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The *FINANCIAL STABILITY REVIEW* is a half-yearly journal conceived as a platform to disseminate analysis of financial stability issues, with a particular focus on macroprudential policy, regulation and supervision. The *Financial Stability Review* is open to personal contributions by researchers and professionals in the financial field, and articles are subjected to an anonymous refereeing process. Anyone wishing to contact the Editorial Board may do so through this [contact form](#).

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25 YEARS OF THE *FINANCIAL STABILITY REVIEW*: AN APPRAISAL

Soledad Núñez

BANCO DE ESPAÑA

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Abstract

This article reviews the first 25 years of the Banco de España's *Financial Stability Review* (REF), focusing on aspects such as the context in which it was launched, its governance, dissemination and evolution up to the current publication, as well as its distinctiveness among Banco de España publications. It also shows how the topics the REF focuses on have changed over time, reflecting the far-reaching transformation of the financial system and of the Banco de España itself.

Keywords: financial stability, financial regulation, banking supervision, macroprudential policy.

1 Introduction: *Estabilidad Financiera* and the *Financial Stability Review*

The first issue of *Estabilidad Financiera* was published in September 2001. This new Banco de España publication was an addition to an extensive and well-established catalogue of institutional publications. As a result of the visionary personal initiative of Gonzalo Gil, Deputy Governor of the Banco de España between 2000 and 2006, and of Miguel Pellicer's editorial work, *Estabilidad Financiera* was launched with a view to permanence, and with the firm objective of contributing rigorously to the dissemination of financial regulation and supervision (especially in relation to banking) and to the analysis of what would later come to be referred to as macroprudential policy, through an open and inclusive approach. And, true to this mission, I am very pleased to note that this publication has now completed 25 years of uninterrupted public service.

***Estabilidad Financiera* was conceived as a biannual publication, with May (Spring) and November (Autumn) issues.** From the outset, it was based on carefully selected articles on topical issues of relevance for the financial system, written by Banco de España experts and external contributors with direct technical knowledge of the subjects covered. Naturally, such contributors have had varied affiliations (working at central banks, supervisory agencies, international organisations, universities and other higher education centres, and private financial institutions). These contributions have been made possible by the extensive network of contacts that the Banco de España has as a result of its institutional relations, and also by the interest of the authors themselves in participating in a publication with an impact on the financial world.

The environment in which *Estabilidad Financiera* was launched was not coincidental. The early years of this century were marked by the cumulative experience of various international financial crises that had occurred in the immediately preceding years. The Mexican debt crisis of 1994, the Asian financial crisis of 1997, the collapse of the hedge fund Long-Term Capital

Management (LTCM) in 1998 and the bursting of the US Nasdaq dot-com bubble in 2000 characterised a period of considerable instability. Against this backdrop, the international community – through a responsible and admirable exercise of multilateralism – was able to reach the international consensus needed to move forward with the reform and strengthening of the minimum solvency standards for internationally active banks. Thus, the so-called Basel II Framework or Accord was finalised in 2004 by the Basel Committee on Banking Supervision (BCBS), with the participation of central banks and supervisory authorities from the main jurisdictions, including the Banco de España. It is therefore no coincidence that the inaugural issue of *Estabilidad Financiera* was devoted in its entirety to the progress made in the Basel II negotiations up to mid-2001.

In parallel, at national level, a financial stability monitoring and analysis function (with a particular focus on the banking sector) gradually but inexorably began to take shape at various central banks. This function – inherent in the very *raison d'être* of central banks – was conceptually situated midway between macro-financial oversight and microprudential supervision. Specifically, in 2000, the Banco de España set up the Financial Stability Division, as part of the former Financial Institutions Department, within the Directorate General Regulation. Five years later, this division would become a department¹ in recognition of the growing importance of its tasks and publications.

In the case of Spain, another factor that was conducive to and framed these developments was Law 13/1994 of 1 June 1994 of Autonomy of the Banco de España. This law had already established “promoting the smooth operation and the stability of the financial system” as one of the central bank’s tasks (Article 7.5(b)). However, when this law came into force, this mandate was essentially seen as being the ultimate outcome of the proper performance of other, more specific and operational, functions entrusted to the Banco de España, such as the regulation and inspection of credit institutions.

The Bank of England and Sveriges Riksbank were notably at the forefront of this tendency for financial stability to become a prominent new area of central bank activity. As early as 1997, those two national central banks were already publishing their own financial stability reports. Intellectually, the Bank for International Settlements (BIS) would also exert a key influence. One of its stated objectives is to promote global financial stability through inter-institutional cooperation and, within the BIS, the BCBS has driven and shaped decisive reforms of international regulatory standards relating to bank solvency. A further, equally important factor was the general – and still very evident – trend to make central banks more transparent and accountable.

The analytical development of financial stability was to provide the foundation on which the macroprudential policy function would be built, a decade (and a global financial crisis) later. Financial stability – articulated mainly through methodologies for identifying, assessing and

¹ Following various internal reorganisations in subsequent years, this department is now known as the Financial Stability and Macroprudential Policy Department, within the Directorate General Financial Stability, Regulation and Resolution.



Selection of REF covers from the period 2001-2006. The review has adapted to successive changes in the institutional image of Banco de España publications.

monitoring financial system risks and vulnerabilities – is conceived as a complement to traditional microprudential supervision and is aimed at preventing or mitigating the adverse impact of the possible materialisation of cyclical and structural systemic risks on financial institutions, with the objective of ensuring the smooth operation of the financial system. To this end, it would be necessary to develop a toolkit of specific requirements, such as the countercyclical capital buffer and the capital buffer for systemically important institutions, while, in another area, setting borrower-based measures.

The Banco de España was not unaffected by the changes and innovations in that period. Shortly after the establishment of a permanent financial stability analysis team – as noted above – the first collection of thematic articles was published under the title *Estabilidad Financiera* in autumn 2001 and the first *Financial Stability Report (FSR)* appeared in November 2002. The close interrelation between these two publications meant that, for the following two years, *Estabilidad Financiera* was a dual publication, bringing together in a single document the content of the FSR and various specialised articles. From 2004 onwards, *Estabilidad Financiera* was split into the two separate publications we know today: the *Financial Stability Report (FSR)* and the *Financial Stability Review (REF)*.²

At the same time, in 2002 the Banco de España created a serial publication called *Financial Stability Notes (FSN)*, with a similar format and purpose to other existing serial publications. In comparison with the REF, *Financial Stability Notes* allowed for the dissemination of more technical and also longer papers, with the added flexibility that, since this publication was not tied to either the *Financial Stability Report* or the *Financial Stability Review*, they could be published at any time of year. Five issues were to be published in this series up to 2006, before

² However, the term “review” would not be formally used until May 2016 (issue 30).

it was discontinued because the type of papers published was considered appropriate for the Banco de España's Occasional Papers series.

The establishment of the Editorial Board in 2005 was a milestone in the maturity of the REF. Since then, this body, fully independent of other internal bodies and authorities of the Banco de España, has been responsible for decisions concerning the publication. The Editorial Board, chaired by the Deputy Governor, has had a variable number of members, which has always been small, and a member of the Banco de España's staff as secretary. In addition, a balance has always been sought on the Editorial Board between heads of financial stability-related areas of the Banco de España and renowned academic experts in the field.

