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## Regulator or Researcher Hat? The Interconnectedness Case

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A number of remarkable developments have changed the financial landscape over the past decade.<sup>1</sup> I am pleased to see that the rich programme of this year's conference hosted by the European Banking Authority covers some important ones. In my keynote speech today, I will start by looking at three areas of change as conduits to highlight what a difficult job I have got myself into and how I go about disentangling the sometimes conflicting forces and signals that come from wearing different hats: that of a regulator and that of a researcher.

First of all, new technologies have been changing the way we do business, shop, pay, etc.<sup>2</sup> Technological innovation has made it possible to offer new products and services (e.g. digital assets and services), and to offer old products and services in a different way (e.g. online banking). While technology has become increasingly central to the production function of financial firms, IT services are often provided by a few large third-party providers outside the financial industry (and often outside the regulatory perimeter), with a rise in the potentially systemic linkages within and among the financial, technological, and more traditional sectors.

Second, the volume of assets intermediated by non-bank finance has increased over time. If we look at the European Union, an area once characterized by a clearly bank-centred financial system, the total assets of non-bank financial intermediaries (NBFIs) now exceed banks' total assets. While the expansion of non-bank finance has a

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<sup>1</sup> This speech was prepared as an introduction to the academic presentation of the paper by C. Brunetti, M. Carl, J. Gerszten, C. Scotti and C. Shin (2024), '[Interconnectedness in the Corporate Bond Market](#)', FEDS Working Paper No. 2024-66, August, 2024. I would like to thank A. Pilati, F. Cannata, M. Bofondi and N. Branzoli for their comments on a preliminary draft.

<sup>2</sup> See, for example, F. Panetta, '[The digital euro: our money wherever, whenever we need it](#)', introductory statement at the Committee on Economic and Monetary Affairs of the European Parliament, 2023; A. Perrazzelli, '[Technology and regulation: bridging the gap in the collective interest](#)', keynote speech at Milan Fintech Summit, 2024; and R. De Bonis and G. Ferrero, '[Technological progress and institutional adaptations: the case of the central bank digital currency](#)', Banca d'Italia, Questioni di Economia e Finanza (Occasional Papers) 690, 2022.

number of positive effects, it also poses potential risks.<sup>3</sup> NBFIs are often less regulated than banks, although they perform similar functions; the rules are not always sufficiently harmonized, both globally and at EU level; and finally, NBFIs are deeply intertwined with banks, and increasingly so with digital players, products, and services.<sup>4</sup>

Finally, the financial system is facing new material risks stemming from climate change and the transition to a greener economy on a global scale.<sup>5</sup> This makes it necessary to define appropriate metrics for measuring climate risk, some of which go beyond the more traditional physical and transition risks and look at the network of weather events.<sup>6</sup>

I hope that this brief overview has convinced you that the work of financial regulators across the world is complex but also extremely challenging and potentially rewarding, given the contribution that we are required and expected to make to a public good such as financial stability.

In response to these changes, financial regulators have already taken a wide range of actions. Focusing on the EU stance, let me just mention some of the most recent regulatory outputs, such as the Market in Crypto-Assets Regulation (MiCAR),<sup>7</sup> the Digital

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<sup>3</sup> See N. Branzoli, R. Gallo, A. Ilari and D. Portioli, '[Central banks' corporate asset purchase programmes and risk-taking by bond funds in the aftermath of market stress](#)', *Journal of Financial Stability*, 72, 101261, 2024. For a detailed discussion of the opportunities and risks associated with the growth of NBFIs, see L.F. Signorini, '[Non-Bank Finance: opportunities and risks](#)', speech at the Euromed Workshop, 2019.

<sup>4</sup> See, for example, V.V. Acharya, N. Cetorelli and B. Tuckman, '[Where Do Banks End and NBFIs Begin?](#)', NBER Working Papers 32316, 2024; M. Gopal and P. Schnabl, '[The Rise of Finance Companies and FinTech Lenders in Small Business Lending](#)', *The Review of Financial Studies*, Volume 35 (11), pp. 4859–4901, 2022.

<sup>5</sup> See P. Angelini, '[Portfolio decarbonisation strategies: questions and suggestions](#)', Banca d'Italia, *Questioni di Economia e Finanza (Occasional Papers)* 840, 2024; and F. Ferriani, A. Gazzani and F. Natoli, '[Flight to climatic safety: local natural disasters and global portfolio flows](#)', Banca d'Italia, *Temi di discussione (Working Papers)* 1420, 2024.

<sup>6</sup> See C. Brunetti, B. Dennis, G. Kotta, C. Norris, C. Shin and I. Zer, '[Climate Risk Networks and Banks' Exposures](#)', mimeo, 2024; and M.A. Aiello, '[Climate supervisory shocks and bank lending: empirical evidence from microdata](#)', Banca d'Italia, *Temi di discussione (Working Papers)* 1465, 2024.

<sup>7</sup> The Markets in Crypto-Assets Regulation (MiCAR) introduced a harmonized framework across the European Union for the issuance and offering to the public of crypto-assets and the provision of services involving crypto-assets. It aims to reduce regulatory uncertainty in digital assets markets and foster sustainable innovation in the financial sector by establishing a uniform regulatory environment for the following types of crypto-assets: i) electronic money tokens (e-money tokens - EMTs), which purport to maintain a stable value by referencing the value of one official currency; ii) asset-referenced tokens (ARTs), which purport to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies; iii) crypto-assets other than EMTs and ARTs. The rules on the issuance, public offering, and admission to trading of ARTs and EMTs have been in force since 30 June, while the remaining provisions will be fully applicable by the end of this year.

