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Financial stability and regulation in an age of transformation: How economic research can help reorient navigation

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'Financial Stability and Regulation'

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Ladies and gentlemen, dear colleagues,

I am pleased to welcome you all to the 5th Banca d'Italia, Bocconi University, EIEF and CEPR Conference on 'Financial Stability and Regulation'.

I would like to begin not with statements, but with questions. Why did deposit dynamics differ across banks during the 2023 turmoil? When do unrealized losses on securities become relevant for monetary policy transmission? What is driving the rise of non-bank intermediation, and how is this reshaping risk and liquidity in the financial system? How should supervision and regulation adapt to the digital transition while continuing to safeguard financial stability?

Questions like these are at the heart of our daily work in a central bank. To answer them, we must understand how the structure of financial intermediation is evolving at a time of rapid transformation and whether this makes our models obsolete.

Models built for a world of branch banking and slow-moving deposits, with clear boundaries between financial intermediaries' balance sheets, can no longer capture today's financial system. Supervision and regulation now operate within a far more dynamic and complex ecosystem than a decade ago: digitalization enables depositors to move funds instantly 24/7, both across banks and from banks to a wide range of financial intermediaries. As highlighted by the recent tightening cycle, monetary policy and financial stability interact through complex channels,

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including the effects of interest rates on the valuation of securities portfolios. Non-bank intermediaries play a much larger role in the global distribution of risks.

This is precisely why economic research matters. It helps us distinguish structural shifts from cyclical noise, uncover less visible transmission channels, measure possible trade-offs between financial stability and growth, and design policies that are robust to uncertainty. Institutions such as Banca d'Italia have a responsibility not only to regulate and supervise, but also to foster rigorous research that supports sound and forward-looking policy choices.

The papers presented at this conference engage directly with these challenges. Rather than taking the financial system as a given, they explore how it is evolving.

Against this backdrop, the conference is organized around the four closely connected questions I raised at the outset, each addressing a key dimension of this changing landscape.

1. Digitalization and the new speed of bank runs

Let me begin with digitalization: how it is reshaping banking and what it means for financial stability.

Digital transformation has clearly benefited banking services, enhancing efficiency, competition, and financial inclusion.[1] Yet the events around the 2023 US bank turmoil call for deeper reflection: can digitalization amplify banks' inherent vulnerability, which is ultimately rooted in maturity transformation?[2]

Digital banking may alter depositor behaviour during periods of stress. Depositors have become more responsive to market conditions, reflecting both their ability to move funds instantly and their growing use of deposit-brokerage platforms. These developments may have contributed to the unprecedented speed of deposit outflows observed during the recent bank failures of regional banks in the US and of Credit Suisse.[3] At the same time, the rapid spread of news and rumours about banks' distress via social media can intensify reactions by depositors and shareholders. The available empirical evidence, however, seems to suggest that the markets are able to distinguish

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1 See, among others, Vives (2019) and Jiang et al. (2022).

2 See Diamond and Dybvig (1983).

3 When it comes to corporates, whether, or how much, technology has accelerated deposit runs remains an open question: as a matter of fact, large corporates have been able to automate withdrawals since the late 1970s. Digitalization has, however, enabled all depositors – including retail ones – to move funds instantaneously. For corporates, moreover, new technologies supported by Open banking and Banking-as-a-Service are also improving efficiency and speed in liquidity management and in reallocating large deposits across banks or into other assets. For analyses of the rapid outflows observed in recent stress episodes, and of their potential drivers, see Rose (2023) and FSB (2024).

between sound and ailing banks.[4] This being the case, digitalization may then reinforce the traditional disciplinary role of short-term funding.[5,6]

Digitalization can also affect the transmission of monetary policy, as it increases the sensitivity of deposits to changes in interest rates. When rates rise, depositors can move funds more quickly toward higher-yielding alternatives, increasing banks' funding costs and reducing the stability of their deposit base. As a result, monetary tightening may pass through more rapidly – and sometimes more unevenly – to banks' balance sheets and credit conditions. Recent research – including the work that Prof. Santos will discuss in his keynote lecture – suggests that digital banking may compress and destabilize the value of the deposit franchise when monetary policy rates increase.[7] Banca d'Italia research[8] finds that, in the euro area, digital banks shifted significantly toward higher-yielding term deposits during the recent tightening cycle.