The collegial tasks of the Editorial Board are to identify and propose topics or ideas for articles for forthcoming issues, to promote contributions from external authors and to oversee the process for reviewing article drafts. In line with the usual practice of academic journals and other comparable specialised publications, each proposal for an article for the REF is subject to a voluntary, independent and unpaid review by another expert (who, depending on the subject matter and author of the work, may or may not belong to the Banco de España) in order to assess the quality of its content before publication. This scrutiny usually generates technical comments that help to improve the initial draft. These comments, which are submitted anonymously to the authors, are generally reflected in the final text. To this end, the Editorial Board meets regularly to approve the publication of each issue of the REF and plan the next one, in what constitutes a continuous work cycle.

Over a little more than two decades, nearly thirty people have been directly involved in the governance of the REF. Seven Deputy Governors have chaired the Editorial Board: Gonzalo Gil was followed by José Viñals, Javier Aríztegui, Fernando Restoy, Javier Alonso and Margarita Delgado, before the responsibility fell to me (see Table A.1 in the Annex). Among the internal members, José María Roldán and Jesús Saurina deserve special mention; for a long period, they were the senior figures responsible for the Banco de España's financial stability area and our distinguished ambassadors in this field. Among the external members with an academic profile, Julio Segura and Vicente Salas (both university professors and former members of the Banco de España's Governing Council), Rafael Repullo, with an outstanding track record at the Centre for Monetary and Financial Studies (CEMFI), and Santiago Carbó, a university professor currently affiliated to CUNEF, make up the select group of contributors whose dedication to the REF has been most substantial and long-lasting. All of them deserve to be known as architects of the publication that has reached us today. The secretary of the Editorial Board, meanwhile, acts as an intermediary between authors, reviewers and Board members and as the point of contact for the various areas of the Banco de España - Publications (publishing, copy editing and typesetting), Translation and Communication – without which the REF would not exist.

Unlike the REF, the Banco de España's *Financial Stability Report*, with a relatively stable content structure and an institutional and descriptive approach, provides information on the situation of the Spanish financial system (especially the banking sector, but also, to a lesser extent, the non-bank financial sector). Drawing on aggregate data and objective analysis, the



The Financial Stability Review and the Financial Stability Report today. Similar covers, but different contents and objectives.

FSR examines developments in the main risks and vulnerabilities, intermediation activity, profitability and solvency of the credit institution sector, the financial position of households, firms and general government, and the estimated resilience of the banking sector. It also provides information on the Banco de España's macroprudential analysis and policy. Each FSR constitutes the official views of the Banco de España and its publication requires the approval of the Banco de España's Governing Council.

Unlike the *Financial Stability Report*, the purpose of the *Financial Stability Review* is to publish articles on selected topics that employ technical language but are accessible to readers who may not be specialised. Where appropriate, they reflect their authors' views and opinions. Over the years, these two publications have evolved independently. In the case of the REF, its founding objective has always been respected: to channel a growing and diverse body of financial stability-related work undertaken at the Banco de España and, at the same time, to serve as a platform for disseminating the work of, and for dialogue and collaboration with, experts outside the Banco de España. To this end, REF articles are signed by their authors and include the standard disclaimer stating that any views expressed do not necessarily reflect the institutional views of the Banco de España or the Eurosystem or, where applicable, those of the institution to which the author is affiliated.

Several central banks in Europe have developed their own publications with similar objectives to those of the Banco de España's REF. The most directly comparable reviews are those of the Banque de France and Narodowy Bank Polski (see Table A.2 in the Annex). In contrast, other countries, such as the United Kingdom, Ireland and Italy, have opted for a financial stability working paper series, published without a predefined timetable. Denmark and Finland publish, on a flexible basis, short articles under the title *Financial Stability Analysis*. The European Central Bank, meanwhile, channels its output in this field through its half-yearly *Financial Stability Review* and its *Macroprudential Bulletin*. In any event, practices among central banks vary considerably as regards frequency, number of papers, openness to external authors and the (public) existence of an editorial board.

2 25 years of the Financial Stability Review, in figures

The 50 issues of the *Financial Stability Review* (REF) published to date have included a total of more than 300 articles. This means that the average number of articles per issue is six (see Figure 1). The number of articles has varied appreciably from one issue to another, mainly for reasons of opportuneness and availability, ranging from a minimum of four to a maximum of ten (in the inaugural issue only), as has the length of each article (which depends on the nature of the subject matter and the number of authors) (see Chart 1).

A notable feature of the REF has been the variety of topics addressed in each issue. Rather than adopting an alternative monographic approach, with articles on a single subject, as was the case in some of the early issues, the REF has consistently sought to cover several topics in each issue in order to appeal to the broadest possible readership. The number of authors (341) who have contributed to the REF over this quarter-century (with at least one article) exceeds the total number of articles, reflecting the collective effort that is often involved in preparing articles in the field concerned. On average, each REF issue features contributions by around ten authors.

Of all the authors who have published in the REF, slightly less than two-thirds are Banco de España staff. Almost 40% of authors are external contributors, with a range of affiliations: nearly one-third are university lecturers or researchers, while the remainder are professionals from the public sector (other central banks, international organisations, etc.) and, to a lesser extent, from the private sector (see Chart 2). The merit-based approach that characterises the REF has not prevented authors' levels of experience from being highly diverse. Thus, the articles include contributions both from former senior officials of public bodies, who honour our publication with their work, and from young economists and experts who find our journal offers the opportunity to publish some of their first papers.

A detailed analysis of the authorship of the articles published in the REF reveals a rising trend in the average number of authors. While in the early years of the REF articles were usually signed by one or two authors, in recent years this figure has increased to between two and three (see Chart 3). This marked increase has not occurred by chance. Rather it can be attributed to the greater complexity of some of the topics covered and the approach taken to address them. The articles with a larger number of authors often combine regulatory analysis with economic analysis (requiring the collaboration of experts from various departments or areas of the Banco de España).

Another feature of the REF over the period under review is the increasing participation of women in the articles published. In the early years of this publication, female authors represented around 20% of all authors. That figure – albeit with sizeable fluctuations – has followed an upward trend, reaching 35% in recent years (see Chart 4). While this share remains well below that of women in the Bank's workforce, it reflects the parallel ongoing increase at all levels in women's participation, which is now balanced across the institution as a whole. This

Figure 1
Key REF figures

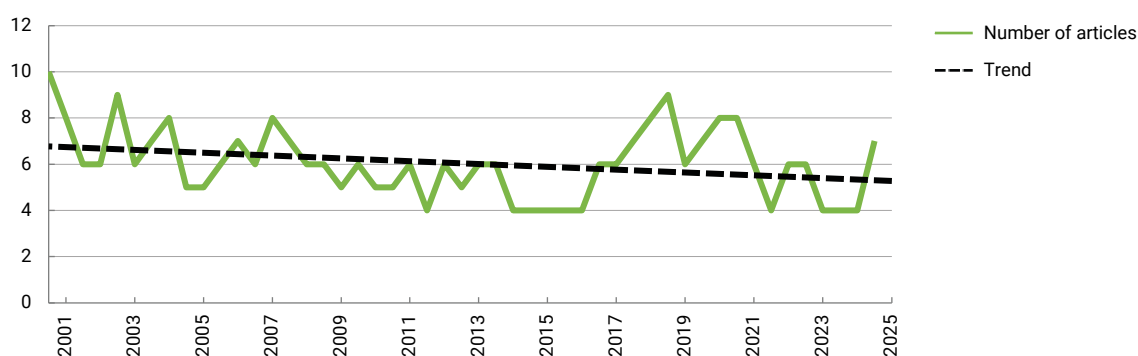


SOURCE: Author's calculations.

percentage should therefore continue to increase gradually in the coming years, thereby narrowing the gender gap.

