selic Rate



Solvency stress test

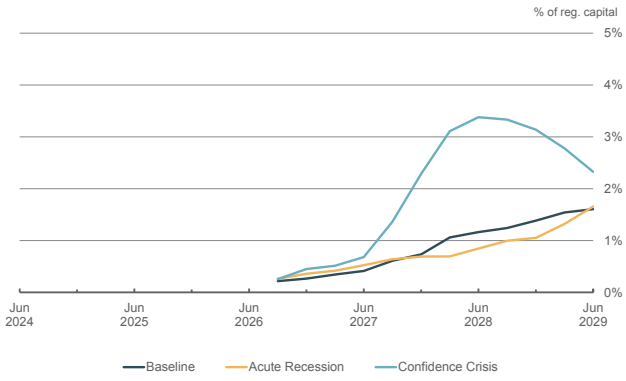
The estimated system capital shortfall[45] is low, even at the most stringent scenario, confidence crisis, confirming the adequate loss absorption capacity of the banking system. Institutions accounting for 81.9% of system's total assets would continue to present TCR above regulatory minimum of 10.5%, at the confidence crisis scenario (Chart 1.2.5.6).[46] Capital shortfall peaks at 3.5% of current system's regulatory capital in the eighth simulated quarter, at the confidence crisis scenario (Chart 1.2.5.7). This figure is greater than the 3.1% capital shortfall presented at the previous FSR, in that case in the last simulated quarter. For the acute recession scenario, capital shortfall reaches 1.7% of system's regulatory capital at the last quarter, which compares to the 1.6% figure obtained at previous tests.

Chart 1.2.5.6 – Capital Ratio Status
Confidence crisis Scenario – Jun 2026 (left) vs Jun 2029 (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 of applying shocks to specific risk factors, on a solo basis. All other drivers remain unchanged. As a result, second order effects due to changes in the macroeconomic environment are not considered.

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 2026, occur for institutions representing 0.005% of the 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 largest variation observed[47] over the last 27 years would result in a capital shortfall of 1.52% of the system's regulatory capital, affecting banks accounting for 3.44% of the system's total 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.

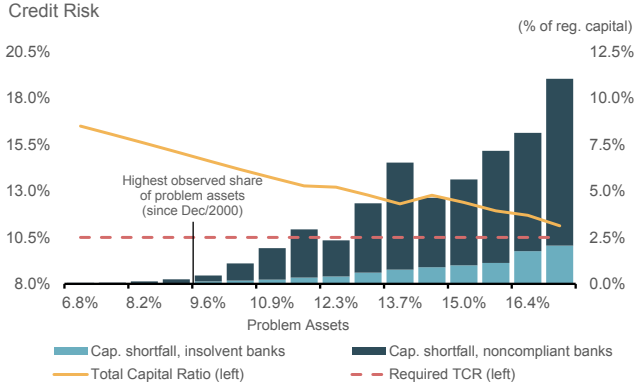
45 The concept of capital shortfall encompasses amounts necessary to replenish regulatory capital to a level that fully complies with all three regulatory capital minima (IB, IPR1 and ICP), inclusive of all capital buffer requirements (ACP) applicable and avoids distribution restrictions, as provided by Resolution BCB 200, of March 11, 2022. Particularly, systemically important banks are subject to the systemic capital buffer ($ACP_{Sistêmico}$).

46 106 financial institutions were stress tested, representing 97.31% of system's total assets. Participation in stress tests depends upon availability and quality of regulatory data.

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

Incremental credit risk shocks point to a low capital shortfall if problem assets reach their highest historical mark. Capital shortfall would be 0.21% of system's regulatory capital, if problem assets reach 8.69%, the historical maximum level observed in May 2017 (Chart 1.2.5.8).[48] In an extreme situation, if the proportion of problem assets reached 250% of current levels, there would be a capital shortfall equivalent to 11.1% of system's regulatory capital.

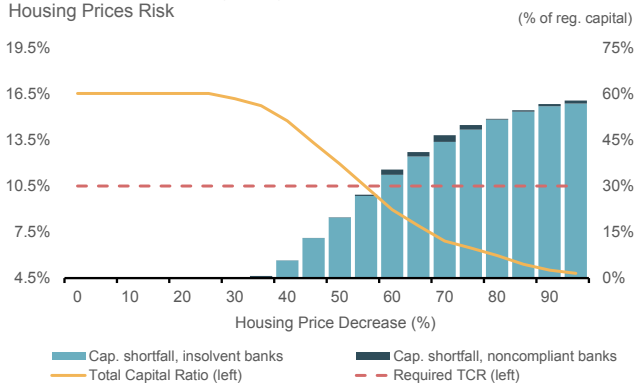
Chart 1.2.5.8 – Sensitivity Analysis
Credit Risk



Simulation of reductions in residential property prices shows a very low possibility of non-compliances. There would only be a capital shortfall in the event of nominal prices dropping more than 35% of collateral prices of real estate credit operations, compared with the 36-month average of the Residential Real Estate Collateral Value Index (IVG-R). This shock resembles the 33% drop observed in the S&P Case-Shiller index during the subprime crisis in the U.S. Only a 40% reduction or greater, in nominal prices would lead to insolvency, characterized by negative ICP.

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 54.0% in June 2026, considering collateral prices updated by IVG-R[49] 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



Simulation of direct interbank contagion

The contagion simulation suggests a low need for resources to recapitalize the system in response to contagion arising from the failure of individual financial institutions. The impact of the failure of one bank is transmitted to other institutions through direct links, such as loans and interbank deposits. In the worst-case scenario simulated, the capital shortfall resulting from contagion would be below 1% of the system's regulatory capital. This low impact is explained by the appropriate level of capitalization of the system and the existence of a limit on exposure to clients, which restricts exposures between institutions. In addition, some direct interbank exposures are collateralized, such as repurchase agreements backed

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

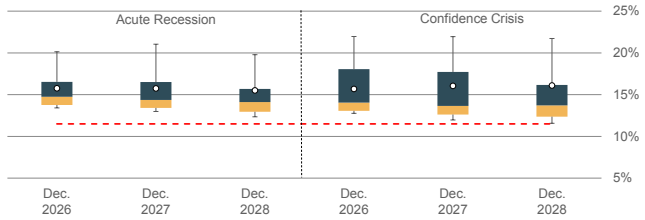
49 The Residential Real Estate Collateral Value Index (IVG-R) is calculated and disclosed by the BCB, based on property appraisals carried out for the granting of housing loans.

by Federal Public Securities (TPFs), thus reducing the likelihood of contagion.

Bottom-up stress tests

Results from stress tests conducted by the most systemic banks reinforce the assessment of adequate the system's capital adequacy. In none of the scenarios defined by the BCB, regulatory breaches were observed (Chart 1.2.5.10), which corroborates the perceived resilience of these institutions to adverse macroeconomic shocks. For the bottom-up stress tests exercise, participating institutions produce projections using their own internal models, in contrast to the top-down macroeconomic stress test, in which projections are estimated based on data and models developed by the BCB. In this exercise, the reference date is December 2025, and the applied scenarios are those published in the previous FSR, published in April 2026.

Chart 1.2.5.10 – Bottom-Up Stress Test[1/]
Total Capital Ratio – Stress Scenarios



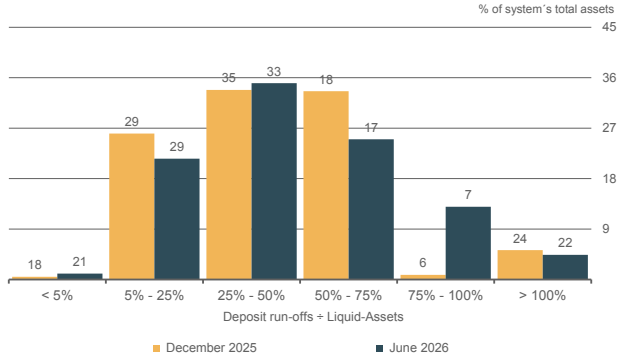
1/ Bars values refer to percentiles 10%, 25%, 50%, 75% and 90%. Averages are shown in the circles. The red dotted line represents the regulatory minimum capital ratio, including the ACP$_{Sistemic}$.

Liquidity stress test

The financial system holds enough liquid assets to absorb potential losses under stress scenarios and comply with current regulations. The vast majority of FIs, including the largest ones, have liquidity buffers adequate to withstand depositor outflows and potential market losses under adverse scenarios.

Depositor outflow stress tests indicate the system's resilience to withstand extreme funding losses. The depositor outflow scenario over a thirty-day horizon involves applying standardized run-off percentages to funding sources, taking into account the type of client and funding instrument. The methodology used captures the effect of deposit volatility to estimate additional run-offs (Value at risk – VaR);[50] in addition, it considers full withdrawal of funds from instruments maturing within the next thirty days, as well as the withdrawal of all eligible instruments by each institution´s three largest counterparties, capturing concentration risk. Simulation results indicate that only a small subset of institutions, representing 4.4% of the system's total assets, have depositor run-offs exceeding 100% of their liquid assets (Chart 1.2.5.11).

Chart 1.2.5.11 – Frequency distribution off deposit 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.

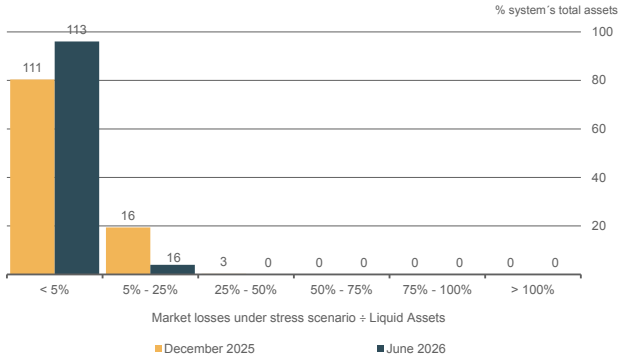
The results of shocks to market parameters demonstrate that banking institutions remain sufficiently resilient in the short term to withstand potential cash outflows and potential declines in the value of liquid assets, while meeting margin calls and guarantee requirements.[51] Greater risk

50 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 Methodologies annex (the Stressed Cash Flow component of the Liquidity Ratio).

51 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.

aversion contributes to a low ratio of institutions' market stress to liquid assets, which remains stable compared with December 2025 (Chart 1.2.5.12). These simulations estimate the amount needed to cover losses resulting from market price fluctuations affecting banks' positions in liquid assets, derivatives and other financial instruments.[52] Liquid assets, in turn, are marked to market regardless of their accounting classification, eliminating potential problems stemming from the revaluation of securities classified as Held to Maturity (HTM) and measured at amortized cost.

Chart 1.2.5.12 – Frequency distribution for market losses under stress scenarios[1/]

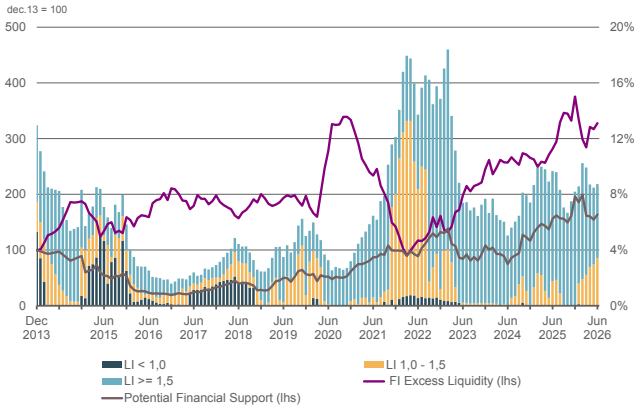


1/ The values on top of the bars refer to the number of institutions with estimated market losses under stressed scenarios as a share of liquid assets belonging to the corresponding interval.

The impact of potential liquidity support to investment funds[53] 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 rose in the first two months of the year and has been declining since then, reaching 9% of the linked Fis' excess liquidity.

Step-in risk remains low. The movement observed in recent months results from the reduction of potential liquidity support to funds (estimated at BRL87 billion) and the increase in excess liquidity of the linked FIs (estimated at BRL999 billion). Furthermore, most of the estimated financial support is tied to managers linked to FIs that present a LI greater than 1.5, which indicates a comfortable situation regarding the step-in risk (Chart 1.2.5.13).

Chart 1.2.5.13 – Investment funds' step-in risk
Potential support as a proportion of excess of liquidity of bank-linked managers, segregated by Liquidity Index rangeL



Souces: BCB, CVM

52 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.

53 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/en/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.

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1.3 Financial Stability Survey – FSS[54]

Fiscal, delinquency, and activity risks stood out as the main concerns of financial institutions, although they did not undermine confidence in the stability of the SFN nor the prevailing recommendation to keep the $CCyB_{Brazil}$ at 0%. Fiscal risks were the most frequently mentioned when only the most important risk was considered (Table 1.3.1), while mentions of delinquency and activity increased by around 30% between February and August 2026 when the three most relevant risks were considered (Table 1.3.2). Concerns about the high household and corporate indebtedness, in the context of persistently high interest rates, contributed to the increased perception of risks associated with debt-servicing capacity and credit quality, as reflected in a higher expected average impact for this risk group. Nevertheless, confidence in the stability of the SFN remained high, and most institutions subject to the $CCyB_{Brazil}$ continued to recommend keeping it at 0%.

Risks to financial stability[55]

Fiscal risks stood out as the main concern of financial institutions, reflecting uncertainties regarding the sustainability of public debt. Although the share of respondents identifying fiscal risks as the primary risk declined from 37% in February to 34% in August 2026, the issue remained at the top of the list of risks to financial stability. Responses indicate that the expansion of public spending and uncertainties regarding fiscal sustainability may increase risk premium and put pressure on long-term interest rates, thereby limiting the scope for monetary policy and contributing to tighter financial conditions, with potential repercussions for economic activity.

Delinquency and activity risks are the most frequently mentioned when considering the three risks reported by each financial institution, particularly the effects of high interest rates in the context of highly leveraged households and companies. Respondents view a prolonged period of high interest rates as the main factor behind rising delinquency and the deterioration in portfolio quality, with the potential to constrain credit supply and trigger contagion effects.

References to the international outlook highlight the ongoing global geopolitical realignment and its potential inflationary effects. Respondents assess that the global economy is going through a turbulent period marked by military conflicts and increasing economic fragmentation, which could trigger new shocks to supply chains, energy markets, logistics, and international trade. Additionally, the rise in trade barriers and protectionist policies is perceived as a source of pressure on international prices, with potential inflationary spillovers to the Brazilian economy. Respondents also mentioned risks of reduced capital flows to emerging market economies, with potential impacts on exchange rates and financing conditions.

54 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 started publishing, since 2023Q4, the quarterly FSS report. The survey is published on the Thursday of the subsequent week to the Comef meeting. The opinions expressed here are those of the responding financial institutions. As of the November 2025 edition, the total sample was expanded from 96 to 144 respondents. In the previous FSS edition, figures from the original sample were reported to ensure that the figures of mentions' tables remained comparable. As of this edition, all statistics are based on the expanded sample. Since the previous FSS edition, two surveys have been conducted, one from March 27 to April 24, 2026, and another from July 2 to 28, 2026, both with 117 financial institutions responding out of a total of 144 institutions invited (of this total, 104 are regulated by the BCB, 5 by the CVM, 5 by Previc, and 3 by Susep). In August 2026, the sample with the BCB regulated institutions that responded to the latest FSS edition accounted for almost 90% of the segment's assets.

55 Questions: "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 National Financial System (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%).

Operational risks remain the fourth most mentioned risk, with growing concerns regarding cyber-attacks. Respondents perceive an increase in both the frequency and sophistication of these attacks, potentially amplified by advances in artificial intelligence and improvements in social engineering techniques. The increasing digitalization and interconnectedness of the SFN, combined with the use of shared infrastructures and service providers, increase potential vulnerabilities and the risk of incidents spreading across the system, which could lead to disruptions of critical services, loss of confidence, contagion effects, and a deterioration in liquidity.

A textual analysis of the most important risk highlights the central role of concerns regarding delinquency, interest rates, inflation, and fiscal risks, as well as their implications for financial conditions and economic activity. The terms "delinquency," "interest rates", and "inflation" are among the most frequently mentioned by financial institutions in their responses regarding the main risks to stability,[56] together with references to volatility and the fiscal situation. A comparison of the last three surveys reveals an increase in mentions of "slowdown," "volatility," and terms related to the international outlook, such as "oil" and "Middle East," suggesting greater concern about the impact of external shocks on inflation and financial conditions (Charts 1.3.1 and 1.3.2).[57]

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

Risk	Frequency (%)			Probability	Impact
	Feb 2026	May 2026	Aug 2026	Aug2026	
Fiscal risks	37	27	34	Medium-High	High
Delinquency and economic activity	24	21	26	Medium-High	High
Global scenario	15	24	20	Medium-High	High
Operational risks	8	12	12	Medium-High	Medium
Regulation	2	1	2	Medium-High	High

Table 1.3.2 – FSS – Three risks mentioned by financial institutions

Risk	Frequency (%)			Probability	Impact
	Feb 2026	May 2026	Aug 2026	Aug 2026	
Delinquency and economic activity	0.63	0.72	0.81	Medium-High	High
Global scenario	0.62	0.67	0.66	Medium-High	Medium
Fiscal risks	0.64	0.61	0.60	Medium-High	High
Operational risk	0.36	0.38	0.40	Medium-High	Medium
Liquidity risks	0.14	0.10	0.10	Medium-Low	Medium

Note: Financial institutions answer the following question: "In the next three years, which risks to financial stability does your institution deem as most relevant, considering the probability of occurrence and their impact on the SFN? Describe the three risks in order of importance (the most important first, considering the product between the probability of the event occurring and the magnitude of losses as a fraction of the total SFN's 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.