Looking ahead, as technologies continue to evolve, so will their interaction with financial stability, in ways that are not easily predictable. For instance, AI-based monitoring tools could either reduce episodes of bank panic – by improving transparency – or facilitate coordination among depositors, potentially increasing bank run risk.[9] Likewise, the rise of digital banking and the expanding use of AI are both exposing banks to new and fast-evolving operational risks, ranging from cyber threats to ICT vulnerabilities, even more so with the greater outsourcing of services and increased system interconnectedness.[10]

2. Monetary policy, securities losses, and the collateral channel

A second core topic of this conference is the interaction between monetary policy tightening and financial stability.

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4 Research from Banca d'Italia shows that social media rumours significantly improve the prediction of banks' deposit growth rates, particularly when negative narratives circulate about distressed institutions (Accornero and Moscatelli, 2018). Evidence from the 2023 US bank turmoil points to similar heterogeneous dynamics across banks (Cookson et al., 2026).

5 See, e.g., Diamond and Rajan (2000).

6 Moreover, the market has adopted – and may still develop – numerous tools and practices to address the challenge posed by potentially swifter outflows of money. Intermediaries can set transaction limits via their terms and conditions, while advances in technology help them improve their liquidity forecasting and management, as well as their real-time transaction monitoring.

7 Professor Tano Santos's keynote speech in this conference is based on the paper he co-authored (Koont et al., 2024). Other contributions on the topic include Erel et al. (2023), Koonz (2023), Drechsler et al. (2023) and Haddad et al. (2023).

8 Ciocchetta et al. (2025).

9 Anand et al. (2025).

10 These risks lie at the heart of the supervisory and monitoring efforts by the SSM and the national supervisory authorities of the participating countries; see, for example, Panetta (2024, only in Italian) and Lagarde (2026).

Economic research has convincingly demonstrated that financial frictions can amplify macroeconomic shocks, including monetary policy shocks.[11] The recent tightening cycle has been a real-world laboratory experiment.

As policy rates rose, banks incurred significant (realized and unrealized) losses on their fixed-income securities portfolios, which put pressure on their balance sheets.[12] Even when solvency was not immediately at risk, mark-to-market losses eroded regulatory capital, constrained lending capacity,[13] and decreased the value of collateral, limiting banks' access to market-based liquidity and, in turn, their ability to supply credit to the real economy.[14]

Unrealized losses on securities held at book value do not directly reduce regulatory capital. Yet recent US banking stress demonstrated that when such losses become large – particularly in institutions with low capital buffers and a high share of uninsured deposits – they can undermine confidence and trigger runs.[15]

Banca d'Italia has contributed actively to this debate. Our research highlights how banks' securities holdings and capital buffers shape credit supply responses to monetary shocks.[16] Well-capitalized banks with diversified collateral are better positioned to sustain lending during tightening phases and, more broadly, in adverse conditions.[17] Monetary and prudential policies cannot therefore be viewed in isolation: they operate through the same bank balance sheets and interact in ways that must be carefully assessed.[18]

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11 Seminal contributions include Kiyotaki and Moore (1997), Bernanke, Gertler and Gilchrist (1999), Gertler and Kiyotaki (2010) and Brunnermeier and Sannikov (2014).

12 See, among others, Begenau et al. (2025).

13 This channel is supported by evidence for the US in Greenwald et al. (2024).

14 See the study by Giannetti et al. (2025), presented in this conference, which suggests, among other things, that unrealized losses may limit banks' ability to access the interbank market. Moreover, a large body of empirical evidence – including research conducted by Banca d'Italia – highlights the importance of central banks' role in easing collateral policies in order to provide liquidity to banks during periods in which the value of securities holdings declines, thereby constraining access to the interbank market (Drechsler et al., 2016; Carpinelli and Crosignani, 2021; Jasova et al., 2023). The aggregate effects of such collateral policies are quantified in a macroeconomic model in De Fiore et al. (2022).

15 See Jiang et al. (2024).

16 Conti et al. (2024) analyse how banks contributed to the transmission of the latest tightening cycle to the macroeconomy. Orame et al. (2024) show that banks with larger holdings of mark-to-market securities are relatively more influenced by asset purchase programs. A brief list of older papers on how bank frictions influence the transmission of monetary policy includes Benetton and Fantino (2021), Peydró et al. (2021), and Bottero et al. (2022).