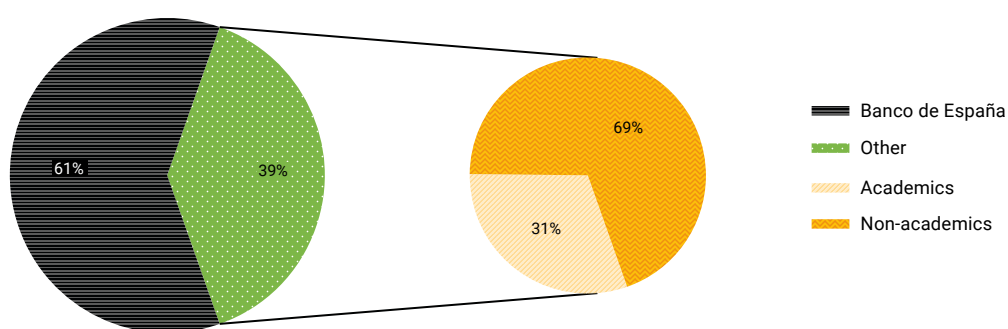
Another important aspect of the REF to which the Banco de España naturally pays attention is the dissemination and impact of the articles in each issue. In this regard, the Banco de España

Chart 1
Number of articles published per issue (2001-2026)



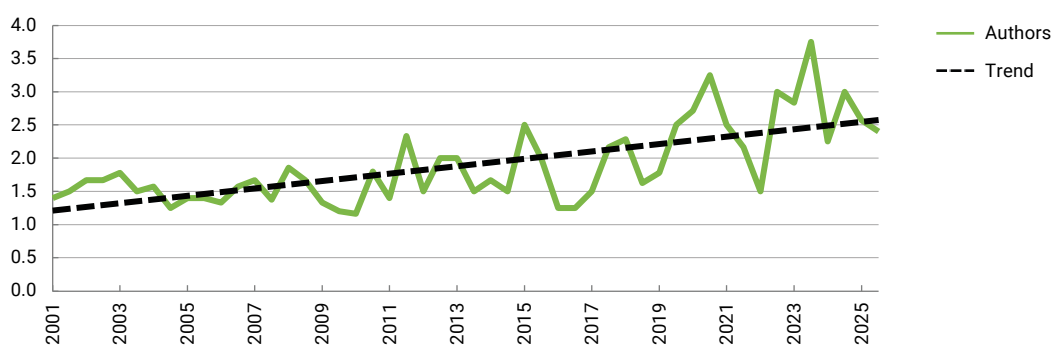
SOURCE: Author's calculations.

Chart 2
Affiliation of authors who have collaborated on articles published in the REF (2001-2026)



SOURCE: Author's calculations.

Chart 3
Number of authors per article (2001-2026)

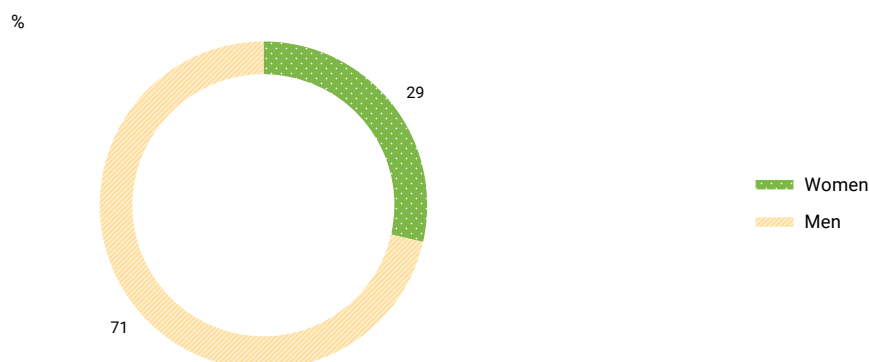


SOURCE: Author's calculations.

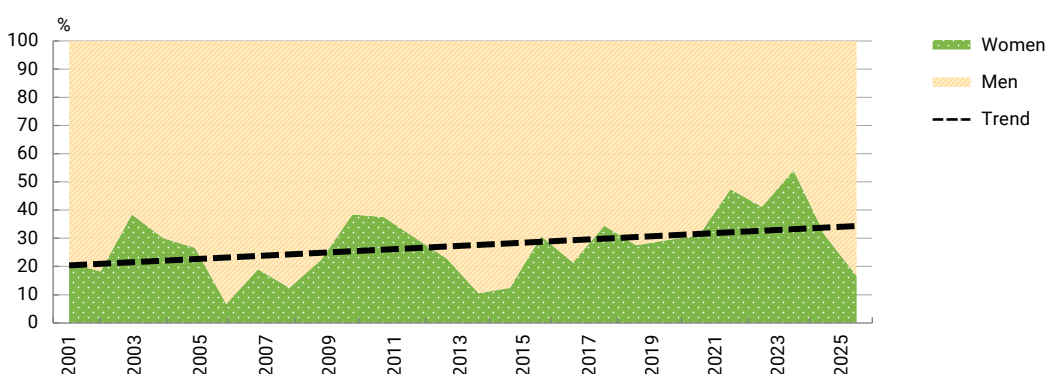
Chart 4

The numbers of men and women who have been authors of REF articles (2001-2026)

4.a Percentages of men and women



4.b The percentages of men and women over time



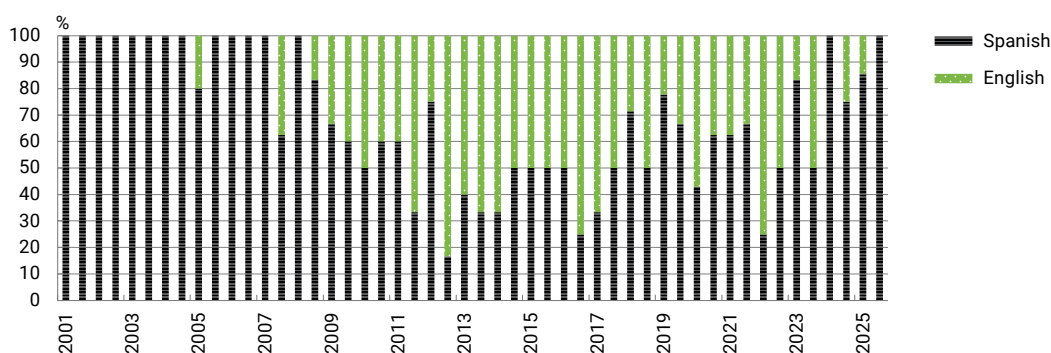
SOURCE: Author's calculations.

has been promoting the availability of the published articles in English as well, so that the REF can reach an international audience interested in matters relating to the Spanish financial system or topics of interest at international level. Specifically, all REF articles have been available in English since 2018. As a publication open to external contributions, a significant share of REF articles (29%)³ have been published directly in English, where this was the language the authors used (see Chart 5). This figure is itself a measure of the degree of internationalisation of a publication that aims to reach, through the Banco de España website, a readership both in Spain and abroad.