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

57 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 1.3.1 – 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

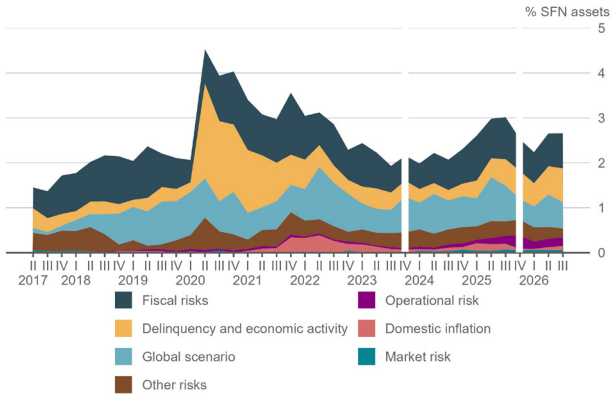


Note: The comparative word cloud is compiled from the textual analysis of the most important risk described by each respondent. The color of the word indicates the FSS in which the word frequency was predominant. The size of the word is proportional to the difference between the word frequency in the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

The average expected impact on the SFN increased compared with the February 2026 survey, mainly driven by the rise in the average expected impact of the four risks considered most important.[58] The sum of the average expected impact of all risks reached 2.66% of the SFN assets, compared with 2.24% in the February 2026 survey. On the same comparison basis, the average expected impact of fiscal risk increased from 0.69% to 0.78% of SFN assets, while that of delinquency and economic activity risks rose from 0.52% to 0.76% (Chart 1.3.3). The average expected impact of international outlook risks also increased, from 0.47% to 0.58%. When analyzing separately the probability of materialization and the impact of risks among the financial institutions that mention them, an increase is observed in the probability of the occurrence of fiscal, delinquency and activity, and operational risks (Charts 1.3.4.a to 1.3.4.d).

58 Chart 1.3.3 presents two break points resulting from changes in the FSS sample. In November 2022, financial institutions not regulated by the BCB were incorporated into the survey. As of November 2025, the survey began to include all institutions subject to the CCyBBrazil. These same break points are also indicated in Charts 1.3.5 and 1.3.8.a.

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 respondents to risk r 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 I_r refers to the expected impact of a risk type from the point of view of the group of respondents. It is not a characteristic 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

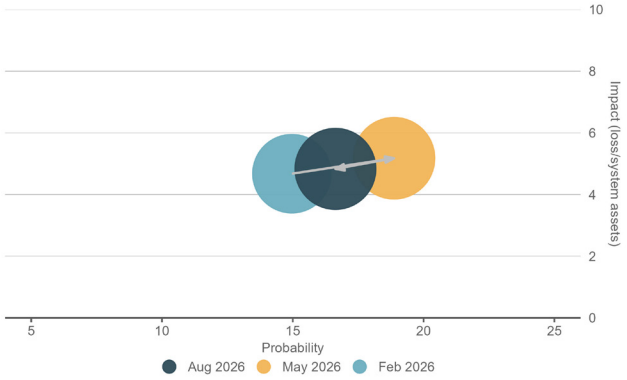


Chart 1.3.4.b – FSS – Fiscal risks: probability, impact and frequency

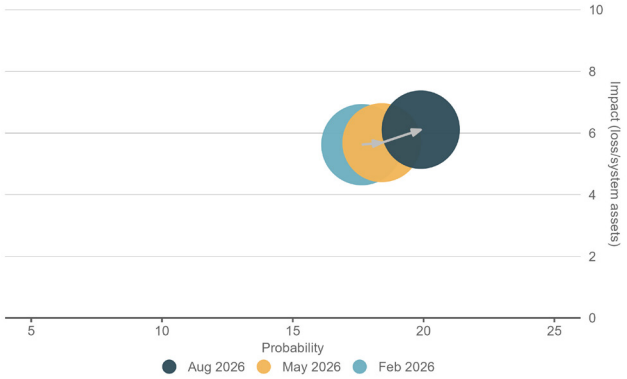


Chart 1.3.4.c – FSS – Delinquency and economic activity: probability, impact and frequency

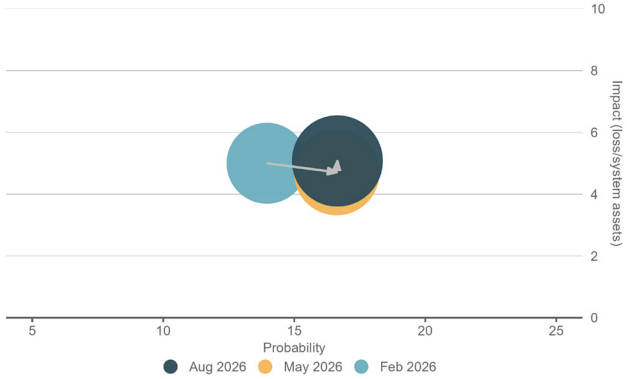
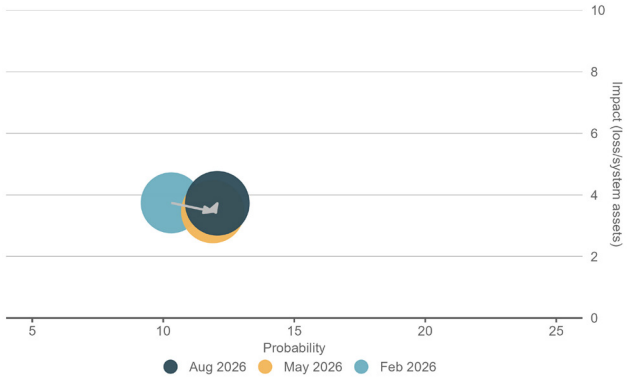


Chart 1.3.4.d – FSS – Operational risk: probability, impact and frequency



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.

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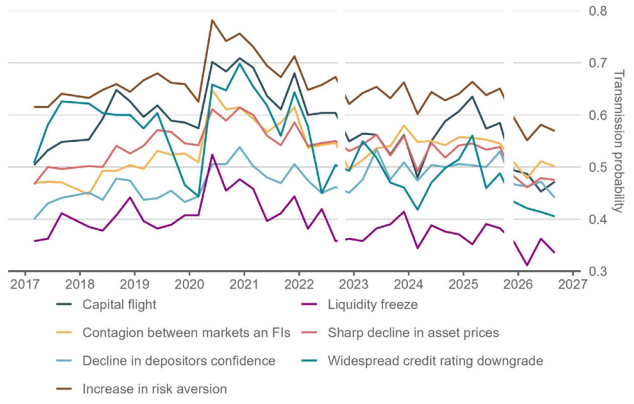
"Increased in risk aversion" and "Contagion between markets and FIs" are the shock transmission channels that respondents considered most likely to materialize. Compared with the February 2026 survey, "increased risk aversion" remained the most relevant transmission channel, with a slight increase in its probability, followed by "market and financial institutions contagion", which also registered a modest increase. The "asset price declines" and "capital flight" channels were assigned similar probabilities, followed by "decline in depositors' confidence." The "rating downgrade" and "liquidity freeze" channels continue to be regarded as the least likely among those analyzed (Chart 1.3.5).

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



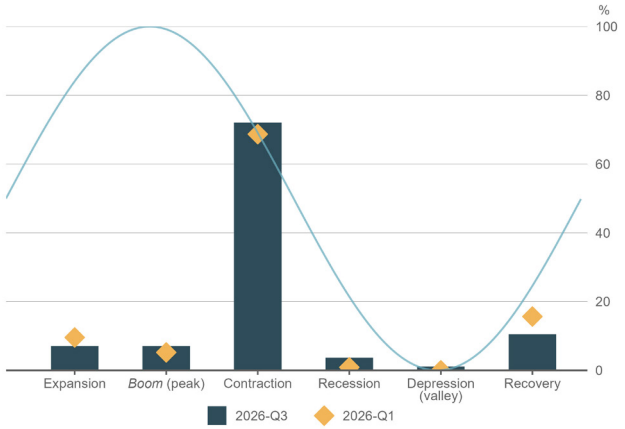
Note: Financial institutions answer the following question: "In the case of the occurrence of the event described as the most relevant to financial stability, what is the probability of this shock being carried through the channels below?"

Economic and financial cycles[59]

Most financial institutions believe that the economic cycle is in a contraction phase. The share of respondents believing that the economic cycle is in a "contraction" increased from 69% to 72% from February to August 2026, while the percentage of respondents believing that the economic cycle is in an "expansion" fell from 10% to 7%, and the assessment that the cycle is in "recovery" decreased from 16% to 10% (Chart 1.3.6).

59 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-to-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".

Chart 1.3.6 – FSS – Economic cycle



The share of respondents assessing the financial institutions' willingness to take risks as low and declining has increased, while the perception of a high credit-to-GDP gap has also grown. Most financial institutions consider that the credit-to-GDP gap is at a high level, rising to 70% in August 2026, from 63% in February 2026. Furthermore, the share of respondents viewing its trajectory as declining increased from 46% to 51% (Chart 1.3.7.a). The percentage of respondents believing that the willingness of financial institutions to take risks is low increased from 71% to 80% over the period, while the perception of a downward trend increased from 29% to 32% (Chart 1.3.7.b).

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

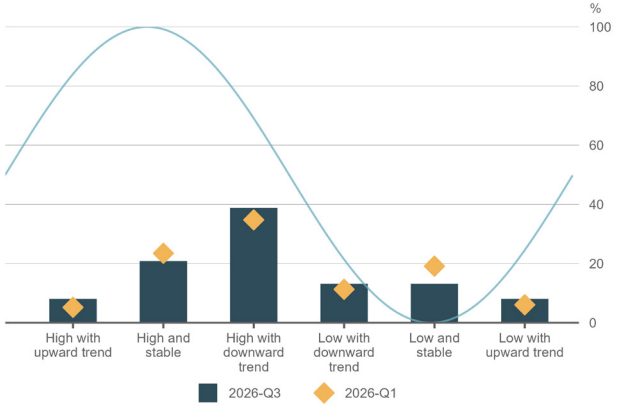
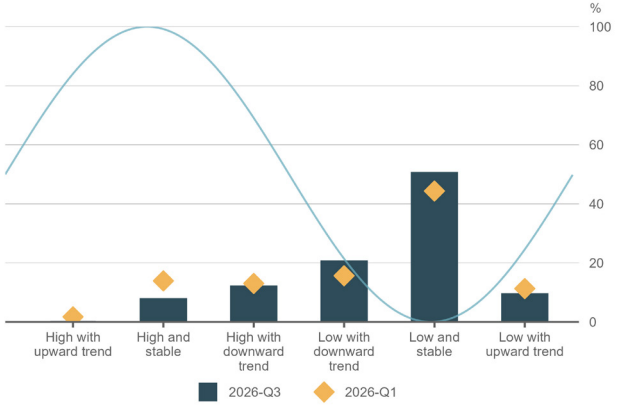


Chart 1.3.7.b – FSS – Financial cycles
Risk appetite



Household and corporate leverage levels are widely perceived as high, with the upward trend continuing to increase. The share of respondents rating household leverage as high reached 97%, while the share expecting an upward trend increased to 47%, from 37% in February (Chart 1.3.7.c). Regarding the corporate segment, 88% of respondents believe that the leverage is high (80% in February), while the perception of an upward trend rose from 18% to 24% over the period (Chart 1.3.7.d).

Chart 1.3.7.c – FSS – Financial cycles
Households leverage

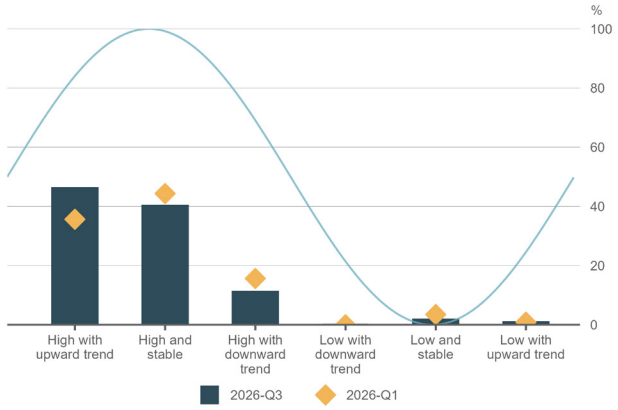
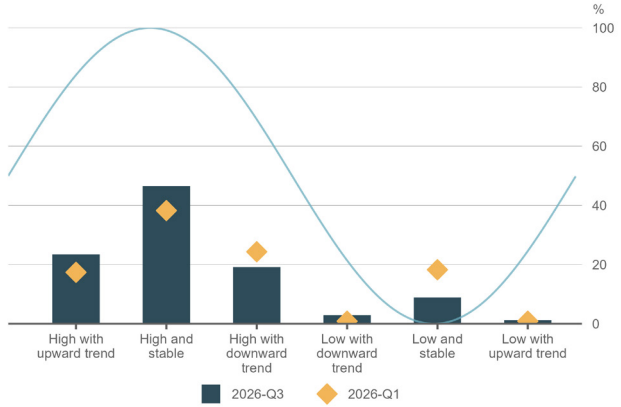


Chart 1.3.7.d – FSS – Financial cycles
Companies leverage



Although access to funding and liquidity sources continues to be widely perceived as high, the perception of a downward trend increased for both "access to funding and liquidity" and "asset prices relative to economic fundamentals." The share of respondents rating access to funding and liquidity as high increased from 77% to 79%, while the perception of a downward trend reached 37%, from 30% in February (Chart 1.3.7.e). Likewise, the perception of a downward trend in asset prices relatively to economic fundamentals increased from 23% to 29% (Chart 1.3.7.f).

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

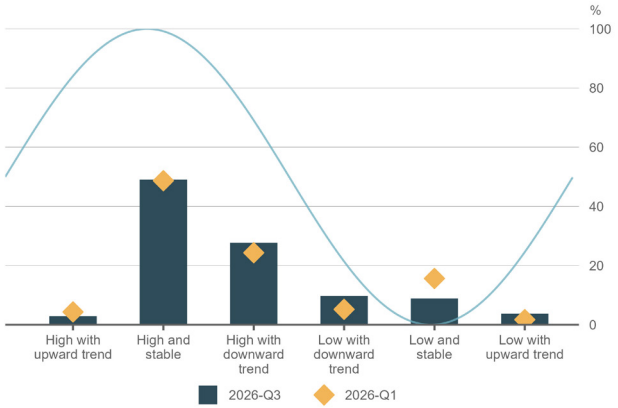
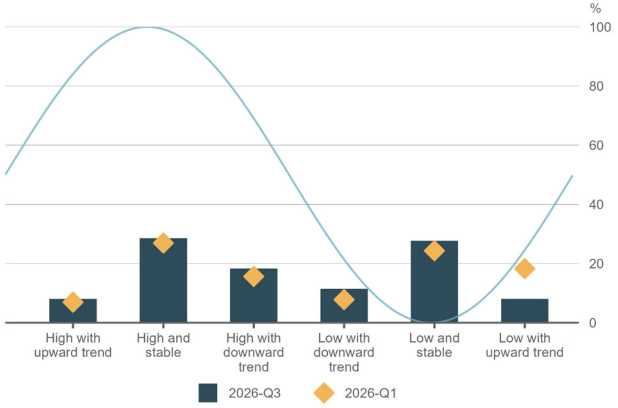


Chart 1.3.7.f – FSS – Financial cycles
Asset prices with respect to the fundamentals of the economy



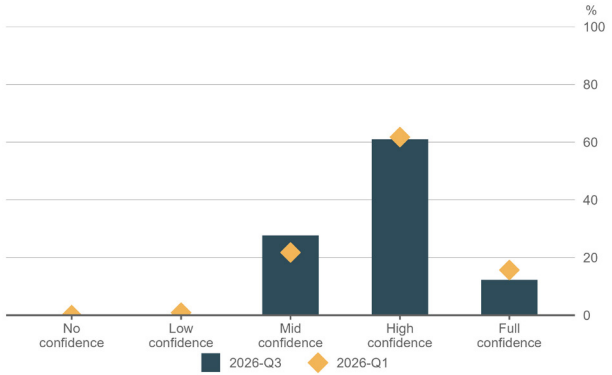
Resilience and confidence in financial system stability

Despite a further decline, confidence in SFN stability remains high. According to respondents, confidence in the stability of the financial system remains high, but with a new decline compared with the survey published in the previous FSS. Most financial institutions are very or fully confident in the resilience of the SFN, despite a decline from 77% in February to 73% in August 2026. Similarly to previous surveys, there were no negative mentions – "little confidence" or "no confidence" (Charts 1.3.8.a 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 and suggestions for the Countercyclical Capital Buffer

BCB-regulated financial institutions subject to the CCyB continue to expect and recommend that the $CCyB_{Brazil}$ be maintained at 0%. Of those, 95% expected the $CCyB_{Brazil}$ 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 stable across surveys.