17 Early contributions include, among others, Jiménez et al. (2012) and Jiménez et al. (2014) for Spain. More recently, Altavilla et al. (2020) provided similar evidence for the whole euro area. Albertazzi et al. (2021) revised the literature on the relation between monetary and bank stability with a focus on studies covering the euro area.

18 For evidence on complementarities between monetary and macroprudential policies in the euro area through the bank credit channel, see Altavilla et al. (2020).

3. The rise of non-bank intermediation

Turning to non-bank financial intermediation (NBFI), its rapid expansion has reshaped modern financial systems. Activities once concentrated within regulated banks are now increasingly being carried out by asset managers, investment funds, insurers, finance companies, hedge funds and private debt vehicles. This shift has broadened the funding sources available to the real economy and boosted market-based finance.

However, as NBFIs engage in traditional bank-like activities without comparable regulation or comparable access to public safety nets, financial stability concerns arise.[19] While individual institutions may not be systemically important, their collective behaviour can generate destabilizing dynamics.[20] The 2022 UK gilt crisis, triggered by margin spirals in liability-driven investment strategies, showed, once again, how leverage can amplify market stress.[21] Although central bank interventions can contain contagion, they may also influence risk-taking and create moral hazard.[22]

More recently, the literature has focused on the growing interconnections between banks and NBFIs. Synthetic securitization structures, for example, allow banks to originate loans while transferring portions of credit risk to insurers or other non-banks.[23] Similarly, the rapid expansion of private credit markets has often relied on bank-provided credit lines to private debt funds.[24] As concerns on lending standards in the private credit markets grow, assessing the extent of its interconnection with the banking sector becomes all the more urgent for investors and regulators alike.[25]

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19 Many investment funds offer short-term redemption options while holding less liquid assets, creating liquidity mismatches that can quickly unwind in times of stress. Others rely on secured funding or embedded leverage, which can lead to rapid deleveraging, with price impacts that are amplified through fire-sale dynamics once margins rise. This margin and fire-sale deleveraging amplification mechanism is conceptually presented in Brunnermeier and Pedersen (2009). For the aggregate implications of the procyclicality of leverage for US large investment banks before the Global Financial Crisis, see Adrian and Shin (2010).

20 Evidence on fire-sale spillovers in the investment fund industry is provided in Falato et al. (2021).

21 Research on the 2022 gilt market crisis in the UK and the stabilizing role of the intervention by the Bank of England include Pinter (2023), Bandera and Stevens (2024), and Alfaro et al. (2024).

22 See the Banca d'Italia research paper by Branzoli et al. (2024).

23 For a description of synthetic risk transfer transactions, their regulatory treatment, and the potential risks to banks associated with their use, see BIS (2026). An early academic contribution analysing the financial stability implications of the development of this market in Europe is presented in Osberghaus and Schepens (2026).

24 See Berrospide et al. (2025) and Acharya et al. (2025).

25 Stress in some private credit funds and their possible spillovers to commercial banks have been frequently reported in the specialized financial press over the last weeks (e.g., Bloomberg, February 26, and Financial Times, March 12).

Whether such innovations primarily reflect genuine efficiency gains and risk diversification or regulatory arbitrage,[26] and whether these complex structures transfer risk outside the banking sector or merely relocate it temporarily, remain open questions.[27]

4. Regulation, supervision, and the stabilization-growth trade-off

Finally, let me turn to the trade-off between short-term economic stabilization during crises and long-term growth, and to the role that regulation and supervision play in shaping it.[28]

The Schumpeterian view of creative destruction suggests that recessions can foster long-term growth by reallocating resources from less productive to more productive firms.[29] More recent contributions, however, show that, in the presence of market frictions, crises – especially banking crises – can leave persistent scars in the economy.[30,31] This makes policy intervention both necessary and complex.

Since the Global Financial Crisis, macroprudential frameworks have sought to manage this trade-off.[32] Capital buffers built up in good times can be released in downturns to sustain credit and support economic activity.[33] The COVID-19 crisis reminded us of the importance of creating macroprudential space during good times: at the outbreak of the

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26 Buchak et al. (2018) quantify the relative contribution of regulatory arbitrage and technology in the growth of shadow banks in the US mortgage market and conclude that regulatory arbitrage dominates. Acharya et al. (2024) analyse the matrix of connections of banks and NBFIs and reach a similar conclusion. Chernenko et al. (2025) look at the private debt market and, differently, suggest efficiency gains may be the dominant factor, as private debt funds have much lower leverage than banks, despite not being subject to regulatory capital requirements.