A recent survey conducted by the Banco de España has given us greater insight into the profile of REF readers. As might be expected, more than half of readers are professionals, mostly in the financial sector, but also in the public sector. In addition, around one in ten are lecturers or students in academia (see Chart 6). One point worth highlighting about the

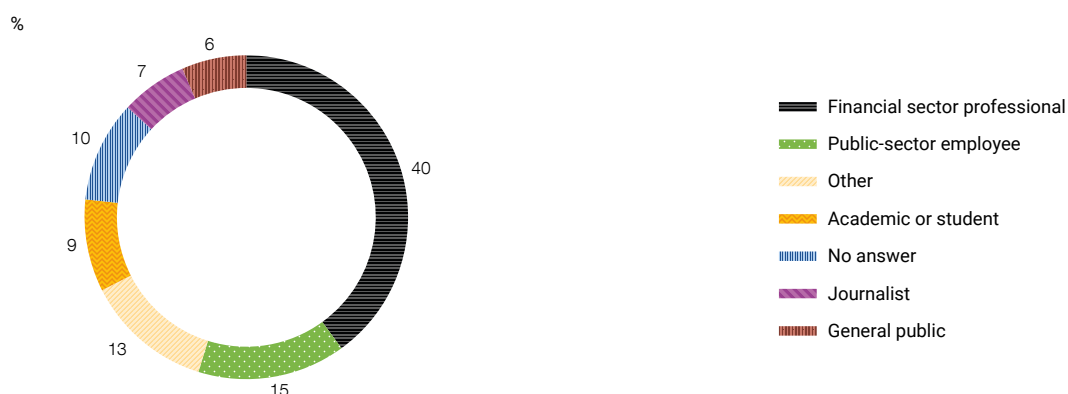
³ This figure is over 33% when the concentration in the period from 2005 onwards is taken into account.

Chart 5
Distribution of articles by original language of publication



SOURCE: Author's calculations.

Chart 6
Profile of REF readers (autumn 2025)



SOURCE: Author's calculations.

REF readership profile – unlike that of other Banco de España publications, such as the *Financial Stability Report* – is their greater interest in specific subjects than in current developments. This means that a significant number of readers access REF articles some time after publication, most likely as a result of ad hoc internet searches for specialised papers.

The Banco de España has expanded its communication initiatives in recent years, which have also affected the REF. The Banco de España is active on social media, with the aim of reaching a wider audience on the publication date of each REF issue. Specifically, the Banco de España regularly posts on X (known as Twitter until mid-2023) and LinkedIn to announce REF articles on the day they are published.

Hemos publicado la edición de primavera de la Revista de Estabilidad Financiera bde.es/wbe/es/publicaciones #bdePublicaciones #EstabilidadFinanciera 1/5



Banco de España REF post on LinkedIn.

3 Thematic evolution of the Financial Stability Review

An initial assessment of the *Financial Stability Review* (REF) over the first quarter-century of its history is likely to give the impression that the thematic priorities of successive issues have been highly diverse, while also constantly evolving. Numerous factors – both endogenous and exogenous – explain this outcome: (i) the transformation and modernisation of the financial system; (ii) the succession of several episodes of financial stress and crisis; (iii) the regulatory and functional development of macroprudential policy; (iv) the increase in staff in the Banco de España's Financial Stability and Macroprudential Policy Department – and in other related areas – and (v) the gradual opening-up of the REF to external contributions. These are probably the most intuitive explanations. As a result, it is difficult to compare the review as it was in 2001 with the review as it is today.

To understand the changes in the REF's subject matter over this period, four sub-periods should be distinguished:

- (i) 2001-2007: the period preceding the global financial crisis (GFC);
- (ii) 2008-2013: the period of the GFC;
- (iii) 2014-2019: the period of economic recovery and lead-up to the COVID-19 pandemic; and
- (iv) 2020-2026: the pandemic and post-pandemic period, up to the present.

In its early years, the REF focused on issues relating to international banking regulation. As already noted, one of the REF's key thematic focuses was the negotiations on the capital requirements framework for internationally active banks (known as Basel II). The Banco de España, as a member of the Basel Committee on Banking Supervision (BCBS), chaired between 2003 and 2006 by the then Governor of the Banco de España, participated in these negotiations. In relation to Basel II, the REF served as a platform for disseminating numerous articles on banking risks (credit risk and advanced internal models for calculating capital requirements), risks to financial stability and the Banco de España's experience with dynamic



REF word cloud (2001-2025), based on the titles of all the articles published in the review.

provisioning (Trucharte and Saurina, 2013) and loan-loss provisions (Saurina, 2009) (see Chart 7).

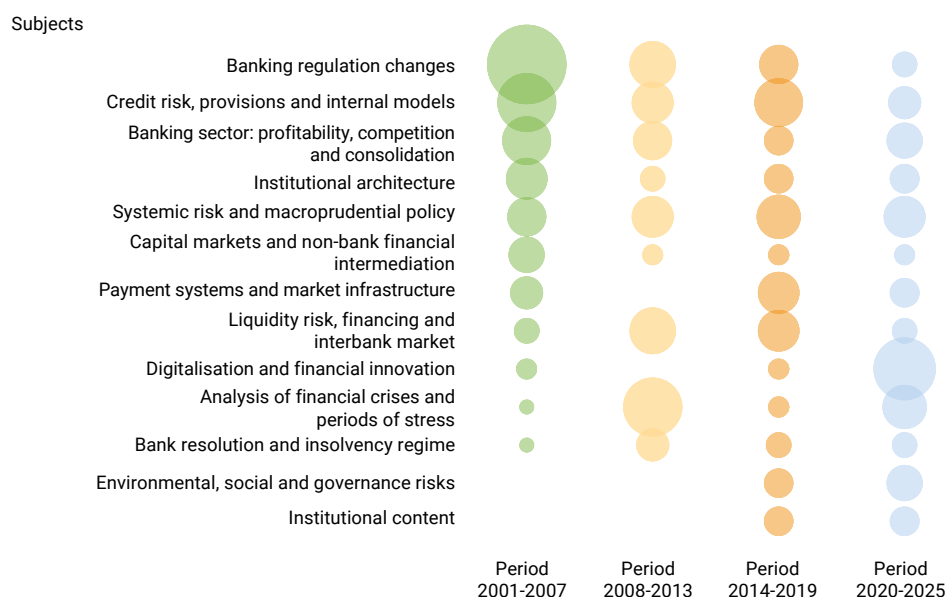
The outbreak of the GFC in 2008 shifted the thematic focus. Without losing sight of regulatory issues, the REF began to pivot towards the analysis of financial crisis episodes and liquidity risk-related problems. At the same time, regulatory developments at global level, with the new Basel III Accord (Rodríguez de Codes Elorriaga, 2010; Ledo, 2011), and at EU level, with the Capital Requirements Directive and Regulation (CRD and CRR, respectively), were also analysed.