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

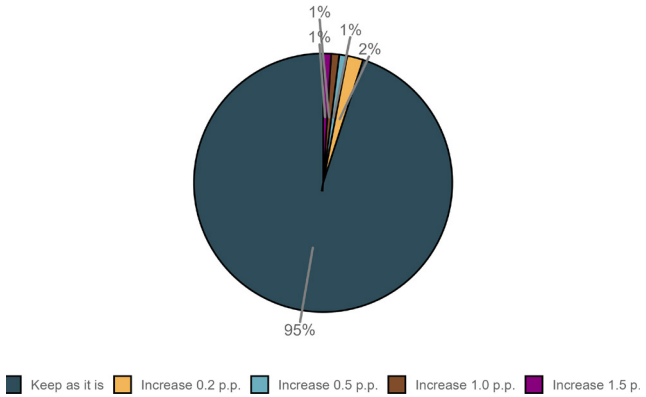
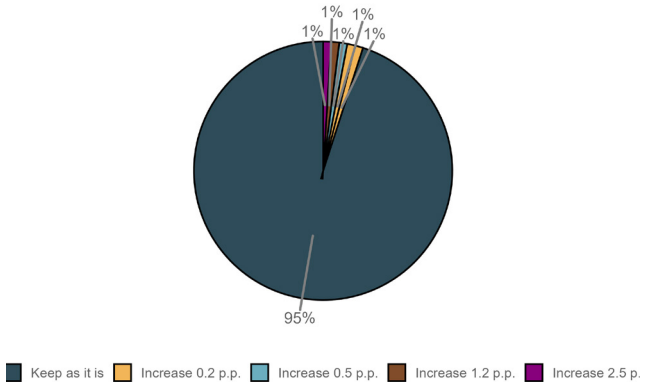


Chart 1.3.9.b – FSS – Expectations and suggestions for the Countercyclical Additional Buffer (Brazil)
Suggestions



1.4 Financial market infrastructures

In the first half of 2026, 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[60] to ensure seamless transactions in the Brazilian Payment System (SPB)[61]. Interbank market transactions were settled without any relevant issues and under low risk of intraday fund insufficiency throughout the semester (Chart 1.4.1)[62]. Every three 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 2.7% of the total available liquidity, with a peak of 4.9%. The Instant Payment System (SPI) reached 307 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

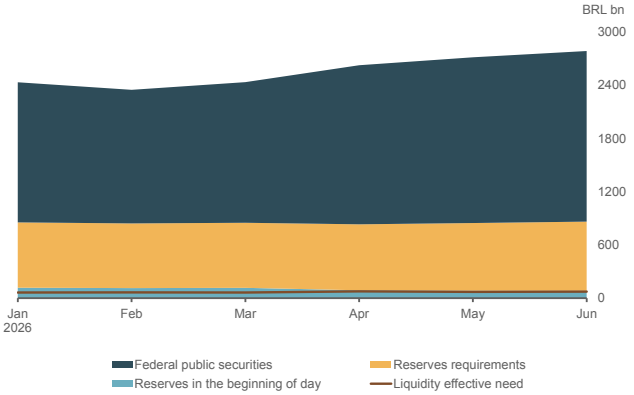
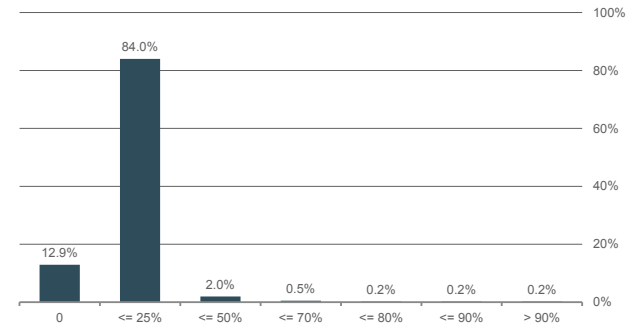


Chart 1.4.2 – After-Hours Liquidity Needs



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

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

62 FIs can transfer required reserve balances to the Reserves Account and convert Brazilian Government Bonds into BCB 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 31.0% of all retail payments. Transaction volume grew by 19.3% over the past twelve months (Chart 1.4.3), and most transactions took place between individuals and businesses (P2B), as shown in Chart 1.4.4. During the semester, the SPI maintained availability above 99.9% throughout the period, with 99% of transactions processed by the SPI within 0.364 seconds.

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

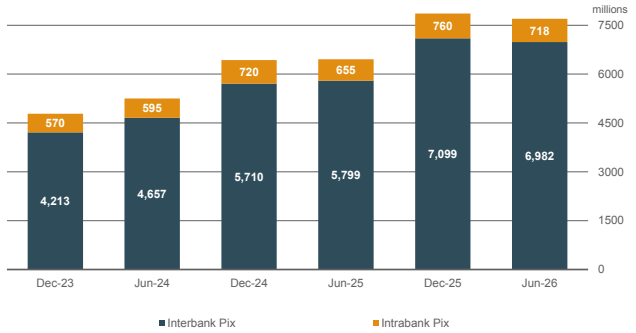
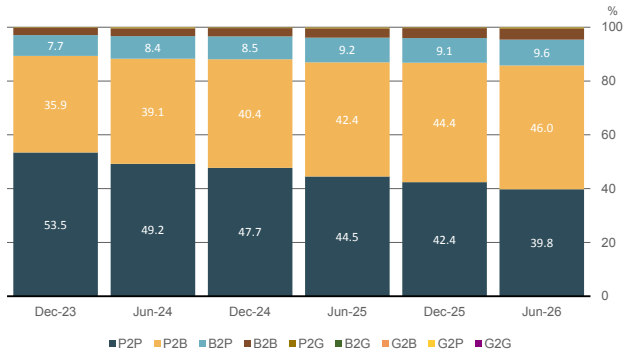


Chart 1.4.4 – Pix transactions types (Interbank Pix)
Transaction percentage



(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)[63]. The stress scenarios employed by B3 were more severe than the variations observed in the main Primitive Risk Factors (PRF)[64] in the period (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).

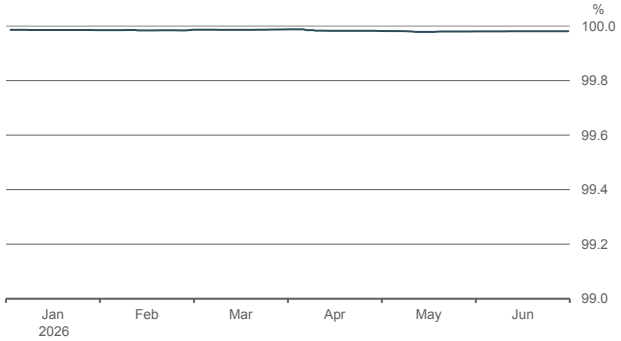
Table 1.4.1 – B3 Clearinghouse
Primitive Risk Factors (PRF)

Discrimination	Low[1/]	High[1/]
Ibovespa spot	19%	31%
USD spot	20%	26%
Fixed rate 42	15%	17%
Fixed rate 126	16%	24%
Fixed rate 252	23%	30%
Fxed rate 756	26%	27%
DDI[2/] 180	10%	7%
DDI 360	12%	7%
DDI 1080	10%	11%

Sources: [B][3] and BCB
Staff calculations
1/ Highest percentage of accumulated variation over 2 days considering the low and high scenarios in the 1st semester of 2026.
2/ Foreign exchange coupon.

63 This confidence level relates to the estimated distribution of future exposure to settled financial instruments.
64 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.

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

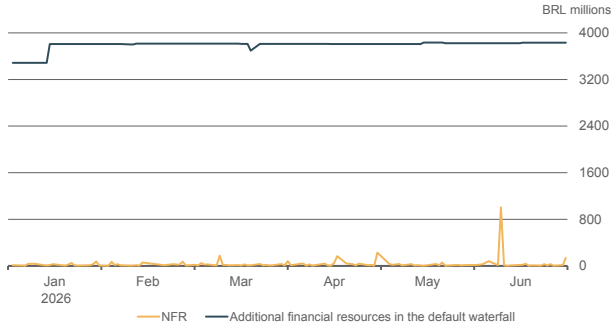


1/ Simply put, the statistic corresponds to an average, over a moving period of 63 working days, of the ratio between (i) the number of portfolios that would not have suffered losses greater than those calculated by the individual margin model used by the CCP; and (ii) the total number of portfolios.

Sources: [B]³ and BCB
Staff calculations

The credit and liquidity exposures were adequately managed by the CCP on all days of the period.[65] In the B3 Clearinghouse, individual margin and prefunded additional resources would have been 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). Also, the liquid resources maintained by the B3 Clearinghouse would have been 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 have been sufficient to cover its credit exposures associated with each of the participants. Liquid resources held by the B3 FX Clearinghouse would have been 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).[66]

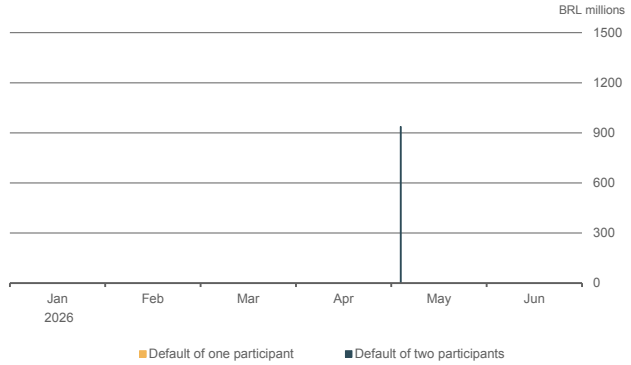
Chart 1.4.6 – B3 Clearinghouse
Credit risk backtesting



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.

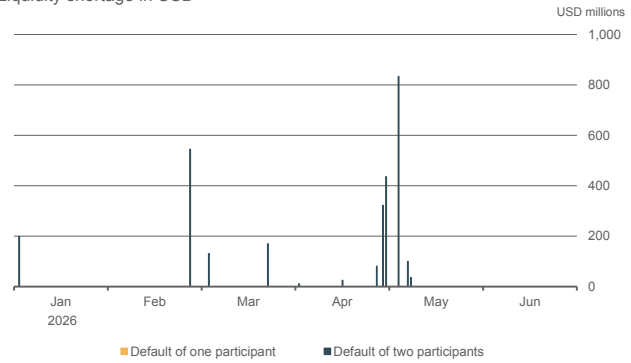
Sources: [B]³ and BCB
Staff calculations

Chart 1.4.7 – B3 FX Clearinghouse
Liquidity shortage in BRL



Sources: [B]³ and BCB
Staff calculations

Chart 1.4.8 – B3 FX Clearinghouse
Liquidity shortage in USD



Sources: [B]³ and BCB
Staff calculations

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

66 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 Private-sector payroll-deducted credit[66]

***Crédito do Trabalhador* expanded access to private-sector payroll-deducted credit.** Broader access was accompanied by the entry of borrowers with higher-risk profiles and by changes in the characteristics of newly originated operations. In this context, initial indicators point to an increase in risk materialization, although some of this pattern may be related to operational challenges in the new arrangement.

***Crédito do Trabalhador* expanded access to private-sector payroll-deducted credit by easing operational restrictions in the previous model.** Established by Provisional Measure No. 1,292 of March 12, 2025,[67] and subsequently converted into Law No. 15,179 of July 24, 2025, the program overhauled the way payroll-deducted loans are made available to formally employed workers, including domestic and rural workers and non-employee directors entitled to the Length-of-Service Guarantee Fund – FGTS. Unlike the previous model, which depended on agreements between financial institutions (FIs) and employers to enable payroll deductions, the new arrangement uses digital platforms integrated with government databases, extending the product's reach and encouraging competition among lenders.

The new arrangement's implementation was accompanied by strong growth in originations and in the outstanding balance of private-sector payroll-deducted credit. Following the program's launch, monthly contracted volumes accelerated, and operations originated without a prior agreement quickly accounted for the largest share of originations in this modality (Chart 2.1.1). This momentum led to a significant increase in the number of workers taking out these loans each month, expanding the product's reach beyond its historical pattern (Chart 2.1.2). As a result of the growth in lending, the outstanding balance in this modality increased considerably over the following period (Chart 2.1.3).

Chart 2.1.1 – Private-sector payroll deducted – Credit granting
By pre-existing payroll agreement

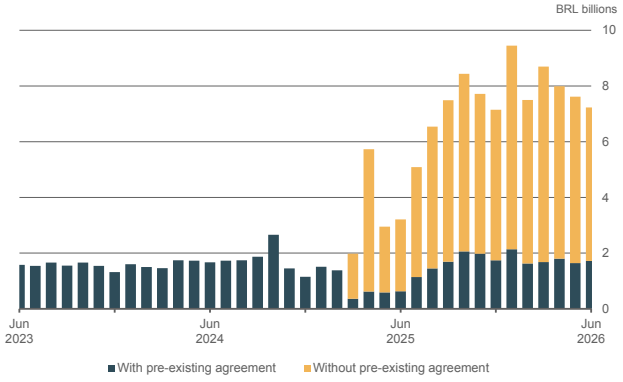


Chart 2.1.2 – Private-sector payroll deducted – Credit granting
Number of borrowers

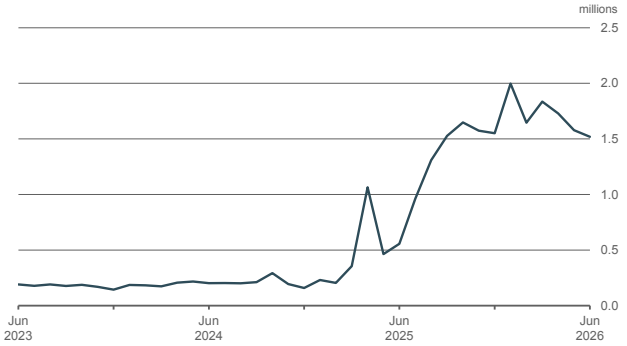
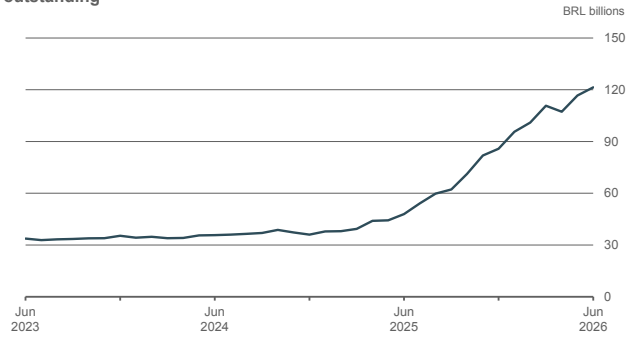


Chart 2.1.3 – Private-sector payroll deducted – Credit outstanding



66 This topic was discussed in Box 5 of the September 2025 Monetary Policy Report, available at https://www.bcb.gov.br/content/ri/relatorioinflacao/202509/rpm202509b5p.pdf.

67 For the analyses in this section, the program's start date is taken to be March 21, 2025, when the digital platform became available to participating lenders.

The product's redesign was accompanied by a decline in market concentration and increased participation by new lenders. Historically, private-sector payroll-deducted credit was supplied predominantly by large private banks (Chart 2.1.4). With the introduction of the centralized platform, public institutions led originations in the initial months. Subsequently, digital banks and other private banks gained market share, contributing to increased competition (Chart 2.1.5).

Chart 2.1.4 – Private-sector payroll deducted – Credit granting
By segment

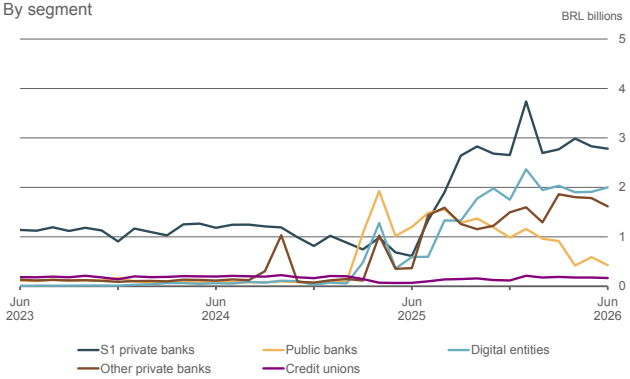
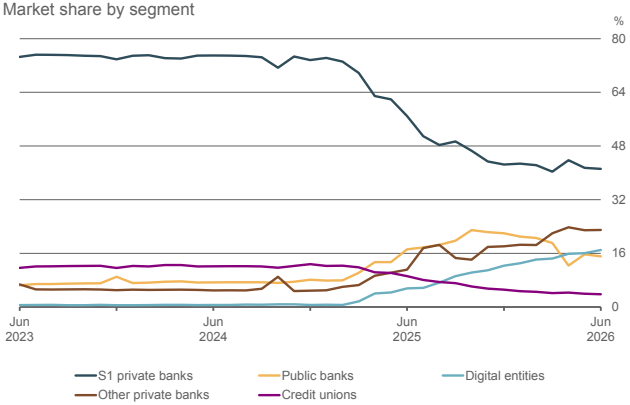


Chart 2.1.5 – Private-sector payroll deducted portfolio
Market share by segment



The expansion of the new model was accompanied by the entry of borrowers with higher credit risk. The removal of the agreement requirement and the expansion of the eligible population were followed by a decline in the credit scores[68] of new borrowers (Chart 2.1.6). At the same time, the share of borrowers who were already past due on other credit operations at origination increased (Chart 2.1.7). In line with this shift in borrower profile, the share of clients with operations in modalities traditionally associated with lower credit risk declined (Chart 2.1.8). Taken together, these indicators suggest that a larger share of borrowers in this modality are workers with more vulnerable credit histories.