27 On the transfer of subprime asset losses from Special Purpose Vehicles to their sponsor banks in the early stages of the Global Financial Crisis due to explicit and implicit commitments, see Acharya et al. (2013) and the Banca d'Italia study by Segura (2018), respectively.

28 A related important topic that is not covered in this conference is the role of financial sector regulation and public policies in fostering innovation. The policy debate – sparked by the evidence that the European economy is lagging behind the recent global wave of technological innovation – has highlighted, for example, the importance of changes in the regulatory environment for insurance companies and pension funds in incentivizing their investment in innovative firms (Draghi, 2024), of supporting the development of the securitization market to allow banks to offload risk from their lending exposures to technological sectors (Lagarde, 2024), and of creating a common fiscal capacity to contribute to the co-investment in ventures requiring large amounts of capital in strategic sectors (Panetta, 2024).

29 Schumpeter, J.A. (1942). *Capitalism, Socialism and Democracy.* Harper & Brothers.

30 See Caballero and Hammour (1996), Mian and Sufi (2011), and Mian and Sufi (2013).

31 See Reinhart, C.M., & Rogoff, K.S. (2009). *This Time is Different: Eight Centuries of Financial Folly.* Princeton University Press, and Laeven and Valencia (2012).

32 See Borio, Shim and Shin (2022). For an explicit reflection of how macroprudential policy design can be interpreted as resulting from a trade-off between growth and financial stability, see Suarez (2022).

33 See, e.g., Jimenez et al. (2017), Akinci et al. (2018) and Alam et al. (2024).

pandemic, only a few jurisdictions had releasable buffers, which are more effective than structural buffers in supporting lending during recessions.[34]

To limit the risk of unintended consequences, bank lending stabilization policies must be accompanied by careful supervision. During recessions, weakly capitalized banks may delay loss recognition and engage in 'zombie lending' – rolling over credit to non-viable firms instead of reallocating resources efficiently.[35] While some forbearance can preserve valuable lending relationships,[36] when this is prolonged and widespread, it can depress productivity, crowd out healthy firms and slow the recovery. Effective supervision[37] – supported by transparency and well-designed markets for distressed assets – can mitigate these risks.[38]

In this respect, Italy's successful experience in gradually reducing non-performing loans in recent years offers a useful lesson:[39] credit deterioration must be tackled 'as fast as possible, but not faster'.[40]

Conclusion

As the financial system evolves, so do the channels through which vulnerabilities emerge. Digital innovation and the expansion of market-based finance are reshaping transmission mechanisms, but underlying vulnerabilities remain.

The transformation of the financial system and the growing interconnections among its participants have made it more challenging to design effective monetary and financial policies that can promote both stability and growth. In this environment, central banks and supervisory authorities need a solid foundation of rigorous research to guide their actions.

Banca d'Italia has long believed that careful research and open dialogue between academia and policymakers are essential to sound decision-making. Conferences like

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34 See Mathur et al. (2023). More generally, research at Banca d'Italia has analysed the optimal mix of bank capital releases and fiscal support policies to firms during the pandemic (Segura and Villacorta, 2023).

35 For the zombification of the Japanese economy in the 1990s, see Caballero et al. (2008). For more recent evidence from the euro area, see Acharya et al. (2019) and Blattner et al. (2023). Banca d'Italia research on credit misallocation by undercapitalized banks includes Schivardi et al. (2022).

36 On the value of relationship lending in a crisis, see Bolton et al. (2016). On the role of bank forbearance for going concern non-performing loans, see Angelini (2018).

37 See Bonfim et al. (2023), and the contribution by Banca d'Italia economists in Passalacqua et al. (2021).

38 For a Banca d'Italia research contribution on the role of distressed loan sales in bank restructuring, see Segura and Suarez (2023).

39 For a review of Italy's progress in reducing NPLs, examining accounting, regulatory and supervisory measures, developing the secondary market for NPLs including the GACS guarantee scheme, and improving domestic legal frameworks for enforcement, debt restructuring and insolvency, see FSB (2024).

40 Panetta (2018, only in Italian).

this one are not just academic gatherings; they also provide valuable insights that inform the policy process.

In a world shaped by geopolitical uncertainty, digital transformation, the green transition, and evolving financial structures, analytical clarity is more important than ever.

Let me thank the organizers, the speakers, and all participants for their contribution. I wish you a stimulating and productive conference.

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