After the GFC and the subsequent years of recovery, the five-year period leading up to the COVID-19 pandemic was conducive to a relatively balanced distribution of the topics selected for REF articles. In a context inextricably linked to the implementation of the EU banking legislative package transposing the Basel III framework (CRD/CRR), the growing prominence of the methodological development of macroprudential instruments to address systemic risks is evident. Systemically important institutions (Iglesias-Sarria and Vargas, 2012) and the countercyclical capital buffer are concepts that have become firmly established, and their importance continues to be reflected in the REF today (Castro, Estrada and Martínez, 2014; Castro and Estrada, 2021; Broto, Cáceres and Melnychuk, 2022). The functioning of market infrastructures, such as central counterparties (Rodríguez Quejido and Portero Bujalance, 2015; Núñez and Valdeolivas, 2019), and the comparability of the risk-weighted assets used by banks to calculate regulatory capital requirements (Arroyo, Colomer, García Baena and González Mosquera, 2012; Trucharte, Pérez Montes, Cristófoli, Ferrer Pérez and Lavín San Segundo, 2015), were also analysed.

Over the past six years (2020-2026), which began with the unexpected and dramatic global COVID-19 pandemic, a new set of topics with a relevant financial-stability dimension has emerged. During this time, the REF has served as a platform for the dissemination of a range of topics: digitalisation (Beck and Sánchez Serrano, 2022; Toloba and Río, 2020); financial innovation (González-Páramo, 2017); central bank digital currencies (Ponce, 2020; Landau,

Chart 7

REF articles published by subject category (2001-2026)



SOURCE: Author's calculations.

NOTE: The size of each bubble is in direct proportion to the number of articles published in the subject category concerned. Each article has been assigned to one subject category only, although in many cases they could have been placed in more than one.

2021; Romero Ugarte, Sánchez Martín, Martín Rodríguez and Arenillas Cristóbal, 2021; Gorjón, 2022); crypto-assets and stablecoins (Nieto Giménez-Montesinos and Hernáez Molera, 2018; Arner, Auer and Frost, 2020); new technologies applied to finance (fintech) (Carbó-Valverde, Cuadros-Solas and Rodríguez-Fernández, 2020); incursions by large technology firms into finance (bigtech) (Padilla, 2020; Martínez-Resano, 2021); cyber risks (Herrera-Luque, Munera López and Williams, 2021; Senabre, Soto and Munera, 2021); climate change-related challenges, which had already begun to be addressed in earlier years (Marqués Sevillano and Romo González, 2018; Delgado, 2019; Martínez and Pérez Rodríguez, 2023; Cuevas, Palomeque and Santa-Cruz, 2023), and sustainability (Gimeno and Sols, 2020). Other topics that now form part of the Banco de España's functional remit, such as the resolution of credit institutions (Kruse and Fernández, 2019; Ibáñez, Kruse, Pollos, Serena and Tarí, 2024), have also become firmly established.

Many of the papers cited reflect the increasing dedication of the Banco de España, and central banks more generally, to these issues. Financial stability analysis is also an area with its fair share of new developments. Issues of interest, such as the analysis of interconnectedness within the financial system (Gálvez, 2021) and the development of stress-testing exercises, drive the changes in this area. These issues are addressed by pioneering articles (Pérez and Trucharte, 2011), while others analyse the increasingly sophisticated techniques employed (Aguilar, González and Hurtado, 2021; Ferrer, García Villasur, Lavín, Pablos Nuevo and Pérez Montes, 2021). Looking ahead, the REF can be expected to continue combining topics of emerging importance (such as the digital euro, the risks associated with non-bank financial

intermediation, new sources of financing and the degree of use of artificial intelligence in the financial system) with topics of perennial interest (including regulatory developments, historical studies and the analysis of recent financial crises).

Broadly speaking, the mix of topics covered in the 50 issues of the REF has reflected considerations of relevance, diversity, timeliness and availability. As an institution that conducts its own analysis, with prominent figures in the debate, the Banco de España has always sought to ensure the REF is a relevant, flexible publication, closely attuned to current issues. For example, the REF has included papers analysing the coordinated, extraordinary response of financial authorities during the COVID-19 lockdown (Anguren, Gutiérrez de Rozas, Palomeque and Rodríguez García, 2020; Jiménez Zambrano, Pérez Asenjo, Vegas and Trucharte, 2021; Eirea, Oroz and Díez, 2021; Pablos and Pérez Montes, 2022), the financial consequences of the October 2024 flash floods in Valencia (Pérez Montes, García Villasur, Gutiérrez de Rozas, Jiménez, Lavín, Matyunina and Vegas, 2025) and the impact of the blackout of 28 April 2025 (in mainland Spain) on payment systems (Cremades, Esandi and Pérez, 2025). Some of these articles have been very well received by REF readers, featuring among the ten most downloaded REF articles since 2020 (period with reliable statistics available on views and downloads of REF articles on the Banco de España website).

The ranking of the most viewed articles since the start of the pandemic vindicates the REF's traditional thematic diversity. Reflecting the varied profile of our readers, as described above, the ten most downloaded REF articles in recent years cover a wide range of topics. Specifically, the list comprises papers addressing recent regulatory developments in the prudential and resolution areas, at international level (Anguren, García Alcorta, García Calvo, Hernández García and Valdeolivas, 2023) and EU level (Colomer, González Losantos, López Pérez and Mohedano Gómez, 2021), advances in digitalisation and financial innovation (Toloba and Río, 2020; Balsategui, Gorjón and Marqués, 2024), a review of banking authorities' management of the COVID-19 pandemic, analyses of structural issues in the Spanish and European banking systems (Ferrer and Pereda, 2022; Fernandez-Bollo, González Losantos, López Pérez and Mohedano Gómez, 2021) and a retrospective of specific cases of idiosyncratic failure among non-bank financial institutions (Alonso Olmedo, Anguren Martín, Gamoneda Roca and Pérez Rodríguez, 2021) (see Table 1).