Chart 2.1.6 – Average credit quality of borrowers
Serasa score at origination

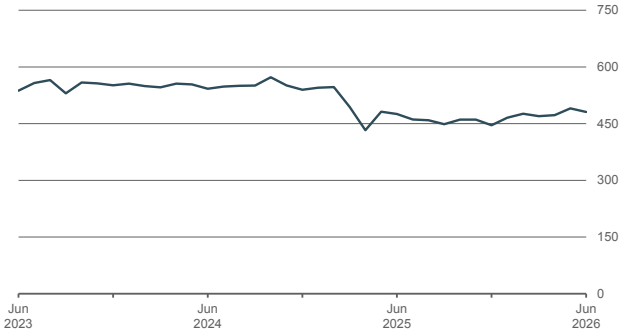
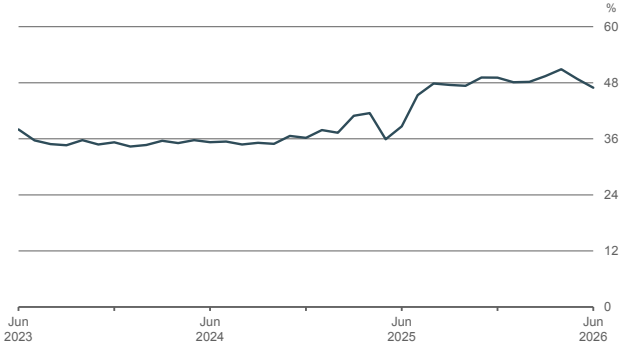


Chart 2.1.7 – Borrowers with past due loans



68 Borrower's Serasa score

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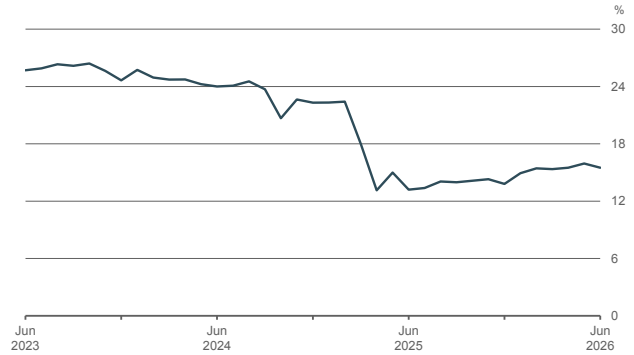
Chart 2.1.8 – Borrowers with lower risk credit modalities



Despite higher interest rates than those on private-sector payroll-deducted loans under the previous model, the new program offers borrowers more affordable credit. Compared with the pattern observed under the previous model, the median value of new contracts declined after the program began (Chart 2.1.9). The average loan term also shortened relative to its historical pattern (Chart 2.1.10). Meanwhile, the median contractual interest rate rose in the first months of the new system and remained above the level observed before the redesign (Chart 2.1.11), but was comparable to rates on non-payroll-deducted loans with guarantees. Rates also vary with borrowers' credit quality: borrowers with stronger credit histories pay lower interest rates on private-sector payroll-deducted loans (Charts 2.1.12.a to 2.1.12.c). Taken together, these results suggest that the product has shifted toward loans with shorter terms and lower values, consistent with the entry of borrowers with higher-risk profiles.

Chart 2.1.9 – Private-sector payroll deducted
Median loan amount

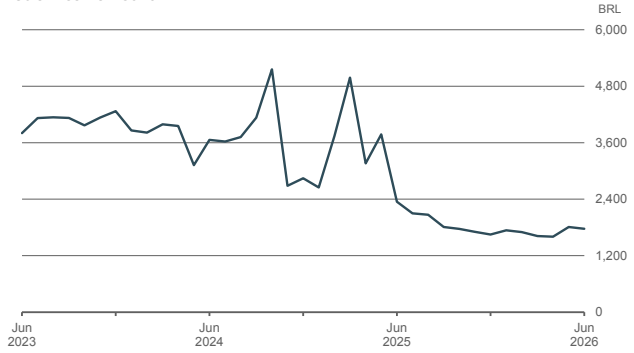


Chart 2.1.10 – Private-sector payroll deducted
Average loan term

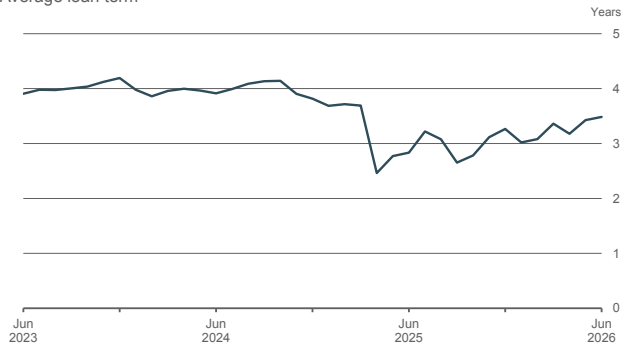


Chart 2.1.11 – Private-sector payroll deducted
Median interest rate

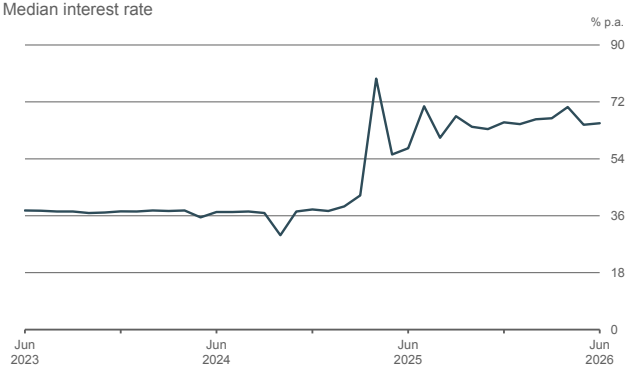


Chart 2.1.12.a – Interest rate at origination
Serasa score up to 300

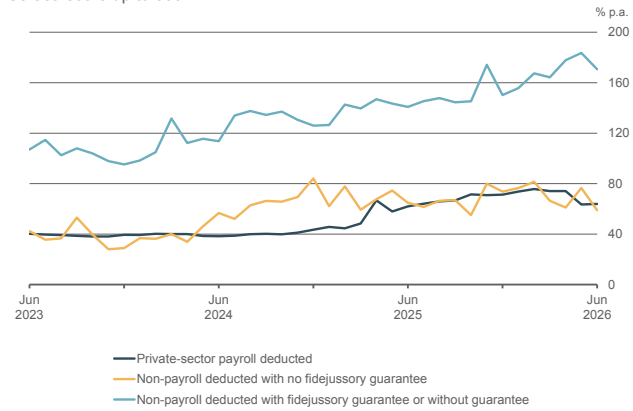


Chart 2.1.12.b – Interest rate at origination
Serasa score from 300 to 700

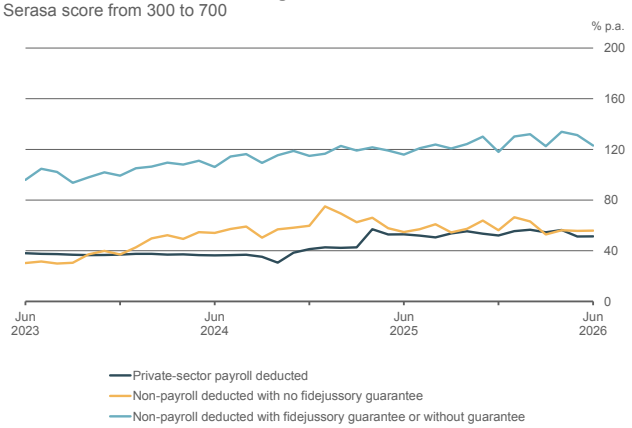
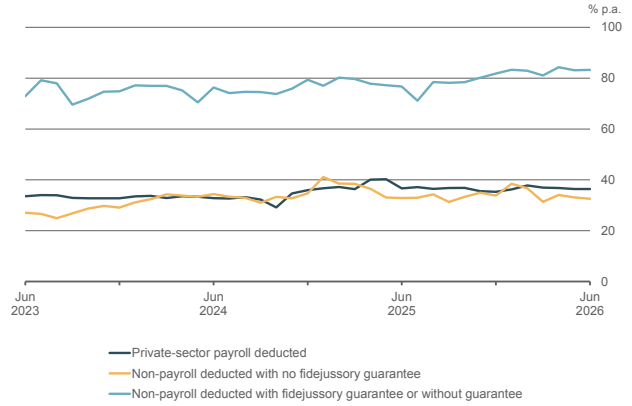


Chart 2.1.12.c – Interest rate at origination
Serasa score above 700



The use of private-sector payroll-deducted credit to replace existing bank debt has been relatively limited. On average, 7.6% of the amount contracted in this modality was used to reduce balances on higher-cost credit operations (Chart 2.1.13). An assessment of borrowers' subsequent performance suggests that delinquency indicators improved only for the group that used more than 80% of the loan proceeds to repay other bank debt (Chart 2.1.14). This group accounts for approximately 14% of borrowers under the new private payroll-deducted credit program.

Chart 2.1.13 – Average outstanding balance by product
Near private-sector payroll deducted origination

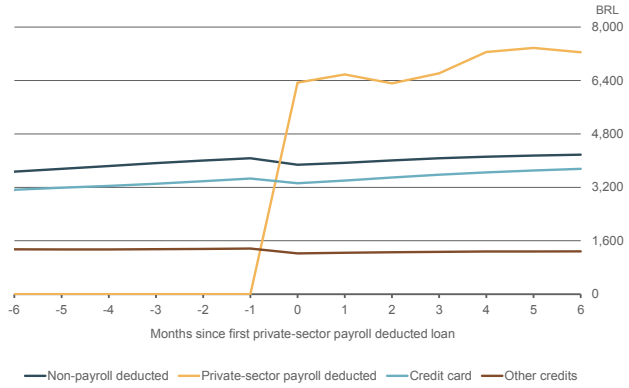
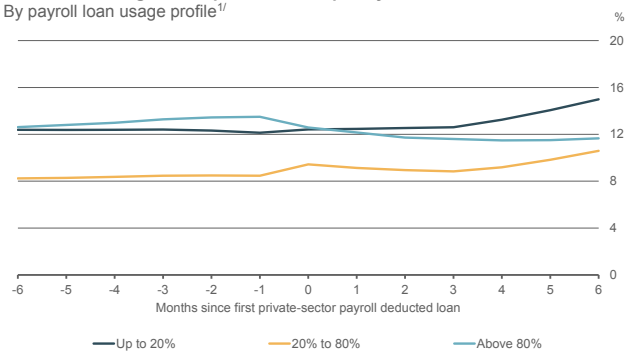


Chart 2.1.14 – Higher-risk portfolio delinquency
By payroll loan usage profile[1/]



1/ Categories are defined according to the amount of private-sector payroll-deducted loans originated relative to the reduction in borrowers' outstanding balances across other credit products. For example, if a borrower originates BRL 1,000 in private-sector payroll-deducted loans and uses the full amount to pay down other credit balances, the borrower will be classified in the "Above 80%" category.

Risk materialization in private-sector payroll-deducted credit has been higher than in riskier credit modalities. Cohort delinquency[69] accelerates from the fifth month after origination (Chart 2.1.15), exceeding the level observed for unsecured non-payroll-deducted personal loans. A significant share of past-due balances, however, is concentrated in operations whose borrowers remained employed or returned to formal employment after a possible termination of employment (Chart 2.1.16). Since, in these cases, payroll deduction should remain in place as a risk-mitigation mechanism, the results suggest

69 Average across all vintages since March 2025 (contracts originated on or after March 21, 2025).

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that operational frictions may have affected portfolio performance. An exercise that excludes these cases points to average delinquency of approximately 3.1%, significantly below the approximately 7.5% observed for the portfolio as a whole.

Chart 2.1.15 – Cohort delinquency
Average vintages of the new program period

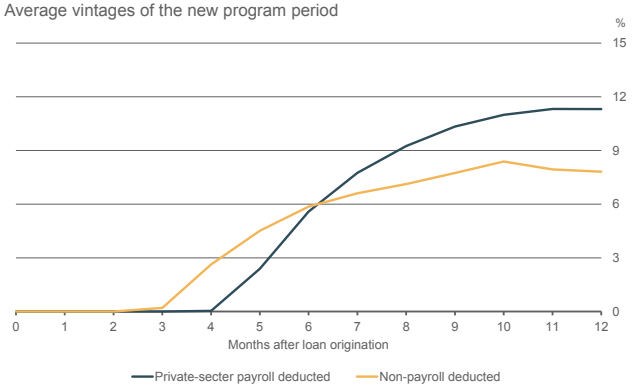
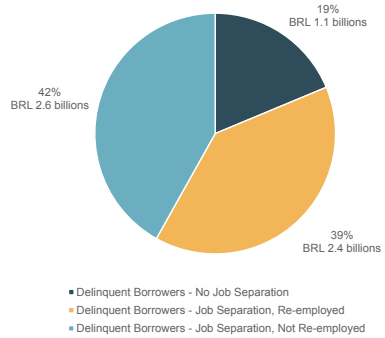


Chart 2.1.16 – Delinquency balance as of June 2026
By borrower employment status



2.2 Household indebtedness and financial stability

The BCB has been enhancing its macroprudential monitoring framework and studying measures targeted at higher-risk credit segments, with the objective of reducing over-indebtedness and preserving financial stability. Several countries already employ macroprudential measures to mitigate borrower vulnerabilities, seeking to strengthen household resilience throughout the financial cycle. The challenge lies in capturing the different dimensions of borrower vulnerabilities and providing inputs for the design and calibration of macroprudential instruments aimed at mitigating the risk of over-indebtedness. This section discusses complementary metrics to better understand and address the risk of over-indebtedness, reviews international experience, and examines its contribution to macroprudential policy.

Assessing household financial vulnerabilities goes beyond observing the level of indebtedness and requires consideration of borrowers' repayment capacity. Changes in economic conditions may compromise disposable income and the ability to meet financial obligations. As a result, even moderate levels of indebtedness can become a source of vulnerability when associated with high debt-service burdens or limited shock-absorption capacity.

Concerns about the macroprudential implications of these vulnerabilities have gained increasing prominence internationally. Financial authorities have complemented the monitoring of traditional credit indicators with metrics aimed at assessing households' repayment capacity and financial resilience, seeking to identify vulnerabilities that may accumulate during periods of credit expansion and materialize when economic conditions deteriorate.

Although the Brazilian financial system has demonstrated resilience to recent shocks, and vulnerabilities associated with household indebtedness do not, by themselves, pose risks to the financial system, monitoring household financial vulnerabilities can contribute to the early identification of such risks and support the preservation of financial stability. Against this backdrop, this section discusses the channels through which borrower vulnerabilities may acquire systemic relevance, presents the main metrics used for monitoring them, reviews international experience in both the monitoring of and the use of measures to mitigate these vulnerabilities, and explores their implications for macroprudential policy in Brazil.

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Transmission channels to financial stability

From a macroprudential perspective, the materialization of risks arising from indebtedness-related vulnerabilities may occur through different channels that tend to reinforce one another.

The first is the direct credit-loss channel. When a significant share of households exhibits high debt-service burdens, low disposable income, or recurrent use of higher-cost credit products, adverse shocks may lead to a widespread increase in delinquency, a simultaneous deterioration in the quality of loan portfolios, and higher losses for financial institutions.

The second is the indirect aggregate-demand channel. Faced with a decline in income or tighter financial conditions, indebted households may reduce consumption to maintain debt repayments. When widespread, this adjustment can amplify the slowdown in economic activity, affect corporate revenues, and further deteriorate credit quality. The impact of household indebtedness on the financial system therefore arises not only from direct credit losses, but also from its indirect effects on the broader economy.

The third is the confidence channel, operating through the credit supply process. Rising losses and increased risk perceptions may lead financial institutions to tighten lending standards, reduce limits, or adjust pricing, thereby restricting access to credit even for borrowers whose repayment capacity remains sound. Such behavior can reinforce the economic slowdown and hinder debt restructuring efforts, particularly when borrowers depend on new credit to manage existing obligations.

In the case of unsecured consumer credit, risk materialization tends to depend less on the interaction between asset prices, collateral values, and refinancing capacity, and more on borrowers' ability to continue servicing their debts in the face of adverse shocks to income, employment, or borrowing costs. When credit expansion is accompanied by a persistent increase in debt-service burdens driven by higher current consumption, borrowers become more sensitive to economic shocks, which may result in sharper reductions in consumption and a deterioration in repayment capacity. As a result, unsecured consumer credit may act as an amplification mechanism of the economic cycle, increasing the joint procyclicality of consumption, economic activity, and credit portfolio quality.

Although high levels of indebtedness and of over-indebtedness do not, by themselves, constitute systemic risk, monitoring them is relevant when they reflect vulnerabilities that are widespread across borrowers or that accumulate during periods of rapid credit expansion. For this purpose, traditional indebtedness indicators should be complemented by metrics related to repayment capacity, debt-service burdens, and the composition of credit exposures, particularly in higher-cost and higher-risk credit products. The next subsection presents some of the metrics used for this purpose, as well as the BCB's approach to monitoring at-risk indebtedness.[70]

Household indebtedness, over indebtedness, and financial vulnerabilities: concepts and measurement

Monitoring vulnerabilities associated with household credit requires indicators that assess not only the volume of accumulated debt, but also borrowers' ability to meet their financial obligations over time. In this regard, the *Financial Stability Report* (FSR) has traditionally monitored indicators such as credit growth, delinquency,

70 *Endividamento de Risco no Brasil – Atualização: impacto no SFN e qualificação dos indicadores (BC, 2023)*. A borrower is considered at risk when meeting two or more of the following criteria: (i) delinquency on credit installments, defined as arrears exceeding 90 days; (ii) monthly debt-service burden above 50% of income; (iii) simultaneous exposure to overdraft facilities, non-payroll-deducted personal credit, and revolving credit; and (iv) monthly disposable income, after debt service, below the poverty line. These objective, quantitative criteria are derived from the Credit Information System (SCR), which is automatically populated by financial institutions. The criteria were selected based on the international literature and adapted to Brazilian conditions.

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debt-service burdens, and borrowers' repayment capacity, with a view to identifying potential sources of risk materialization for financial institutions.

These indicators provide relevant information on households' financial conditions and capture different dimensions of the phenomenon. Delinquency, for example, signals the materialization of repayment difficulties, while debt-service burden measures seek to capture the share of income devoted to debt servicing. The FSR has previously highlighted that indebtedness, debt-service burden, and delinquency metrics are not substitutes for one another, but rather complementary tools for assessing household financial conditions.

While debt-stock indicators seek to measure borrowers' degree of leverage, debt-service burden metrics tend to provide a more direct reflection of their current repayment capacity. Delinquency indicators, in turn, capture more advanced stages of the process of financial deterioration. Taken together, these metrics allow for a more comprehensive assessment of household credit-related vulnerabilities.