Operational Resilience Act (DORA)<sup>8</sup> and the review of the Alternative Investment Fund Directive (AIFMD2).<sup>9</sup> Much work remains to be done on climate risk, and more generally on ESG issues, including on new forward-looking analytical tools and methodologies for designing sound climate-related stress testing models aimed at assessing the resilience of the financial system over short and very long horizons.<sup>10</sup>

My North Star in this journey of combining different hats into one is to have clear principles as a regulator and to try to think outside the box as a researcher. And indeed, these two hats have the potential to interact in a smart and effective way, even more so now than in the past, given the challenges I have just mentioned.

My main principle as a policymaker is that financial regulation should aim to preserve the benefits of financial intermediation (promoting the efficient allocation of private savings to long-term productive projects by firms, thanks to the maturity transformation services stemming from the combination of deposit-taking and the associated payment services and credit issuance) and those of innovation (as a powerful tool for financial inclusion and socio-economic development), while enhancing the safety and soundness of the financial system.

For me, thinking outside the box as a researcher means not being held hostage by entrenched preconceptions and pushing boundaries, running the risk that I might sometimes uncover controversial truths.

Let me use interconnectedness as a case in point. Each of the examples I mentioned earlier (technological innovation, NBFIs, climate change) has highlighted the potential risks arising from more interconnected sectors and players. Indeed, interconnectedness

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<sup>8</sup> The Digital Operational Resilience Act (DORA) introduces harmonized rules aimed at strengthening the digital operational resilience of the financial sector. It seeks to ensure that European financial institutions (including banks, insurance companies, payment institutions, fund management companies, market infrastructures, and ICT service providers) can prevent, manage, and withstand cyberattacks and other IT threats. This will be achieved through the adoption of appropriate measures, such as ICT risk management and incident reporting. The regulation will apply as of 17 January 2025 and is currently being implemented at national level, with numerous Regulatory Technical Standards (RTS) and Implementing Technical Standards (ITS) being issued at EU level.

<sup>9</sup> The review of the Alternative Investment Fund Managers Directive (AIFMD2), which includes amendments to the UCITS Directive, approved last March, aims to increase the level of harmonization of the rules applicable to fund managers and the degree of integration of the European asset management market, partly to increase the alternative financing channels for the economy, in line with the European Commission's 2020 Action Plan to achieve the Capital Markets Union. The new rules are designed to: introduce a harmonized regime for managers of alternative funds that originate loans and an obligation for asset managers to include liquidity management tools in the UCITS or open-ended AIFs they manage; broaden the activities that fund managers may engage in (e.g. benchmark administration); allow asset managers of alternative investment funds to use depositary services on a cross-border basis, if the domestic depositary market is small and underdeveloped; and generally strengthen and harmonize reporting requirements for asset managers and investment funds. The Directive shall be transposed into Member States' legislation within 24 months of its entry into force.

<sup>10</sup> In this respect, the recent Fit-for-55 stress test (to which the EBA was a key contributor) has been a trailblazing/pioneering exercise that brought together the expertise of the three European Supervisory Authorities (ESAs), the ECB and national competent authorities.

is one of the metrics used to define systemic financial institutions,<sup>11</sup> as it is usually considered (and has proven time and again, including in the Great Financial Crisis) to be a threat to financial stability and an amplifier of shocks.

But is this always the case? With my researcher hat on, my argument today is that if we measure interconnectedness for assets as opposed to entities, then interconnectedness is likely to improve market quality, especially in times of stress, because highly interconnected corporate bonds allow for risk sharing.<sup>12</sup>

This discussion is related to two very controversial debates. One, as already mentioned, is about the role of interconnectedness in financial stability. The other is about whether the traditional entity-based regulation should be complemented by activity-based regulation. While my paper does not have the ambition to resolve such disputes, it does provide a framework for better assessing systemic risks from an asset-based perspective.

Clearly, the jury is still out and more research is needed. As I said in my very first speech earlier this year,<sup>13</sup> ‘research insights are a necessary input to help policymakers address the challenges they face in their work. This is even more so the case when it comes to financial stability and macroprudential policy, an area that needs to be flexible as it grows in response to a fast-evolving financial environment’.

As I speak to you today, trying to decide which of my hats fits better for the occasion (after all, I am Italian and need to be properly dressed for every occasion), I realize that regulation and research are systemically connected and the two hats are more similar than I thought. Many of the topics we research are driven by issues we need to address as regulators. Thinking outside the box as a researcher is often a response to the problems we face as regulators.

I am sure that the discussion fostered by this EBA policy workshop will provide a valuable contribution to our work, and I thank you all for your attention.

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<sup>11</sup> See Basel Committee on Banking Supervision, ‘[Global systemically important banks: revised assessment methodology and the higher loss absorbency requirement](#)’, 2018.

<sup>12</sup> The slides for the paper presented during the 2024 EBA Policy Research Workshop are available [here](#).

<sup>13</sup> See C. Scotti, [Welcome address](#) at the 4th Banca d’Italia, Bocconi University and CEPR Conference on ‘Financial Stability and Regulation’, 2024.