At times, the REF has served as a Spanish-language source of information on issues that are generally, or only, discussed in English. This is the case of developments in Basel Committee regulatory standards, the consequences of the United Kingdom's withdrawal from the European Union (Brexit) (Marín Bona, Moreno Sánchez and García Lecuona, 2019) and the recommendations of the latest Financial Sector Assessment Program review of the Spanish financial system, conducted by the International Monetary Fund in 2023-2024 (Díez Alcoba, Estacio and Gutiérrez de Rozas, 2024). Likewise, the REF has disseminated public information on the European institutional architecture (Huertas, 2013; Vegara, 2014) and the activity of bodies of relevance to Spain, such as the Single Resolution Board (Carrascosa, 2019; Concepción and Kruse, 2026), the Single Supervisory Mechanism (Torres, 2015), the European

Table 1
Ranking of the ten most downloaded REF articles between 2020 and 2025

Title	Authors	REF edition	REF issue
Crypto-asset regulation in the current international and European framework	Rebeca Anguren, José García Alcorta, Lucas García Calvo, Diego Hernández García and Eva Valdeolivas	Spring 2023	44
Archegos and Greensill: collapse, reactions and common features	José Alonso Olmedo, Rebeca Anguren Martín, María Gamoneda Roca and Pablo Pérez Rodríguez	Autumn 2021	41
Bank fees and charges: economic analysis, legal framework, and relevance for financial stability	Alejandro Ferrer and Álvaro Pereda	Spring 2022	42
Stablecoins: risks, potential and regulation	Douglas Arner, Raphael Auer and Jon Frost	Autumn 2020	39
Artificial intelligence in the financial system: implications and progress from a central bank perspective	Iván Balsategui, Sergio Gorjón and José Manuel Marqués	Autumn 2024	47
Regulatory developments in bank solvency, recovery and resolvability	Ignacio Colomer, Sara González Losantos, María López Pérez and Luis Mohedano Gómez	Autumn 2021	41
The outlook for the digitalisation of Spanish banks: risks and opportunities	Carolina Toloba and José Miguel del Río	Spring 2020	38
Euro area bank profitability and consolidation	Édouard Fernandez-Bollo, Desislava Andreeva, Maciej Grodzicki, Lise Handal and Rose Portier	Spring 2021	40
The regulatory and supervisory response to the COVID-19 crisis	Rebeca Anguren, Luis Gutiérrez de Rozas, Esther Palomeque and Carlos José Rodríguez García	Autumn 2020	39
Basel core principles for effective banking supervision: an update after a decade of experience	Asunción Alonso, Danae Durán, Belén García-Olmedo and María Antonia Quesada	Spring 2024	46

SOURCE: Banco de España.

Systemic Risk Board and the European Central Bank, in its lesser-known role as macroprudential authority (Gutiérrez de Rozas, 2022 and 2023, respectively), providing documentary references for all readers interested in delving deeper into their regulations, reports and non-confidential statistical resources.

In short, the REF has always pursued the objective of transparency. One good example is the reviews of the biennial financial stability conferences organised by the Banco de España, together with the Centre for Monetary and Financial Studies (CEMFI), since 2017. Following each edition of this conference, the REF has compiled information on the event (programme, presentations, speeches, session recordings and photographs) and disseminated it through the Bank's channels, making it easy to access for anyone who may be interested.

4 Conclusion

Summarising 25 years of the *Financial Stability Review* (REF) in just a few pages is an arduous and probably impossible task. The richness of the REF can only truly be appreciated by reviewing each issue chronologically, article by article, in the Banco de España's formidable **Institutional**

Repository. That way it can be seen at first hand how the topics, the approach taken in the articles and, of course, the contributors have changed, resulting in the REF as we know it today.

I am confident that the REF will continue to mark further anniversaries, faithful to the mandate with which it was created. As Jaime Caruana, then Governor of the Banco de España, aptly noted in 2001 in the foreword to the first issue of *Estabilidad Financiera*:

“[This publication] will feature papers from all disciplines (economics, finance, accounting, law, etc.), from any source (domestic or international), with multiple approaches (professional, academic, etc.) and at all levels (research, technical, descriptive, explanatory, etc.). In short, it aims to be an open publication in which, alongside explicit institutional content, there will normally be scope for personal contributions, subject only to the constraints imposed by the commitment to ensuring the necessary rigour.”

A quarter of a century later, these words remain fully valid and will continue to inform each new issue of the REF.

REFERENCES

- Aguilar, Pablo, Beatriz González and Samuel Hurtado. (2021). "The design of macroeconomic scenarios for climate change stress tests". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17326>
- Alonso, Asunción, Danae Durán, Belén García-Olmedo and María Antonia Quesada. (2024). "Basel core principles for effective banking supervision: an update after a decade of experience". *Financial Stability Review - Banco de España*, 46, Spring. <https://repositorio.bde.es/handle/123456789/37653>
- Alonso Olmedo, José, Rebeca Anguren Martín, María Gamoneda Roca and Pablo Pérez Rodríguez. (2021). "Archegos and Greensill: collapse, reactions and common features". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21153>
- Anguren, Rebeca, José García Alcorta, Lucas García Calvo, Diego Hernández García and Eva Valdeolivas. (2023). "Crypto-asset regulation in the current international and European framework". *Financial Stability Review - Banco de España*, 44, Spring. <https://repositorio.bde.es/handle/123456789/33798>
- Anguren, Rebeca, Luis Gutiérrez de Rozas, Esther Palomeque and Carlos José Rodríguez García. (2020). "The regulatory and supervisory response to the COVID-19 crisis". *Financial Stability Review - Banco de España*, 39, Autumn. <https://repositorio.bde.es/handle/123456789/14230>
- Arner, Douglas, Raphael Auer and Jon Frost. (2020). "Stablecoins: risks, potential and regulation". *Financial Stability Review - Banco de España*, 39, Autumn. <https://repositorio.bde.es/handle/123456789/14233>
- Arroyo, José María, Ignacio Colomer, Raúl García-Baena and Luis González-Mosquera. (2012). "Comparing risk-weighted assets: the importance of supervisory validation processes". *Estabilidad Financiera - Banco de España*, 22, May. <https://repositorio.bde.es/handle/123456789/11470>
- Balsategui, Iván, Sergio Gorjón and José Manuel Marqués. (2024). "Artificial intelligence in the financial system: implications and progress from a central bank perspective". *Financial Stability Review - Banco de España*, 47, Autumn. <https://repositorio.bde.es/handle/123456789/38942>
- Beck, Thorsten, and Antonio Sánchez Serrano. (2022). "Digitalisation and banking: new risks and three scenarios for the European banking system of the future". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22978>
- Broto, Carmen, Esther Cáceres and Mariya Melnychuk. (2022). "Sectoral indicators for applying the Banco de España's new macroprudential tools". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22982>
- Carbó-Valverde, Santiago, Pedro J. Cuadros-Solas and Francisco Rodríguez-Fernández. (2020). "Taxonomy of the Spanish FinTech ecosystem and the drivers of FinTechs' performance". *Financial Stability Review - Banco de España*, 38, Spring. <https://repositorio.bde.es/handle/123456789/13552>
- Carrascosa, Antonio. (2019). "The Single Banking Resolution Mechanism", *Financial Stability Review - Banco de España*, 36, Spring. <https://repositorio.bde.es/handle/123456789/11211>
- Caruana, Jaime. (2001). "Presentación". *Estabilidad Financiera - Banco de España*, 1, September, pp. 7-8. <https://repositorio.bde.es/handle/123456789/11558>
- Castro, Christian, and Ángel Estrada. (2021). "Function and application of the new macroprudential tools available to the Banco de España". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17323>
- Castro, Christian, Ángel Estrada and Jorge Martínez-Pagés. (2014). "The countercyclical capital buffer in Spain: an exploratory analysis of key guiding indicators". *Estabilidad Financiera - Banco de España*, 27, November. <https://repositorio.bde.es/handle/123456789/11439>
- Colomer, Ignacio, Sara González Losantos, María López Pérez and Luis Mohedano Gómez. (2021). "Regulatory developments in bank solvency, recovery and resolvability". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21157>
- Concepción, Alberto, and Miguel Kruse. (2026). "Ten years of bank resolution in Europe: developments, lessons learned and future challenges". *Financial Stability Review - Banco de España*, 50, Spring. <https://repositorio.bde.es/handle/123456789/43308>