In addition to the indicators traditionally monitored in the FSR, the BCB's *Financial Citizenship* series developed the concept of at-risk indebtedness, a metric designed to identify situations potentially associated with over-indebtedness. The methodology combines indicators of delinquency, debt-service burden, use of higher-cost credit products, and insufficient disposable income, based on the premise that financial vulnerabilities may emerge before actual delinquency occurs. As such, the metric contributes to the preventive monitoring of households' repayment capacity and financial resilience.

The metric also makes it possible to distinguish the concept of over-indebtedness from that of high indebtedness.[71] Debt levels alone do not constitute an adequate indicator of financial vulnerability. Households with a large stock of debt may nevertheless maintain a sustainable financial position if they have stable income, accumulated wealth, or financial buffers. Conversely, households with relatively low levels of debt may still be highly vulnerable if they have limited disposable income or a reduced ability to absorb shocks without compromising minimum living standards. The evolution of this metric is presented in Chart 2.3.1 in the next section.

The use of such metrics for prudential monitoring purposes is not unique to Brazil. In recent years, international financial stability assessments have attached growing importance to borrowers' financial conditions, incorporating repayment-capacity indicators and instruments aimed at mitigating the excessive accumulation of household vulnerabilities. The international experience discussed below helps distinguish between the use of these metrics as monitoring tools and their possible use as reference points for measures targeting lending conditions.

International experience

The relevance of household financial vulnerabilities to financial stability has received increasing attention from macroprudential authorities and in assessments conducted by the International Monetary Fund (IMF). In several jurisdictions, high levels of household indebtedness have been identified as potential mechanisms for amplifying economic shocks, particularly when combined with significant exposure to the housing market and borrowers' limited capacity to absorb shocks.

This concern was also highlighted in Brazil's Financial System Stability Assessment (FSSA), published in 2026.[72] Although the report concluded that the Brazilian

71 For detailed definitions, see *Endividamento de Risco no Brasil – Atualização: impacto no SFN e qualificação dos indicadores (BC, 2023)*.

72 Brazil: Financial System Stability Assessment.

financial system remains resilient to adverse shocks and that systemic risks are contained, the IMF observed that household and corporate indebtedness had increased in recent years and recommended strengthening both monitoring and the macroprudential toolkit addressing vulnerabilities associated with household indebtedness.

The IMF assessment emphasizes that the analysis of these vulnerabilities should extend beyond observed delinquency and consider borrowers' capacity to absorb adverse shocks. In this context, the report highlights repayment-capacity indicators such as the debt-service-to-income ratio (DSTI) and the debt-to-income ratio (DTI).

The FSSA also presents a counterfactual exercise involving DSTI limits in the context of the discussion on enhancing Brazil's macroprudential framework. Although illustrative, the exercise demonstrates the role that metrics of this kind may play both in understanding household financial vulnerabilities and in mitigating excessive risk-taking in credit origination, as observed across different jurisdictions.

Table 2.2.1 – International experience in monitoring and mitigating household financial vulnerabilities

Country	Vulnerability highlighted by the IMF	Macroprudential Approach
Canada	High household indebtedness and imbalances in the housing market identified as important macrofinancial vulnerabilities.	Use of macroprudential measures in the mortgage market, including borrower stress tests, prudential requirements related to housing credit, and monitoring of vulnerabilities associated with high household indebtedness.[73]
Sweden	High household debt identified as a structural vulnerability to financial stability.	Use of macroprudential measures in the residential real estate market, including amortization requirements and other instruments aimed at mitigating risks associated with high household indebtedness.[74]
South Korea	High household indebtedness considered an important source of macrofinancial vulnerability and a potential amplifier of economic shocks.	Use of borrower-based measures, including limits on the debt-to-income (DTI) ratio, debt service-to-income (DSTI) ratio, and loan-to-value (LTV) ratio, with the objective of containing excessive household leverage accumulation.[75]
Singapore	High household indebtedness and risks related to borrowers' repayment capacity identified as potential macrofinancial vulnerabilities.	Use of borrower-based measures, including limits on debt servicing relative to income (Total Debt Servicing Ratio - TDSR), limits on housing finance (LTV), and other measures aimed at restricting excessive household debt accumulation.[76]
New Zealand	Household indebtedness and housing market imbalances identified as important macrofinancial vulnerabilities.	Use of macroprudential instruments, including limits on the loan-to-value ratio (LVR/LTV), to mitigate vulnerabilities related to mortgage lending.[77]

73 *Canada: 2023 Article IV Consultation-Press Release and Staff Report.*
74 *Sweden: Financial Sector Assessment Program–Technical Note on Macroprudential Policy.*
75 *Republic of Korea: Financial Sector Assessment Program-Technical Note-Macroprudential Policy Frameworks and Tools.*
76 *Singapore: Financial Sector Assessment Program; Technical Note-Macroprudential Policy.*
77 *New Zealand: 2024 Article IV Consultation-Press Release; and Staff Report.*

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Implications for monitoring and prudential regulation

In Brazil, the availability of borrower-level information on credit operations and borrowers' financial characteristics provides a valuable basis for monitoring vulnerabilities associated with household indebtedness. Metrics such as at-risk indebtedness complement traditional credit indicators by linking different dimensions of indebtedness to borrowers' repayment capacity, making it possible to monitor not only the materialization of losses but also situations of financial vulnerability that have not yet translated into delinquency.

Strengthening this monitoring framework contributes to improving the tools used for the macroprudential assessment of households' financial conditions. In this context, the harmonization of concepts, metrics, and indicators related to individuals' financial conditions may promote greater consistency in the identification, measurement, and communication of vulnerabilities associated with household indebtedness. In addition, greater transparency regarding indicators related to indebtedness, debt-service burdens, and repayment capacity may enhance the monitoring of these vulnerabilities by market participants, researchers, and policymakers.

From a supervisory perspective, monitoring household vulnerabilities may support supervisory action in cases where lending practices are potentially associated with an excessive buildup of risk. Such information can complement traditional prudential analysis by contributing to the assessment of the adequacy of internal controls, governance arrangements, and risk-management practices adopted by financial institutions, as well as to the adjustment of these mechanisms whenever necessary.

International experience suggests that indicators of this nature can play a complementary role not only in monitoring and supervision, but also in improving methodologies for measuring risks associated with household credit. By enabling a better identification of exposures that may be particularly vulnerable to deteriorating borrower financial conditions, such information can support forward-looking stress-testing exercises, capital adequacy assessments, and the development of prudential approaches aimed at ensuring the proper measurement of these risks. They may also assist financial institutions themselves in evaluating lending policies, limit-setting criteria, and mechanisms used to monitor borrowers' repayment capacity.

Based on the monitoring of household financial vulnerabilities discussed in this section, and taking into account the significant share of higher-cost credit products in household indebtedness, an issue highlighted in recent discussions of the COMEF, the BCB has been assessing measures aimed at mitigating the risk of over-indebtedness. These measures include strengthening prudential requirements for specific credit products, enhancing the monitoring of borrowers' repayment capacity, and promoting initiatives designed to increase the transparency and sustainability of credit supply. More broadly, they seek to reduce the excessive accumulation of financial vulnerabilities, support the timely recognition of risks, and promote more sustainable lending conditions, in coordination with other initiatives aimed at improving credit markets functioning discussed in Section 2.3.

2.3 Development of more sustainable conditions for responsible credit provision in Brazil

Risks associated with extending credit that is incompatible with consumers' financial conditions highlight the need for broad coordination to prevent household over-indebtedness. The *Banco Central do Brasil* (BCB) has advanced its regulatory framework to protect citizens against practices that encourage unsuitable borrowing decisions. However, BCB research indicates that the increasing digitalization of financial services has significantly expanded the exposure of lower-income consumers

to credit offers, contributing to higher indebtedness levels. The BCB is assessing coordinated measures to mitigate the risks associated with this dynamic, with a view to strengthening credit sustainability and enhancing the resilience of the financial system.

The consumer protection framework applies to banking and financial relationships, subject to the limits established for the regulation of the National Financial System (SFN). Recognized as both a economic order principle and a fundamental right,[78] consumer protection was further strengthened by the Consumer Protection Code (CDC).[79] The interpretation was consolidated by the Federal Supreme Court (STF) in its ruling on Direct Action of Unconstitutionality (ADI) No. 2,591 (2006), which confirmed the application of the CDC to banking relationships, except on the definition of the pricing of lending operations and the remuneration of funding activities. Following this consolidation, the BCB's approach evolved from a predominantly prudential perspective to one that also incorporates preventive actions aimed at mitigating conduct risks, focusing on product suitability, transparency, and the quality of information disclosed to consumers.

The Resolutions CMN 3,518, of December 6, 2007, and 3,694, of March 26, 2009, strengthened consumer protection in financial services by enhancing the effectiveness of conduct regulation for financial institutions. These regulations governed, respectively, the charging of fees and the prevention of risks in contracting financial products and providing services, addressing issues that had already been partially covered by BCB regulation, but required greater emphasis and enforcement.

Financial consumer protection has become a strategic guideline for the BCB. The *BC+ Agenda*, launched in 2016, expanded the scope of the institution's activities by linking financial stability to the promotion of financial citizenship, regulatory modernization, and broader access to credit, while emphasizing consumer protection and the indebtedness prevention. These objectives were preserved under the *BC# Agenda*, launched in 2019, through the dimensions of Inclusion, Competitiveness, Transparency, and Education. This alignment remains reflected in the 2026–2029 Strategic Map, which includes the promotion of responsible market practices, the protection of financial consumers, and the strengthening of both financial and digital citizenship.

Credit as a risk to consumers and financial stability

Consumers of financial services face increasing risks that may result in over-indebtedness and other economic and social harms. In addition to economic uncertainties arising from factors such as international trade restrictions and geopolitical conflicts, the digitalization of financial services has increased exposure to fraud, scams, cyberattacks, and business models that may exploit consumers' impulsive behavior. These risks, combined with individual vulnerabilities, low levels of financial and digital literacy, and high indebtedness levels, reinforce regulatory concerns regarding over-indebtedness.[80] The impact extends beyond the financial sphere, affecting physical and mental health, employability, and productivity.[81,82] In Brazil, the expansion of fixed-odds betting, which is currently permitted, represents an additional source of pressure on household budgets, with estimated monthly expenditures of BRL24.1 billion.[83]

78 Article 170, V, of the 1988 Constitution, and fundamental right (art. 5, XXXII).

79 Law 8,078, of September 11th, 1990.

80 *Consumer Finance Risk Monitor 2026* (OECD, 2026).

81 *Financial stress and its physical effects on individuals and communities* (Laura Choi, 2009).

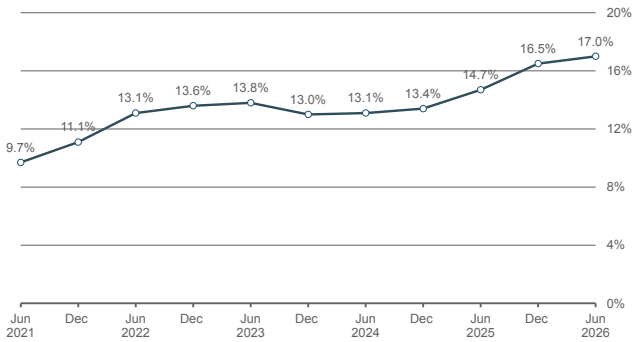
82 *Addressing Household Over-Indebtedness* (Eurofound, 2020).

83 Boletim Fiscal dos Estados Brasileiros – 3ª Edição (Comsefaz, 2026.)

High levels of household and corporate indebtedness remain a significant concern for both the BCB and financial markets. As discussed in Section 1.2.2, debt-servicing capacity remains challenging, and credit risk materialization has increased. This assessment is corroborated by the minutes of the 66th meeting of the Financial Stability Committee (Comef),[84] which highlighted increases in delinquency, income commitment, and indebtedness, as well as by the 3Q2026 Financial Stability Survey (PEF), in which default risk and economic activity continued to rank among the key concerns of surveyed institutions. In this context, the BCB defines over-indebtedness as a situation in which debt-repayment difficulties materially and persistently compromise the living standards of individuals and families. Recent indicators underscore the relevance of this issue: in June 2026, the number of high-risk indebted consumers reached 20.3 million people, equivalent to 17% of all borrowers in the SFN, representing a 75% increase compared with June 2021 (Chart 2.3.1).

84 66th Comef Meeting Minutes.

Chart 2.3.1 – Risky Indebtedness Evolution



Responsible credit provision

BCB regulation seeks to promote responsible credit provision, emphasizing transparency, product suitability, and fair and equitable treatment of consumers. The Resolution CMN 4,949, of September 30, 2021, and the Resolution BCB 155, October 14, of 2021, consolidated these principles by taking into account the complexity of financial products and consumer vulnerabilities. In addition, the Resolution CMN 5,004, of March 24, 2022, enhanced transparency requirements by establishing mandatory disclosures for credit operations, including the Total Effective Cost (CET), the effective interest rate, and late repayment charges. Despite this regulatory framework, conduct supervision continues to identify challenges related to the marketing of products that are unsuitable to consumers' profiles or financial capacity, the use of potentially inducive customer journeys, and insufficient disclosure regarding product characteristics, costs, and risks. These issues are particularly relevant for credit products linked to credit cards, whose contracting is not always accompanied by an adequate understanding of their financial implications, thereby increasing consumer vulnerability.

The digitalization of financial services has expanded credit exposure and may increase indebtedness risks, particularly among more vulnerable consumers. Recent BCB research[85] indicates that lower-income consumers receive, on average, nine credit offers per month and that some of these offers result in unplanned borrowing, including among individuals who were not initially seeking credit. The study also suggests that the multiplicity of accounts and available credit limits may blur the distinction between disposable income and borrowing capacity, encouraging impulsive decision-making. Complementary evidence[86] identified the recurrent use of choice architecture mechanisms in financial applications, such as highlighting pre-approved credit limits and embedding credit offers within payment journeys, which may reduce barriers to borrowing.

85 BCB research on digital credit provision (2026).

86 FGV Cemif and Plano CDE study on digital channel borrowing (2026).

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The combination of intense exposure to offers, economic vulnerabilities, and behavioral incentives may contribute to persistent indebtedness trajectories and a higher risk of over-indebtedness. Although digital functionalities broaden access to financial services, the findings point to the need to strengthen responsible lending practices, with emphasis on transparency, mitigation of behavioral biases, assessment of repayment capacity, and product suitability.[87]

Measures for highly-indebted consumers

Consumers facing elevated indebtedness should have access to support mechanisms that help restore their financial capacity. To this end, the BCB promotes financial education and debt renegotiation preparedness initiatives, including training programs offered through the *Meu Bolso em Dia* platform and financial guidance and debt negotiation campaigns, both conducted in partnership with the Brazilian Federation of Banks (Febraban). In addition, regulation requires financial institutions, payment institutions, and other authorized entities to undertake financial education initiatives aimed at preventing delinquency and over-indebtedness.[88]

Beyond support measures, the regulatory framework includes mechanisms designed to reduce borrowing costs and facilitate consumers' financial rehabilitation. Credit portability seeks to foster competition and enable borrowers to migrate their existing credit operations to more favorable conditions.[89] In cases of over-indebtedness, the primary treatment tool is the multilateral conciliation between creditors and debtors, which may occur through either out-of-court or judicial proceedings, subject to rules ensuring preservation of the minimum existential standard of living and appropriate debt treatment.[90]

Other complementary measures to combat indebtedness

The regulatory framework incorporates additional instruments aimed at mitigating consumer indebtedness. Regulations have limited the long-term use of revolving credit facilities, encouraging the migration of outstanding balances to financing modalities offering more beneficial terms.[91] Caps have also been established on charges applicable to overdraft facilities and credit cards.[92] Additionally, the BC PROTEGE+ mechanism was created to allow citizens to restrict the contracting of new financial products and services, as well as certain account-profile changes, thereby helping prevent fraud, abusive marketing practices, and exposure to unsuitable offers.[93]

Conduct regulation complements over-indebtedness treatment mechanisms by strengthening preventive consumer protection. In this context, the opening

87 *Recommendation of the Council on Consumer Protection in the Field of Consumer Credit* (OECD, 2026).

88 Joint Resolution 8, of December 21, 2023, updated after Law 15,252, of 2025.

89 Resolution CMN 5,057, of December 15, 2022.

90 Law 14,181, of 2021, and Decree 11,150, of 2022.

91 Resolution CMN 4,549, of January 26, 2017.

92 Resolution CMN 4,765, of November 27, 2019; Law 14,690, of 2023; Resolution CMN 5,112, of December 21, 2023.

93 Resolution BCB 475, of May 26, 2025.

of accounts through voice calls and the provision of credit cards without the consumer's explicit request or authorization have been prohibited.[94] Regulation further requires that credit limits be compatible with customers' financial capacity and vulnerabilities, taking into account, where applicable, their overall credit exposure. In addition, every increase in a credit limit must be expressly authorized by the customer, who must also retain the right to request a reduction. These measures reinforce the preventive (*ex ante*) role of conduct regulation, seek to align credit provision with consumers' repayment capacity, and, together with the over-indebtedness treatment mechanisms established under consumer protection legislation, which predominantly operate on already-established situations (*ex post*), contribute to more comprehensive consumer protection throughout the financial journey.[95]

2.4 Responsibilities and incentives in payment schemes

The payment scheme owner (IAP) plays a central role in risk management and in preserving the flow of funds within payment schemes. Regulation assigns the IAP responsibility for the centralized and integrated management of exposures and interdependencies within payment schemes, as well as for establishing safeguards mechanisms commensurate with the risks taken by participants. The evolving regulatory framework has sought to enhance these mechanisms, including the sizing of collateral requirements, to balance the safety of payment schemes with competition and innovation. The IAP's responsibility for covering residual risk strengthens incentives for sound risk management and helps ensure the settlement of transactions to end payees.

Law No. 12,865 of October 9, 2013 established the legal framework for payment schemes and payment institutions in Brazil and recognized the central role of the IAP in their organization. The Law defined the main agents and activities in this market, brought payment schemes deemed relevant within the scope of the Brazilian Payment System (SPB), and granted the *Banco Central do Brasil* (BCB) authority to regulate, authorize, and oversee payment schemes, in accordance with the guidelines established by the National Monetary Council (CMN). As the entity responsible for the rules and procedures governing the provision of payment services within a payment scheme, the IAP is uniquely positioned to identify interdependencies among participants and establish mechanisms designed to ensure the scheme's safe and efficient operation in a competitive environment that fosters innovation.

The central role of the IAP is particularly relevant in card-based purchase schemes, which involve multiple agents throughout the flow of funds. Between the authorization of a payment transaction and the receipt of the funds by the end payee, the process may involve issuers of the payment instrument, acquirers, subacquirers, clearing and settlement service providers, and account-servicing institutions that hold the merchant's account, thereby giving rise to credit, liquidity, operational, and legal exposures. In this context, risk management must consider not only participants' individual exposures, but also their interdependencies and the possibility that the operational or financial difficulties of one agent may disrupt the flow of payments.

The regulations issued from 2013 onward translated the IAP's central position into specific responsibilities for managing scheme risks. The regulatory framework, particularly Circular No. 3,682 of November 4, 2013, assigned the IAP responsibility

94 Resolution BCB 96, of May 19, 2021.

95 Law 14,181, of 2021.

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for establishing participation rules and management mechanisms commensurate with the risks arising from the activities of the various agents, thereby enabling an integrated approach to managing exposures within the scheme. This framework seeks to reconcile participants' individual responsibilities with the need for a centralized view of risks that may affect the operation of the scheme as a whole and is essential to the proper functioning of the 'honor all cards' rule characteristic of such schemes.

Circular No. 3,765 of September 25, 2015, marked an important milestone in consolidating the centralized management of payment-scheme risks. By regulating the centralized clearing and settlement of transactions within the same scheme that is part of the SPB, the rule enhanced transparency regarding participants' financial positions and obligations, strengthening the IAP's ability to monitor the flow of funds and manage, on an integrated basis, the risk exposures existing among scheme participants.

Centralized settlement also helped align responsibilities and incentives within card schemes. In addition to providing a standardized mechanism for settling scheme obligations, greater visibility into financial positions and interdependencies among participants gave the IAP better conditions to establish participation requirements, exposure limits, protection mechanisms, and safeguards commensurate with the risks introduced by each agent. Risk management thus evolved toward a more comprehensive approach to the scheme´s operation, rather than relying predominantly on bilateral relationships among its participants.

Circular No. 3,886 of March 26, 2018, enhanced this framework by bringing subacquirers more explicitly within the regulatory regime for payment schemes. The regulation recognized subacquirers as scheme participants, reflecting their role as payment service providers to the end users that contracted with them. It also brought subacquirers into centralized settlement, helping ensure that the risks associated with their activities were incorporated into the IAP's integrated risk management. The broader scope of the model preserved the fundamental allocation of responsibilities: participants are accountable for the risks arising from their activities, while the IAP remains responsible for assessing interdependencies and centrally managing risks within the payment scheme.

Law No. 14,031 of July 28, 2020, known as the Pass-Through Law, added specific legal protection for the flow of funds within payment schemes. Enacted through the conversion of Provisional Measure No. 930 of March 30, 2020 into law, it sought to provide greater legal certainty for funds moving through the payment chain by protecting them until they reach the end payee. This protection enhanced the existing risk-management framework by reducing the possibility that events related to a participant's financial condition, or the misuse of funds originating from the payment scheme, could interrupt transaction settlement.

The principal innovation introduced by the Pass-Through Law was the legal segregation of funds earmarked for settlement from the assets of the participants through which those funds pass. These funds are separate from the participant's other assets and rights and may be used solely to discharge the settlement obligations to which they are linked. Until received by the end payee, they are protected against attachment arising from obligations unrelated to the payment scheme as well as against the effects of any restructuring, insolvency, or liquidation proceedings involving the participant through which they are passing.

Legal segregation provides greater continuity to the flow of funds, regardless of intermediaries' financial condition. Even when a participant faces financial difficulties, the funds made available by payer end users to discharge their payment obligations must continue through the chain of intermediaries until they reach the end payee. This protection is particularly relevant in credit-card schemes, where the interval between execution of a payment transaction and its final settlement lengthens the period during which the flow remains exposed to credit, liquidity, operational, or legal events.

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The Pass-Through Law also granted specific protection to assets and rights designated to secure transaction settlement. Assets allocated by IAPs and participants for this purpose, in accordance with the scheme rules, constitute a separate pool of assets and may be used solely to discharge obligations undertaken within the scheme. Legal protection of the flow of funds and of collateral therefore reduces the risk that resources earmarked for settlement may be diverted from their intended purpose due to obligations unrelated to the scheme.

The protection afforded by the Pass-Through Law complements, but does not replace, centralized risk management by the IAP. Asset segregation primarily addresses the risk that legal events or events affecting a participant's financial position may affect funds earmarked for settlement, whereas credit, liquidity, and operational risks continue to require prevention, monitoring, and coverage mechanisms established within the scheme. Legal protection and ongoing risk management are therefore complementary instruments for preserving the continuity of payment flows and the soundness of the payment scheme.

Resolution BCB 150, of October 6, 2021, consolidated the regulatory framework developed since 2013 and introduced regulatory enhancements, particularly in risk management. The rule brought together the provisions governing the authorization, participation, governance, settlement, and risk management of payment schemes that are part of the SPB, while preserving the IAP as the central element of their governance. The regulatory consolidation thus maintained the principle that the scheme owner is responsible for coordinating the management of risks arising from relationships and interdependencies within the scheme, in order to safeguard payment flows and protect funds earmarked for settlement of payment transactions.

Resolution BCB 150 made the IAP's responsibility for integrated risk management more explicit. Under the rule, the IAP must maintain a framework commensurate with the nature and complexity of the scheme and capable of identifying, measuring, assessing, monitoring, controlling, and mitigating the risks arising from its operation. This approach encompasses both participants' individual exposures and the potential effects of an agent's default or failure on the other entities in the payment chain and, ultimately, on the end payee.

Participation requirements and protection mechanisms are important instruments through which the IAP discharges this responsibility. Access criteria, exposure limits, monitoring procedures, and collateral requirements allow the scheme owner to make participation conditional on each agent's ability to manage the risks arising from the activities it performs. At the same time, these instruments must be based on objective, transparent, equitable, and non-discriminatory criteria, so as to preserve the scheme's safety without imposing disproportionate restrictions on participation, competition, and innovation.

Resolution BCB 522, of November 10, 2025, provided a greater level of detail within this framework, without altering the principle of centralized risk management by the IAP. The rule provided more detailed requirements for ongoing and integrated risk management, participant monitoring, transparency of protection mechanisms, and preservation of transaction settlement. It therefore fits within the regulatory architecture developed since the issuance of Law No. 12,865/2013 and Circular No. 3,682/2013, with the IAP serving as the central element for the safe and efficient operation of the payment scheme.

Resolution BCB 522 reaffirmed the understanding that participants' own responsibilities do not displace the IAP's responsibility for the risks of the scheme as a whole. While each participant must manage the risks arising from its own activities, the IAP must continuously assess and monitor exposures generated across the scheme and maintain appropriate risk-management mechanisms to control and mitigate the resulting risks. This responsibility stems from the fact that the IAP establishes the rules

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and admits participants to the scheme and has broad access to participant information, which places it in the best position to assess the interdependencies among the agents involved in the payment flow.

Resolution BCB 522 also detailed the incentives associated with risk-management mechanisms already used by scheme owners. Any collateral required by the IAP must follow a methodology set out in the scheme rules, based on objective, equitable, non-discriminatory, transparent, and auditable criteria, and must be proportionate to the risk each participant adds to the scheme. The regulation further provides that the sizing of collateral requirements must be justified on the basis of the risks actually introduced by the participant.

Proportionality in collateral requirements seeks to balance the scheme's necessary safety with the preservation of appropriate conditions for participation and competition. Excessive collateral requirements for risk coverage may increase the cost of entering or remaining in the scheme without a corresponding safety benefit; while insufficient collateral may shift risk to other participants. The prohibition on collateral requirements between participants reinforces the rationale for centralizing the design of protection mechanisms in the IAP and reducing the bilateral and potentially inefficient or ineffective transfer of risks along the chain.

The IAP's ultimately responsibility extends to ensure the full settlement of authorized transactions and covering the scheme's residual risk. Collateral and other mitigation mechanisms serve as lines of defense against default on the scheme's obligations to end payees. If the resources provided by these mechanisms prove insufficient, the risk arising from the scheme's operation must not be transferred to the end payee. Indeed, by assigning the IAP responsibility for covering residual risk, regulation creates incentives for the IAP, which sets participation rules and has the tools to monitor and limit participants' exposures within the scheme, to size appropriately the safeguards required to preserve the flow of funds.

The regulatory evolution of payment schemes can therefore be understood as the continuous enhancement of a framework founded on centralized risk management by the IAP and protection of the payment flow. Law No. 12,865 laid the foundations of this model; Circular No. 3,682 regulated the operation of the payment schemes that are part of the SPB; Circular No. 3,765 strengthened risk-management mechanisms through centralized clearing and settlement and the IAP's centralized management of exposures among scheme participants; Circular No. 3,886 broadened its scope; the Pass-Through Law granted legal protection to funds provided by payer end users and earmarked for settlement; Resolution BCB 150 consolidated the regulatory framework and further specified risk-management mechanisms; and Resolution BCB 522 set out those mechanisms in greater detail. Taken together, this regulatory framework seeks to allocate responsibilities to the agents best placed to manage the respective risks within the scheme, while preserving incentives for competition and innovation and seeking to ensure that the end payee does not bear the consequences of failures in the payment chain, thereby supporting confidence in payment instruments and the stability of the SPB.

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Box 5 – Legal Framework Governing Financial Flows in Payment Schemes

Adequate protection of financial flows associated with payment schemes is an important element in safeguarding the security, efficiency, and soundness of the Brazilian Payments System (SPB). In payment schemes involving multiple participants, funds intended for the settlement of transactions should reach the receiving end users in a regular and timely manner, including in situations of stress, default, or the initiation of resolution proceedings in respect of a participant. Preserving this purpose reduces uncertainty regarding the allocation of losses, supports risk management by market participants, and strengthens confidence in the functioning of payment instruments.

Against this background, a recent legal opinion issued by the Legal Department of the *Banco Central do Brasil* (PGBC) – Legal Opinion No. 1103/2026-BCB/PGBC, dated 24 August 2026 – established general parameters for interpreting the legal framework introduced by Article 12-A of Law No. 12,865 of 2013, particularly with regard to the protection afforded to funds and receivables earmarked for the settlement of payment transactions. The guidance set out in the legal opinion proceeds from the premise that such funds and receivables have a specific functional purpose: they must be used to ensure settlement of the transactions until the receiving end user has received the corresponding funds. This functional earmarking prevents flows that remain necessary to fulfil that purpose from being treated as unencumbered assets of the participant or diverted to purposes unrelated to the payment scheme.

The legal opinion also delineated the relationship between this statutory protection and the assignment of receivables arising within payment schemes. An assignment made in good faith may remain effective and does not, in itself, entail the assignee's strict liability for the assignor's subsequent default. Preserving the legal certainty of the transaction, however, does not displace the statutory purpose of flows that remain earmarked for the settlement of transactions. Until the receiving end users have been economically satisfied, the remaining funds must be transferred or operationally redirected, in accordance with the rules of the payment scheme, so that settlement may continue, without prejudice to any recourse claims, claims for damages, or claims in insolvency proceedings that the affected parties may have.

The legal parameters set out in the opinion underscore the importance of robust governance, monitoring, and risk-management frameworks within payment schemes. Payment scheme owners – that is, the entities responsible for establishing and governing the schemes – and participants must ensure that their rules, operating procedures, and control mechanisms are consistent with preserving the integrity of settlement flows and protecting receiving end users. By articulating general legal parameters for situations involving stress or diversion from the prescribed purpose, the interpretative guidance set out in PGBC's legal opinion enhances predictability for private-sector participants and public authorities, thereby strengthening the resilience of the payments ecosystem and financial stability.

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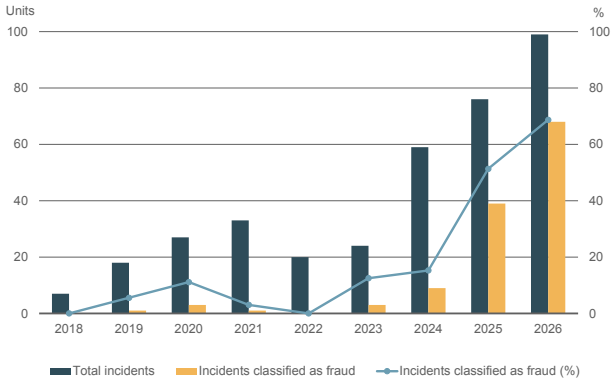
2.5 Cyber incidents: risk factors, implications for financial stability, and preventive measures

The rise in the number of cyber incidents reported to the BCB in 2026 should be analyzed together with the improvements in the capacity to monitor and detect such events. By September 2026, 99 incidents had been reported by supervised institutions, compared with 76 in the full year 2025 and 59 in the full year 2024 (Chart 2.5.1). In addition to the increasing digitalization of financial services and greater interconnectedness among SFN participants, the growth in reported incidents results from better controls for monitoring, detection, and reporting mechanisms implemented by supervised entities and the BCB. These improvements increased the visibility of events that might previously have gone undetected or unreported.

Chart 2.5.1 – Total incidents and incidents classified as fraud by year



Incidents classified as fraud accounted for the largest share of reported incidents in 2026. Of the 99 incidents reported through September, 68 were classified as fraud, corresponding to 69% of the total. In 2025, 39 of the 76 reported incidents were classified as fraud, corresponding to 51% of the total. Thus, while the total number of incidents reported through September 2026 was 30% higher than the number reported in the full year 2025, the number of incidents classified as fraud was 74% higher.

Recent incidents showed that criminal groups have advanced knowledge of the operation of the SFN. The tactics, techniques, and procedures identified in recent incidents indicated that these groups had knowledge about the messaging structure of the Brazilian Payment System, the operation of accounts maintained for settlement purposes, and the internal processes and technological architecture of institutions attacked. Situations verified in several incidents included the compromise of IT environments, the acquisition or misuse of valid credentials, privilege escalation, and the automated injection of fraudulent transactions into the processing pipeline.

Incidents involving technology service providers remain an area of attention, given the potential for vulnerabilities concentrated in third parties to spread across multiple institutions. In one of the most significant incidents reported in 2026, unauthorized access to the environment of an IT service provider allowed the exfiltration of information associated with a digital certificate used by client institution to digitally sign transactions. The use of the stolen information allowed the generation and transmission of fraudulent messages that, at first, seemed legitimate. The BCB identified that the information of other institutions was also compromised, which led it to adopt preventive prudential measures in relation to these institutions, including the establishment of temporary restrictions on operations and the determination of the replacement of digital certificates.

The events reinforced the importance of adequately managing the risks associated with third-party

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services. Insufficient segregation between corporate and operational environments, unmanaged service providers' access to sensitive technological assets, the continued use of old certificates, and deficiencies in monitoring the controls implemented by third parties increased institutions' exposure. Relevant incidents involving these providers may simultaneously compromise the operations of multiple participants and increase the financial and operational impacts of such incidents.

With the aim of complementing the analysis of reported incidents and assessing the extent to which technology and cyber risk management practices have been adopted across the SFN, the BCB conducted a survey covering 1,365 supervised entities in the first half of 2026. The information presented is based on declaratory responses and should be interpreted as an indication of the level of implementation of these practices, without replacing specific supervisory assessments on the effectiveness of the considered controls (Table 2.5.1).

Table 2.5.1 – Third-party relationship management

Activity	%
Prior assessment of potential service providers to verify operational capacity, regulatory compliance, and risks associated with the intended engagement.	76
Formalization of the relationship with the service provider through contractual clauses covering operational and regulatory requirements, including information security and business continuity issues	75
Selection of service providers	67
Inventory of contracted third-party service providers	65
Establishment of communication channels for timely reporting of incidents that occurred at service providers and had an impact on the provision of services	64
Classification of contracted third-party service providers	60
Periodic monitoring and assessment of the adequacy of service provision against contractual requirements	56
Identification and remediation of non-conformities identified in relationships with third parties	56
Implementation of specific procedures upon termination of the relationship with the service provider	47
Periodic assessment of the risks, particularly cyber risk, associated with each service provider, considering the contracted service and, where applicable, the institution's risk appetite	42
Identification, monitoring, and management of concentration risks or other risks related to the third-party ecosystem	35

The data collected illustrates that third-party risk management practices still vary significantly across institutions (Table 2.5.1). Although most institutions reported conducting prior assessments of service providers (76%) and formalizing these relationships through contractual clauses covering operational, regulatory, information security, and business continuity requirements (75%), practices related to ongoing monitoring are less widespread. Only 56% reported periodically monitoring and assessing the adequacy of service provision and identifying and remediating noncompliance in third-party relationships, while 47% reported performing specific procedures upon termination of the relationship, such as deactivating accounts and deleting data held by the service provider.

The incident previously described highlights the importance of effective controls over third parties, particularly regarding the management of digital certificates and sensitive assets. The relatively lower proportion of institutions that reported periodically assessing the risks, particularly cyber risk, associated with each service provider (42%) and identifying, monitoring, and managing concentration risks or other risks related to the third-party ecosystem (35%) indicates that there is room for improvement in the ongoing oversight of critical dependencies. In highly interconnected environments, vulnerabilities at relevant service providers may simultaneously affect multiple institutions and increase the potential operational and financial impacts of cyber incidents.