- Cremades, Lourdes, Álvaro Esandi and Miguel Pérez. (2025). "The impact of the 28 April 2025 blackout on Spain's payment systems". *Financial Stability Review - Banco de España*, 49, Autumn. https://www.bde.es/f/webbe/GAP/Secciones/Publicaciones/InformesBoletinesRevistas/RevistaEstabilidadFinanciera/25/3_FSR49_Aragon.pdf
- Cuevas, Herminia, Esther Palomeque and Beatriz Santa-Cruz. (2023). "Pillar 3 disclosures on ESG risks. First disclosures of Spanish and other European banks". *Financial Stability Review - Banco de España*, 45, Autumn. <https://repositorio.bde.es/handle/123456789/36156>
- Delgado, Margarita. (2019). "Energy transition and financial stability. Implications for the Spanish deposit-taking institutions". *Financial Stability Review - Banco de España*, 37, Autumn. <https://repositorio.bde.es/handle/123456789/11173>
- Díez Alcoba, María, Fátima Estacio and Luis Gutiérrez de Rozas. (2024). "The International Monetary Fund's Financial Sector Assessment Program in Spain: an overview from a financial stability standpoint". *Financial Stability Review - Banco de España*, 47, Autumn. <https://repositorio.bde.es/handle/123456789/38943>
- Eirea, Sonsoles, María Oroz and Carlos Díez. (2021). "Adapting the supervision of credit institutions to the COVID-19 crisis". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17321>
- Estrada, Ángel, and Jesús Saurina. (2016). "Spanish boom-bust and macroprudential policy". *Financial Stability Review - Banco de España*, 30, May. <https://repositorio.bde.es/handle/123456789/11304>
- Fernandez-Bollo, Édouard, Desislava Andreeva, Maciej Grodzicki, Lise Handal and Rose Portier. (2021). "Euro area bank profitability and consolidation". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/16735>
- Ferrer, Alejandro, Javier García Villasur, Nadia Lavín, Irene Pablos Nuevo and Carlos Pérez Montes. (2021). "An initial analysis of energy transition risks using the Banco de España's FLESB stress-testing framework". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21152>
- Ferrer, Alejandro, and Álvaro Pereda. (2022). "Bank fees and charges: economic analysis, legal framework and relevance for financial stability". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22980>
- Gálvez, Julio. (2021). "Measuring interconnectedness across institutions and sectors". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21154>
- Gimeno, Ricardo, and Fernando Sols. (2020). "Incorporating sustainability factors into asset management". *Financial Stability Review - Banco de España*, 39, Autumn. <https://repositorio.bde.es/handle/123456789/14236>
- González-Páramo, José Manuel. (2017). "Financial innovation in the digital age: challenges for regulation and supervision". *Financial Stability Review - Banco de España*, 32, May. <https://repositorio.bde.es/handle/123456789/11293>
- Gorjón, Sergio. (2022). "Wholesale financial markets and digital currencies: making headway in the tokenisation of central bank money". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22981>
- Gutiérrez de Rozas, Luis. (2022). "The first ten years of the European Systemic Risk Board". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22983>
- Gutiérrez de Rozas, Luis. (2023). "The European Central Bank and financial stability: a quarter of a century of evolution and transformation (1998-2023)". *Financial Stability Review - Banco de España*, 44, Spring. <https://repositorio.bde.es/handle/123456789/33799>
- Hernández, Julio R., Alejandra Bernad, Laura Hierro and Ana M. Gómez-Bezares. (2022). "Reflections on the future business model of European banks and the supervisory approach". *Financial Stability Review - Banco de España*, 42, Spring. <https://repositorio.bde.es/handle/123456789/22979>
- Herrera Luque, Francisco José, José Munera López and Paul Williams. (2021). "Cyber risk as a threat to financial stability". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17325>
- Huertas, Thomas F. (2013). "Banking union". *Estabilidad Financiera - Banco de España*, 24, May. <https://repositorio.bde.es/handle/123456789/11459>
- Ibáñez, Lucía, Miguel Kruse, María Pollos, José María Serena and Miquel Tarí. (2024). "The euro area banking sector and MREL: a challenge for medium-sized banks?". *Financial Stability Review - Banco de España*, 46, Spring. <https://repositorio.bde.es/handle/123456789/37655>
- Iglesias-Sarria, Cristina, and Fernando Vargas. (2012). "Las entidades financieras sistémicas: las medidas acordadas". *Estabilidad Financiera - Banco de España*, 23, November. <https://repositorio.bde.es/handle/123456789/11466>