Significant cases also involved the compromise of credentials and the misuse of legitimate access. In 2026, incidents involving the misuse of credentials

of employees, developers, service providers, and technical accounts used for system integration were observed. In some cases, social engineering techniques, phishing, compromised devices, and the exploitation of vulnerabilities in password recovery mechanisms allowed access to accounts, some of them with elevated security privileges. After improperly accessing the institution's IT environment, criminals typically try to obtain additional credentials and access IT assets, modify technological components, or even insert fraudulent transactions into processing pipelines.

In many cases, the use of valid credentials hindered the timely detection of criminal activities. In several incidents, fraudulent transactions were processed using previously authorized accounts, valid digital certificates, or seemingly healthy services, mimicking the characteristics/behavior of legitimate transactions. The incidents were also possible due to weaknesses related to the accumulation of permissions, the absence of multifactor authentication for critical access, the possibility of modifying the mechanisms used for the second authentication factor, and the absence of continuous validation of revoked credentials.

Table 2.5.2 – Access control management

Activity	%
Centralization of access management activities in a specific organizational unit within the institution	63
Access granting	88
Access revocation	87
Inventory of authentication and authorization systems	69
Controls to restrict access to the corporate network to authorized users and devices	78
Role-based access control (RBAC)	68
Network access control at the port level	57
Access control for remote devices based on secure configuration parameters	75
Access blocking	85
Automatic blocking of devices upon reaching the limit of consecutive unsuccessful authentication attempts	74
Periodic and timely review of access permissions, particularly those of outsourced employees with access to the institution's IT resources	75
Multifactor authentication for external access to the corporate network	72
Multifactor authentication to access IT solutions and services that support critical processes	69
Multifactor authentication to access IT solutions and services that support all business processes	49
Multifactor authentication for externally exposed IT solutions and services	56
Multifactor authentication to access privileged accounts	65

The data collected on access control management indicates a broader adoption of basic practices of granting, revoking and blocking access, but also reveals relevant gaps in controls related to critical environments and privileged accounts (Table 2.5.2). Although 88% of institutions reported having procedures for granting access, 87% for revoking access, and 85% for blocking access, centralized management by a specific organizational unit was reported by 63% of respondents. The periodic and timely review of permissions, particularly those of outsourced employees with access to IT resources, was reported by 75% of institutions, a percentage that suggests that there is room for improvement given the importance of this control in preventing valid credentials from remaining active after changes in roles, contract termination, or changes to the service provision model.

This situation is directly related to the incidents observed in 2026, in which legitimate credentials, technical accounts, digital certificates, and administrative access were used to process fraudulent transactions or modify technological components. The implementation of multifactor authentication was reported by 72% of institutions for external access to the corporate network, 69% for information technology (IT) solutions and services that support critical processes, 65% for privileged accounts, and 56% for externally exposed solutions and services. These percentages indicate that, although multifactor authentication has been implemented by a substantial proportion of institutions, its adoption is not yet sufficiently widespread across

all critical vectors exploited in recent incidents. In particular, the combination of privileged access, technical credentials used for integration between IT systems, and the provision of externally exposed services requires more consistent controls, including periodic access review, segregation of duties, and implementation of authentication mechanisms that are protected to unauthorized password reset or social engineering attacks.

Services provided through APIs were exploited to perform and automate fraudulent transactions. The analysis of recent incidents allowed the identification of vulnerabilities commonly exploited by criminal groups such as misuse of inadvertently exposed API interfaces, flaws in authentication and authorization mechanisms, compromise of digital certificates or security tokens used for service integration via API, and deficiencies in the validation of transactions. In some cases, criminals misused API interfaces to bypass standard transaction approval flows. In other cases, flaws in application logic allowed the creation of artificial credit that was later transferred to fraudulent accounts.

Table 2.5.3 – API security: activities reported by institutions that use services provided through APIs[1/]

Activity	%
Establishment of specific security controls and requirements for IT solutions and services that use services from other institutions or service providers through electronic interfaces (APIs)	60
Establishment of mechanisms to detect and prevent malicious data and information injection attempts through services provided via APIs	43
Periodic security assessments of IT solutions and services that use services provided via APIs	43
Definition, establishment, and monitoring of operational limits for IT solutions and services that use third-party services via APIs	48

1/ Only the 1,107 institutions that use services provided through APIs are considered.

Specific controls for services provided through APIs are still less widely adopted than other classic technology security practices (Table 2.5.3). Among institutions using this type of integration, 60% reported establishing specific security controls and requirements, such as the establishment of secure connections, the definition of rules for authorization token updates, the use of robust cryptographic keys and algorithms, the encryption of sensitive data, and the establishment of requirements for data validation and sanitization. Smaller groups of institutions implemented mechanisms to detect and prevent malicious data injection attempts (43%), periodic security assessments of solutions using APIs (43%), and the definition, establishment, and monitoring of operational limits, such as timeouts, resources available for processing, and pagination (48%).

This result is compatible with the analysis of the vulnerabilities exploited in the incidents previously described, in which integration interfaces were used to automate fraudulent transactions, bypass standard transaction approval flows, or exploit flaws in application logic. Vulnerabilities that allowed the misuse of digital certificates, security tokens, and technical credentials used in the integration of services, combined with insufficient validation of transactions, increased criminals' capabilities to inject a large volume of fraudulent transactions within a short period into the processing pipelines. In this context, the limited implementation of periodic security assessments, the absence of mechanisms to prevent malicious data injection, and the lack of monitoring of operational limits illustrates the lack of controls to support the safe provision of services via API and reinforces the need for API-specific controls designed to prevent the execution of operations incompatible with expected behavior, to reduce the attack surface, and to automatically interrupt anomalous transactions before they result in significant financial losses.

Automation increased the speed of fraudulent actions and reduced the time available to respond to incidents. The use of APIs and other integration

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mechanisms allowed for the processing of a large number of transactions within a short period and facilitated the dispersion of funds across multiple accounts and institutions. This pattern hindered the timely blocking and recovery of funds, reinforcing the need for continuous monitoring, timely reconciliation of transactions, and the establishment of mechanisms capable of automatically interrupting transactions that are inconsistent with expected behavior.

Incidents in interconnected ecosystems reinforce concerns about deficiencies that go beyond the boundaries of individual institutions. In recent incidents, criminal groups have attempted to record fraudulent contracts with the aim of changing settlement information, seeking to exploit potential weaknesses of trade repository systems implemented to record information on receivables from payment schemes. The weaknesses observed included deficiencies in participant onboarding, lack of validation of information recorded, and limitations in monitoring of atypical transactions (e.g., in some cases, the incidents were identified only after a dispute was raised).

Table 2.5.4 – Transaction monitoring and fraud prevention and response

Activity	%
Integration of fraud management with the incident management process	68
Definition of security mechanisms and controls to mitigate fraud and scams in the design and development of financial products and services	68
Identification of the risk of losses from fraud and scams in business process mapping	64
Establishment of fraud and scam prevention controls according to channel, product, and service	67
Definition of criteria for monitoring transactions, such as transfer amounts and behavioral analysis	70
Monitoring of transactions by business line to detect atypical behavior that indicates potential fraud or scams	68
Use of external sources and other intelligence mechanisms to support transaction monitoring	65
Establishment of specific mechanisms for validating relevant transactions	64
Establishment of criteria for the preventive blocking of transactions	64
Preventive blocking of potentially fraudulent transactions	66
Reconciliation of transaction information to identify potentially fraudulent transactions	58
Use of AI for fraud detection and prevention: real-time transaction monitoring	30
Use of AI for fraud detection and prevention: behavioral pattern analysis	30
Use of AI for fraud detection and prevention: identification of suspicious activities	30

The data collected indicates an intermediate level of adoption of transaction monitoring and fraud prevention and response practices (Table 2.5.4). The definition of criteria for monitoring transactions, such as transfer amounts and behavioral analysis, was reported by 70% of respondents, while 68% of respondents reported the integration of fraud management with the broader incident management process, as well as the monitoring of transactions by business line to detect atypical behavior. Significant, although not widespread, adoption was also observed for fraud and scam preventive controls according to channel and product (67%), preventive blocking of potentially fraudulent transactions (66%), and specific validation of relevant transactions, such as large-value transfers (64%).

Given this context, timely monitoring and validation mechanisms are essential to limit losses and enable the recovery of stolen funds. The reconciliation of transaction information is a practice implemented by 58% of respondents. In addition, 30% of respondents reported using artificial intelligence for fraud detection and prevention, including real-time monitoring, behavioral pattern analysis, and the identification of suspicious activities. As can be noticed, there is room for improvements in the adoption of mechanisms capable of rapidly identifying deviations from expected behavior, correlating signals across channels and institutions, and triggering preventive actions (e.g., blocking of suspicious transactions), preventing funds from being improperly transferred.

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The incidents monitored in 2026 provided further insight into the main vulnerabilities exploited by criminals. The identified vulnerabilities include deficiencies in the management of relationships with third parties and critical service providers; weaknesses in the management of credentials and privileged access; inadequate protection of digital certificates, private keys, and other secrets; deficiencies in the security and governance controls of services provided through APIs; improper exposure of services and administrative interfaces; insufficient segregation of IT environments; the continued use of legacy IT assets and credentials; and limitations in log generation, transaction reconciliation, and monitoring of anomalous behavior.

Recent events reinforce the need to combine robust preventive controls with timely detection and response mechanisms. The diagnosis of the incidents underscored the importance of periodically reviewing access permissions, protecting privileged accounts and technical credentials, using multi-factor authentication for critical activities, adequately managing digital certificates, restricting access to integration services, segmenting IT environments, and implementing continuous transaction monitoring. Timely incident reporting was also relevant to increase the effectiveness of measures and procedures to mitigate the impact of incidents, as well as to improve the recovery of stolen funds.

While significant losses were incurred in some cases, these events did not compromise the regular functioning of the SFN. However, these events demonstrated that the increasing interconnectedness between participants, the concentration on critical service providers, and the speed with which fraudulent transactions can be processed pose risks to financial stability. The BCB will continue to monitor the financial system and respond to significant cyber incidents, as well as continue to develop initiatives to strengthen the cyber and operational resilience of the financial sector.

2.6 Credit exposures to nature-related risks in the SFN

Introduction

The degradation of nature and of its ecosystem services is a relevant source of risk for the financial system, particularly through its exposures to the agricultural sector and to areas with deforestation and a declining trend in water availability. The analysis covers corporate credit (PJ) and rural credit to individuals (PF), based on information from the Credit Information System (SCR) and the Rural Credit and Proagro Operations System (Sicor), with June 2026 as the reference date, and aims to produce a metric that is technically consistent and operationally useful for supervision.

The measurement of nature-related risks considers two sources. Impact risk arises from the intensity with which the financed economic activities put pressure on components of nature, and tends to materialize through regulatory restrictions, compliance costs, changes in production patterns, loss of markets and reputational risks. Dependency risk arises from the intensity with which these activities depend on ecosystem services, and tends to materialize through deteriorating productivity, operational volatility, rising costs and a higher probability of financial stress in sectors sensitive to local environmental integrity. The two channels are distinct but may converge: the sectors that put the most pressure on nature often depend significantly on the very services they degrade.

The interaction between the sectoral risk profile and the ecological condition of the territory broadens the analytical capacity of supervision. For each source of risk, this analysis integrates two dimensions that, on their own, would provide an incomplete diagnosis: the sectoral risk profile, derived from the impact and dependency ratings of the Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) tool, an initiative developed jointly by Global Canopy and the United Nations; and the ecological condition of the territories where the exposures are located, captured by municipal environmental integrity indicators built from public databases – MapBiomas, the National Institute for

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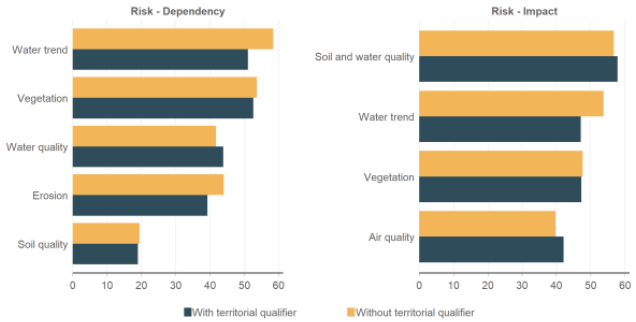
Space Research (INPE), the Brazilian Agricultural Research Corporation (Embrapa) and the National Water and Sanitation Agency (ANA). Each credit operation receives a sectoral risk weight (for example, for a sector highly dependent on water availability), which is then qualified by the environmental condition of the municipality where the operation is located (for example, a municipality with low water availability), ultimately yielding a metric that weights the value of each operation by the environmental risk of its economic sector and of its location (see the methodological box).

Exposures by risk category

Chart 2.6.1 – Brazilian financial system exposures to nature-related risks, by risk category



Reference date: June 2026.
Source: BCB, ENCORE, MapBiomas, Embrapa, ANA and INPE. In-house methodology.

The SFN's exposures to nature-related risks are high in virtually all risk categories (Chart 2.6.1). In each category, every credit operation receives a risk score on a scale from 0 to 1 (0 = negligible risk; 1 = very high risk), determined by the borrower's economic sector and, in the version with the territorial qualifier, adjusted for the environmental condition of the municipality. The value shown for each category is the portfolio's average score, weighted by the value of each operation and expressed as a percentage: an index of 50% means that the portfolio is, on average, at the midpoint of the risk scale (and not that half of the portfolio is at risk). The portfolio considered in the analyses is the sum of PJ credit and the rural credit modality for PF. In dependency risk, water trend and vegetation trend account for the largest exposures; in impact risk, soil and water quality leads, followed by water trend and vegetation at similar levels.

The territorial qualifier reduces most exposures but amplifies risk where local vulnerability is most critical. The reduction reflects the allocation of a significant share of the portfolio to municipalities with intermediate or relatively well-preserved environmental conditions. The exception is the water quality category in dependency risk, whose exposure increases with territorial weighting – an indication that the activities most dependent on water tend to be located in municipalities with poorer water quality. The result illustrates the analytical contribution of the territorial dimension: it not only attenuates exposures but also amplifies them where local environmental conditions are worse.

Sectoral concentration of exposures is marked, with agriculture dominant. Agriculture (defined as the sum of Section A of the National Classification of Economic Activities – CNAE and PF rural credit) alone accounts for an exposure equivalent to about 25% of the SFN's aggregate weighted exposure to nature-related risks (Chart 2.6.2). Manufacturing and trade follow, with weighted exposures of around 5% and 4%, respectively, in both risk dimensions. The electricity and gas section, although with a smaller aggregate share, has a relevant risk profile, given the weight of hydropower generation in water dependency.

Chart 2.6.2 – Exposures to nature-related risks, by CNAE section



Note: only the four sections with the highest dependency score with territorial qualifier.
Reference date: June 2026.
Source: BCB, ENCORE, MapBiomas, Embrapa, ANA and INPE. In-house methodology.

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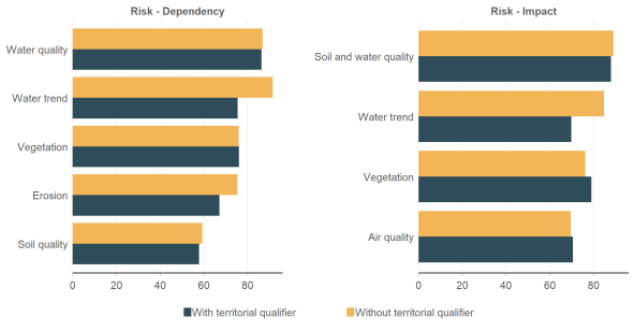
Territorial weighting attenuates, but does not eliminate, sectoral concentration. The qualifier reduces exposures in all sections, with the most pronounced effect in agriculture – an indication that a significant part of this portfolio is allocated to municipalities whose environmental condition is still relatively well preserved. The agricultural sector remains dominant even after territorial weighting.

Agriculture's exposures are notably high in virtually all risk categories. In dependency risk, water quality and water trend lead (Chart 2.6.3), followed by vegetation and erosion at similar levels; soil quality, although lower, still represents an average risk equivalent to 60% of the maximum risk. In impact risk, water trend and soil and water quality show the highest values (weighted risks equivalent to 85% and 89% of the maximum risk), with vegetation and air quality completing the picture (at 76% and 70%, respectively).

The double materiality pattern reinforces the case for dedicated prudential monitoring of the segment. Agricultural activities are, at the same time, those most dependent on ecosystem services – water availability, soil quality, vegetation integrity – and those that put the most pressure on the very components of nature on which they depend.

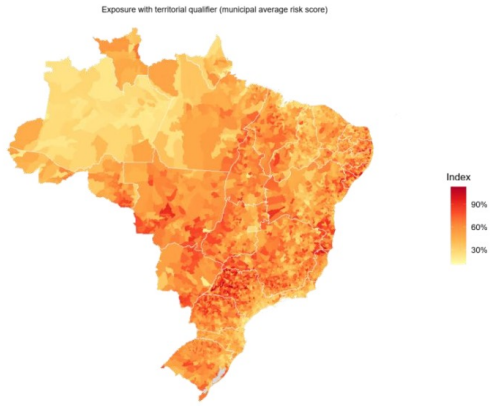
Chart 2.6.3 – Agriculture exposures to nature-related risks, by risk category



Reference date: June 2026.
Source: BCB, ENCORE, MapBiomas, Embrapa, ANA and INPE. In-house methodology.

The study's coverage is universal, reflecting the breadth of the credit databases used and the reach of the SFN across the national territory. In dependency risk, the geographic pattern is relatively homogeneous, with high exposures throughout the country and greater intensity in the Center-West and parts of the North, where the combination of a significant agricultural portfolio and pressure on the Cerrado and the Amazon amplifies the materiality of the risk (Figure 2.6.1).

Figure 2.6.1 – Nature dependency risk, by municipality



Reference date: June 2026. Source: BCB, ENCORE, MapBiomas, Embrapa, ANA and INPE.

Impact risk is concentrated in the active agricultural frontier. The pattern is more heterogeneous, with high-intensity clusters in Mato Grosso, Goiás and western Bahia – areas where the integrity indicators record the worst trends in vegetation and water availability (Figure 2.6.2). In both maps, municipalities with more critical environmental conditions show higher indices even when the absolute portfolio is smaller – an intra-sectoral and intra-regional differentiation that the territorial dimension adds to the prudential reading.

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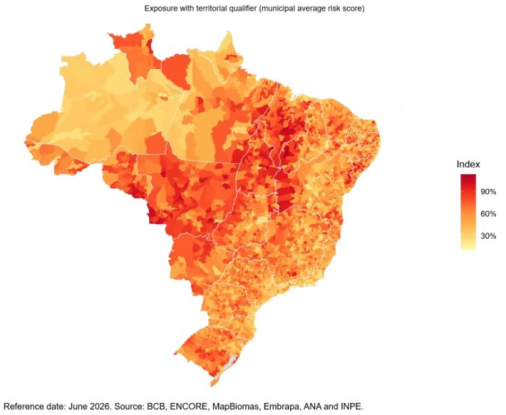
Figure 2.6.2 – Nature impact risk, by municipality



Reference date: June 2026. Source: BCB, ENCORE, MapBiomas, Embrapa, ANA and INPE.

Credit exposures to nature-related risks show relevant and geographically widespread materiality in the SFN. Concentration is marked in agriculture, with a double materiality pattern – high dependency and high impact at the same time. The territorial dimension has demonstrated its own analytical value: it changes materiality differently by category and by region, amplifying risks where ecosystems are most degraded and attenuating them where they remain preserved.

The results support the incremental development of the prudential agenda on nature-related risks. The methodology is flexible – it can be expanded to indirect dependencies along the production chain, new ecosystem integrity indicators and greater locational granularity – and serves as an input for a possible review of the environmental dimension of the social, environmental and climate risk matrix (MRSAC) and for the ongoing monitoring of nature-related risks in the SFN.

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Box 6 – Methodology for measuring credit exposures to nature-related risks

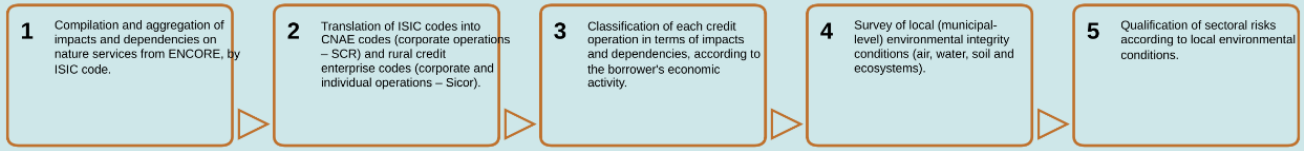
Sectoral stage

The first stage assigns each economic activity a risk profile derived from the ENCORE taxonomy, which assesses, for activities in the ISIC classification, their impacts on ecosystem services and their dependencies on them. To simplify the large number of impact and dependency types, ENCORE components were grouped by similarity into aggregate impact and dependency categories. Each aggregate category takes the rating of the highest-risk component among those aggregated – a conservative criterion, under which the highest risk carries over to the category – on ENCORE's qualitative scale (Very High, High, Medium, Low, Very Low, Not relevant), converted into numerical factors: Very High = 1.00; High = 0.75; Medium = 0.50; Low = 0.25; Very Low or Not relevant = 0.

The ISIC profiles are assigned to credit operations through correspondence tables produced internally for this work: ISIC-CNAE, for PJ operations outside rural credit (SCR), and ISIC-Sicor enterprise code, for rural credit exposures. Each exposure thus receives a sectoral weight for impact risk and for dependency risk (steps 1 to 3 of Figure B1):

Sector-Weighted Exposure = Exposed Portfolio × Sectoral Weight

Figure 2.6.3 – Measurement steps: sectoral classification and territorial qualification of risks



Territorial stage

The second stage qualifies the sectoral weight by the ecological condition of the territory in which the operation is located, using seven municipal environmental integrity indicators (Table 2.6.1), which act as weighting factors for local environmental vulnerability (steps 3 to 5 of Figure 2.6.3):

Location-Weighted Exposure = Exposed Portfolio × Sectoral Weight × Territorial Qualifier

The weighting factors range from 0.25 (very favorable condition) to 1.50 (very unfavorable condition), with 1.00 as the neutral class. Municipalities without measurement coverage receive the neutral value – the methodology's general rule for missing information. Where a reference standard exists (air and water), the cut-offs are derived from the regulatory standard; where there is no standard (soil and vegetation), percentiles of the municipal distribution itself are used (P10, P25, P75 and P90); for the water trend, the cut-offs are defined in physical units of annual change.

Location of exposures

The municipal location of PJ operations starts from the address recorded in the SCR, refined with the Annual Social Information Report (RAIS) for companies with more than one establishment – the municipal distribution of exposures is proportional to the number of employees at each site – and with data from the Brazilian Electricity Regulatory Agency (ANEEL) for power generators, by generation source. This reduces the bias toward concentration at the registered headquarters and improves the alignment of the exposure with the specific production process.

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Table 2.6.1 – Municipal environmental integrity indicators: sources, metrics and conversion into factors

Indicator (dimension)	Source and period	Municipal metric	Conversion into weighting factor
Air quality (impact)	SISAM/INPE — CAMS/ ECMWF reanalysis, 2021–2025	Mean of PM2.5, O3, NO2, SO2 and CO, expressed as a ratio to the Final Standard of CONAMA Resolution 506/2024 (WHO 2021 guidelines); the most critical pollutant prevails	Ratio ≤ 0.25 → 0.25; ≤ 0.50 → 0.50; ≤ 1.00 → 1.00; ≤ 2.00 → 1.25; > 2.00 → 1.50
Water quality (dependency and impact)	ANA — Water Quality Portal / RNQA, 2010–2024 (3,725 points, > 140,000 samples)	Median total phosphorus as a ratio to the 0.1 mg/L standard (CONAMA Resolution 357/2005, Class 2); municipalities without a monitoring point inherit the value of the finest-level Otto basin with measurements, attenuated by a confidence factor λ (from 1.00 for local to 0.40 at level 2)	Same scale as air quality; 93.7% of municipalities with values derived from actual measurements
Erosion vulnerability (dependency)	Embrapa Soils, 2019 — 30 m raster with MapBiomas land use	Municipal mean of the weights of the five water-erosion vulnerability classes, weighted by the exact fraction of area in each class	Very Low → 0.25; Low → 0.50; Moderate → 1.00; High → 1.25; Very High → 1.50
Soil quality (dependency and impact)	MapBiomas Soil, Collection 3 — SOC 0–30 cm, 2024 reference	Soil organic carbon deficit relative to the P75 of the biome × textural class stratum: deficit = 1 − min(1, SOC/SOC_ref); area-weighted municipal mean, excluding areas without mappable soil	Percentiles of the municipal distribution of the deficit: P10/P25/P75/P90 → 0.25 / 0.50 / 1.00 / 1.25 / 1.50
Vegetation — Dependency	MapBiomas, Collection 10.1 — 2024 reference	Remnant: fraction of the municipality covered by native vegetation (forest, savanna, grassland and other formations)	Percentiles, on an inverted scale: the smaller the remnant, the higher the factor (P90 → 0.25 … P10 → 1.50)
Vegetation — Impact	MapBiomas, Collection 10.1 — 2000–2024	Relative loss of native vegetation: (veg. 2000 − veg. 2024) / veg. 2000; negative values indicate vegetation gain	Percentiles of the municipal distribution of relative loss: P10/P25/P75/P90 → 0.25 / 0.50 / 1.00 / 1.25 / 1.50
Water trend (dependency and impact)	MapBiomas Water, Collection 4 — 2000–2024	Annual relative rate of change in surface water area, estimated by linear regression of the log of area against year (% per year)	≥ +3.0% → 0.25; 0 to +3.0% → 0.50; −1.0% to 0 → 1.00; −5.0% to −1.0% → 1.25; < −5.0% → 1.50

The two vegetation dimensions capture distinct risks that, in Brazil, are often inverted – the correlation between the two indicators is negative (−0.32). The Amazon combines abundant services with rapid recent conversion, a typical impact-risk profile; the Atlantic Forest combines degraded services with net regeneration, a typical dependency-risk profile. A single indicator would force a choice between these two signals, which the methodology treats through separate channels.

Among the limitations on the scope of the indicators, two stand out:

- The water trend indicator observes only surface water – groundwater availability is not captured – and does not distinguish natural water bodies from artificial reservoirs; auxiliary columns kept in the database make it possible to audit municipalities affected by large dams.

- The air quality indicator uses a dataset modeled by INPE, given the insufficient coverage of the monitoring station network for municipal-level readings.



Appendix

Banco Central do Brasil Management

Abbreviations

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Banco Central do Brasil Management

Board of Governors

Gabriel Muricca Galípolo
Governor

Ailton de Aquino Santos
Deputy Governor

Gilneu Francisco Astolfi Vivan
Deputy Governor

Izabela Moreira Correa
Deputy Governor

Nilton José Schneider David
Deputy Governor

Paulo Picchetti
Deputy Governor

Rodrigo Alves Teixeira
Deputy Governor

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Abbreviations

10Y
Ten years

2Y
Two years

ABS
Asset-backed securities

ACCP
Countercyclical Capital Buffer

$ACCP_{Brasil}$
Countercyclical Capital Buffer for Brazil

ACP
Capital buffer requirements

$ACP_{Sistêmico}$
Systemic capital buffer

ADI
Direct Action of Unconstitutionality

AE
Advanced economy

AFD
Ativo fiscal diferido

AI
Artificial intelligence

ANA
National Water and Sanitation Agency

Anbima
Brazilian Financial and Capital Markets Association

ANEEL
Brazilian Electricity Regulatory Agency

API
Application Programming Interface

AR
Reference Assets

ATA
Total Assets

b1
Commercial banks, multiple banks with a commercial portfolio, or savings banks

b2
Multiple banks without a commercial portfolio, foreign exchange banks or investment banks

B3
Brasil, Bolsa, Balcão S.A.

b3
Central and confederations of credit unions or individual credit unions

b4
Development banks

BBG FX G10 Carry Trade
Bloomberg Foreign Exchange G10 Carry Trade Index
(*Índice de carry trade em moedas do G10 da Bloomberg*)

BC, BCB
Banco Central do Brasil

BCBS
Basel Committee on Banking Supervision

BNDES
Brazilian Development Bank

BNDESPAR
BNDES Participações S.A.

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CAMS
Copernicus Atmosphere Monitoring Service

CCB
Bank credit note

CCP
Central counterparty

CDB
Bank Certificate of Deposit

CDC
Consumer Protection Code

CET
Total Effective Cost

CIP-Sitraf
Funds Transfer System

CIP-Sitraf
Funds Transfer System

CMN
National Monetary Council

CNAE
National Classification of Economic Activities

CNPJ
National Classification of Economic Activities

Comef
Financial Stability Committee

Conama
National Council for the Environment

COS
Soil organic carbon

CPR
Rural Product Notes

CRA
Agribusiness receivables certificate

CRI
Real estate receivables certificate

CSLL
Social Contribution on Net Profit

CVIX
Currency volatility index (*Índice de volatilidade da moeda*)

CVM
Comissão de Valores Mobiliários

DI
Interbank deposit

DSTI
Debt-service-to-income ratio

DSTI
Individual debt service-to-income ratio

DTI
Debt-to-income ratio

DXY
United States Dollar Index

Ebitda
Earnings before interest, taxes, depreciation and amortization

ECMWF
European Centre for Medium-Range Weather Forecasts

Embrapa
Brazilian Agricultural Research Corporation

EME
Emerging market economies

EN
Equivalent number

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ENCORE
Exploring natural capital opportunities, risks and exposure

EPU
Economic policy uncertainty index

Febraban
Brazilian Federation of Banks

FGC
Credit Guarantee Fund

FGTS
Length-of-Service Guarantee Fund

FGVCemif
Fundação Getulio Vargas Center for Studies in Microfinance and Financial Inclusion

FI
Financial institutions

FIDC
Credit rights investment funds

Fies
Fundo de Financiamento Estudantil

Finame
Agência Especial de Financiamento Industrial S.A.

FMI
Financial market infrastructures

FNE
Fundo Constitucional de Financiamento do Nordeste

FNO
Fundo Constitucional de Financiamento do Norte

FSR
Financial Stability Report

FSSA
Financial System Stability Assessment

GDP
Gross Domestic Product

GSIB
Global systemically important bank

HHI
Herfindahl–Hirschman Index

HHIn
Normalized Herfindahl–Hirschman Index

HP
Hodrick-Prescott

IAP, PSO
Payment scheme owner

IBGE
Instituto Brasileiro de Geografia e Estatística

Ibovespa
Índice da Bolsa de Valores de São Paulo

ICR
Interest Coverage Ratio

IG EUA
United States investment-grade corporate bond index

IG Europa
European investment-grade corporate bond index

IL
Short-Term Liquidity Ratio

ILE
Structural Liquidity Ratio

INPE
National Institute for Space Research

IPCA
Extended National Consumer Price Index

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IPR1
Total Capital Ratio Tier 1

ISIC
International standard industrial classification of all economic activities

IVG-R
Residential Real Estate Collateral Value Index

Latam
Latin America

LCA
Agribusiness Credit Bills

LCI
Real Estate Credit Bills

LCR
Liquidity Coverage Ratio

LCRS
Simplified Liquidity Coverage Ratio

LTD
Loan-to-deposit ratio

LTV
Loan-to-value

LVR
Loan-to-value ratio

MBS
Mortgage-backed securities

***Moedas* AE**
Advanced economy currencies

***Moedas* EM**
Emerging market currencies

MOVE
Merrill Lynch option volatility estimate index

MRSAC
Social, environmental and climate risk matrix

MSCI
Morgan Stanley Capital International

MSCI AE
Morgan Stanley Capital International developed markets index

MSCI EM
Morgan Stanley Capital International emerging markets index

MSME
Micro, small and medium-sized enterprises

n1
Non-Banking Credit Segment

n2
Non-banking segment of the capital markets

n4
Payment institutions

Nasdaq
National Association of Securities Dealers Automated Quotations

NBS
National Bureau of Statistics of China

NEL
Average need for funds for daily payments

NIM
Net interest margin

NSFR
Net stable funding ratio

OEI
Operational Efficiency Index

OMS
World Health Organization

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P2B
Person-to-Business

PA
Problem assets

PBC
People's Bank of China

PD
Probability of default

PEAC-FGI
Emergency Credit Access Program

PEF
Financial Stability Survey

PF
Individual

PFMI
Principles for financial market infrastructures

PGBC
Legal Department of the Banco Central do Brasil

PJ
Corporate

PLA
Adjusted Equity

PNADC
Continuous National Household Sample Survey

PRF
Primitive Risk Factors

Pronampe
National Support Program for Microenterprises and Small Businesses

PTC
Quarterly Credit Conditions Survey

RAIS
Annual Social Information Report

RC
Regulatory capital

RCAR
Regulatory Capital Adequacy Ratio

RDB
Bank Deposit Receipt

RNQA
National Water Quality Monitoring Network

ROA
Return on assets

ROE
Return on Equity

RWA
Risk-weighted assets

RWA_{CAM}
Exchange rate risk-weighted assets

$RWAC_{PAD}$
Risk-weighted assets for credit risk exposures subject to the calculation of the capital requirement using a standardized approach

RWA_{JUR}
Interest rate risk-weighted assets

S&P
Standard & Poor's

S&P Case-Shiller
S&P cotality Case-Shiller U.S. national home price index

S1
Segment 1

S2
Segment 2

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S3
Segment 3

S4
Segment 4

S5
Segment 5

SCR
Credit Information System

Selic
Special System for Settlement and Custody

SFN
National Financial System

Sicor
Rural Credit and Proagro Operations

SISAM
Environmental Health Information System

SITRAF
Funds Transfer System

SPB
Brazilian Payment System

SPI
Instant Payment System

Spread BBB EM
Emerging Market BBB Corporate Bond Spread

Spread BBB EUA
United States BBB Corporate Bond Spread

SRisk
Systemic risk

STF
Federal Supreme Court

STR
Reserves Transfer System

TCR
Total Capital Ratio

TCR
Total Capital Ratio

TDSR
Total debt servicing ratio

TI
Information technology

TIPS
Treasury inflation-protected securities

TPF
Federal Public Securities

US
United States

VAR
Autoregressive vector

VaR
Value at risk

VIX
Chicago Board Options Exchange volatility index

VR
Reference Value



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Concepts and Methodologies

Publications about financial stability

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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").[96]

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. 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 Total Capital Ratio, Tier 1 Capital Ratio, and Common Equity Tier 1 Ratio (CET1 Ratio).

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 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.

96 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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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.

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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[97] 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;

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.

97 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.

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.[98] 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:[99] rural and agribusiness financing (household + corporate),[100] housing financing (household + corporate),[101] infrastructure and development financing (corporate),[102] operations with acquired receivables (corporate),[103] working capital (corporate),[104] payroll-deducted personal credit (household),[105] non-payroll-deducted personal credit (household),[106] vehicle financing (household),[107] credit card (household + corporate),[108] and overdraft facility (household + corporate).[109] 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[110] in the banking and non-banking segments (b1+b2+b3+b4+n1+n2+n4).

In addition, the concentration of the relevant markets of brokerage and distribution of retail investment products is analyzed.[111] 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.

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

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

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

100 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).

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

102 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.

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

104 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).

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

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

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

108 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).

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

110 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

111 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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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.

   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.

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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 – 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%.

Total Capital Ratio – 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 12%. 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

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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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