- Jiménez Gonzalo, Concha, and Helena Tejero Sala. (2018). "Bank branch closure and cash access in Spain". *Financial Stability Review - Banco de España*, 34, May. <https://repositorio.bde.es/handle/123456789/11271>
- Jiménez Zambrano, Gabriel, Eduardo Pérez Asenjo, Raquel Vegas and Carlos Trucharte. (2021). "Support measures in the banking sector: loan moratoria". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17319>
- Kruse, Miguel, and Iván Fernández. (2019). "Resolution planning for credit institutions in Spain and in the euro area". *Financial Stability Review - Banco de España*, 36, Spring. <https://repositorio.bde.es/handle/123456789/11213>
- Landau, Jean-Pierre. (2021). "Central bank digital currencies and financial stability". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21151>
- Law 13/1994 of 1 June 1994 of Autonomy of the Banco de España. <https://www.boe.es/eli/es/l/1994/06/01/13/con>
- Ledo, Mayte. (2011). "Towards more consistent, albeit diverse, risk-weighted assets across banks". *Estabilidad Financiera - Banco de España*, 21, November. <https://repositorio.bde.es/handle/123456789/11479>
- Marín Bona, Paloma, Susana Moreno Sánchez and María García Lecuona. (2019). "Brexit: uncertainties and challenges in the financial sector". *Financial Stability Review - Banco de España*, 37, Autumn. <https://repositorio.bde.es/handle/123456789/11180>
- Marqués Sevillano, José Manuel, and Luna Romo González. (2018). "The risk of climate change in financial markets and institutions: international challenges, measures and initiatives". *Financial Stability Review - Banco de España*, 34, May. <https://repositorio.bde.es/handle/123456789/11275>
- Martínez, Covadonga, and Pablo Pérez Rodríguez. (2023). "Climate change, financial risks and reporting: distant horizons?". *Financial Stability Review - Banco de España*, 44, Spring. <https://repositorio.bde.es/handle/123456789/33797>
- Martínez Resano, José Ramón. (2021). "Regulating for competition with BigTechs: banking-as-a-service and 'beyond banking'". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21156>
- Nieto Giménez-Montesinos, María Ángeles, and Joaquín Hernáez Molera. (2018). "Virtual and local currencies: are paracurrencies the new form of money?". *Financial Stability Review - Banco de España*, 35, November. <https://repositorio.bde.es/handle/123456789/11266>
- Núñez, Soledad, and Eva Valdeolivas. (2019). "Central clearing counterparties: benefits, costs and risks". *Financial Stability Review - Banco de España*, 36, Spring. <https://repositorio.bde.es/handle/123456789/11214>
- Pablos Nuevo, Irene, and Carlos Pérez Montes. (2022). "Impact of payout restrictions in the wake of the COVID-19 pandemic on European and US banks' market valuation". *Financial Stability Review - Banco de España*, 43, Autumn. <https://repositorio.bde.es/handle/123456789/29509>
- Padilla, Jorge. (2020). "BigTech 'banks', financial stability and regulation". *Financial Stability Review - Banco de España*, 38, Spring. <https://repositorio.bde.es/handle/123456789/13551>
- Pérez, Daniel, and Carlos Trucharte. (2011). "Los ejercicios de estrés test: experiencia reciente y reflexiones sobre su futuro". *Estabilidad Financiera - Banco de España*, 21, November. <https://repositorio.bde.es/handle/123456789/11480>
- Pérez Montes, Carlos, Javier García Villasur, Luis Gutiérrez de Rozas, Gabriel Jiménez, Nadia Lavín, Alexandra Matyunina and Raquel Vegas. (2025). "The impact of the Autumn 2024 flash floods in Spain from a financial stability standpoint." *Financial Stability Review - Banco de España*, 48, Spring. <https://repositorio.bde.es/handle/123456789/40135>
- Ponce, Jorge. (2020). "Digitalization, retail payments and Central Bank Digital Currency". *Financial Stability Review - Banco de España*, 39, Autumn. <https://repositorio.bde.es/handle/123456789/14234>
- Rodríguez de Codes Elorriaga, Elena. (2010). "Las nuevas medidas de Basilea III en materia de capital". *Estabilidad Financiera - Banco de España*, 19, November. <https://repositorio.bde.es/handle/123456789/11497>
- Rodríguez Quejido, Víctor, and José Manuel Portero Bujalance. (2015). "Resolución de entidades de contrapartida central: una aproximación en un entorno postcrisis". *Estabilidad Financiera - Banco de España*, 29, Autumn. <https://repositorio.bde.es/handle/123456789/11430>
- Romero Ugarte, José Luis, Abel Sánchez Martín, Carlos Martín Rodríguez and Justo Arenillas Cristóbal. (2021). "Implications for financial market infrastructures of a wholesale central bank digital currency based on distributed ledger technology". *Financial Stability Review - Banco de España*, 40, Spring. <https://repositorio.bde.es/handle/123456789/17324>

- Saurina, Jesús. (2009). "Loan loss provisions in Spain. A working macroprudential tool". *Estabilidad Financiera - Banco de España*, 17, November. <https://repositorio.bde.es/handle/123456789/11510>
- Senabre, Silvia, Iván Soto and José Munera. (2021). "Strengthening the cyber resilience of the financial sector. Developments and trends". *Financial Stability Review - Banco de España*, 41, Autumn. <https://repositorio.bde.es/handle/123456789/21155>
- Toloba, Carolina, and José Miguel del Río. (2020). "The outlook for the digitalisation of Spanish banks: risks and opportunities". *Financial Stability Review - Banco de España*, 38, Spring. <https://repositorio.bde.es/handle/123456789/13554>
- Torres, Xavier. (2015). "El Mecanismo Único de Supervisión y el papel de las autoridades nacionales". *Estabilidad Financiera - Banco de España*, 29, November. <https://repositorio.bde.es/handle/123456789/11428>
- Trucharte, Carlos, and Jesús Saurina. (2013). "Spanish dynamic provisions: main numerical features". *Estabilidad Financiera - Banco de España*, 25, November. <https://repositorio.bde.es/handle/123456789/11452>
- Trucharte Artigas, Carlos, Carlos Pérez Montes, María Elizabeth Cristófoli, Alejandro Ferrer Pérez and Nadia Lavín San Segundo. (2015). "Credit portfolios and risk weighted assets: analysis of European banks". *Estabilidad Financiera - Banco de España*, 29, November. <https://repositorio.bde.es/handle/123456789/11431>
- Vegara Figueras, David. (2014). "Una panorámica de la unión bancaria". *Estabilidad Financiera - Banco de España*, 27, November. <https://repositorio.bde.es/handle/123456789/11438>

Table A.1

List of individuals serving on the REF's Editorial Board (2005-2026)

Issue	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50								
Date	H2 2005	H1 2006	H2 2006	H1 2007	H2 2007	H1 2008	H2 2008	H1 2009	H2 2009	H1 2010	H2 2010	H1 2011	H2 2011	H1 2012	H2 2012	H1 2013	H2 2013	H1 2014	H2 2014	H1 2015	H2 2015	H1 2016	H2 2016	H1 2017	H2 2017	H1 2018	H2 2018	H1 2019	H2 2019	H1 2020	H2 2020	H1 2021	H2 2021	H1 2022	H2 2022	H1 2023	H2 2023	H1 2024	H2 2024	H1 2025	H2 2025	H1 2026								
Chair	Gonzalo Gil		José Viñals					Javier Aríztegui					Fernando Restoy / Vicente Salas (a)						Javier Alonso			Margarita Delgado										Soledad Núñez																		
Secretary			Ricardo Fernández											Montserrat Martínez Parera						María Luisa Leyva				Luis Gutiérrez de Rozas																										
Members:																																																		
Gonzalo Gil																																																		
Javier Aríztegui																																																		
Rafael Repullo																																																		
Vicente Salas																																																		
Julio Segura																																																		
Xavier Freixas																																																		
Santiago Carbó																																																		
José María Roldán																																																		
Juan Ayuso																																																		
Jesús Saurina																																																		
Óscar Arce																																																		
José Luis Peydró																																																		
Ángel Estrada																																																		
Carlos Thomas																																																		
Roberto Blanco																																																		
Elena Martínez																																																		
Susana Camiñas																																																		
Galo Nuño																																																		
Javier Vallés																																																		

SOURCE: Banco de España.

NOTE: The names shown in bold indicate those individuals who were serving on the Editorial Board at the time this article was prepared.

a For most of the period between 2012 and 2016, Vicente Salas served as Chair of the Editorial Board on behalf of the then Deputy Governor of the Banco de España (Fernando Restoy).

Table A.2

Publications comparable to the REF of other European central banks

	Banco de España	Banque de France	Narodowy Bank Polski	Bank of England	Banca d'Italia	Central Bank of Ireland	Danmarks Nationalbank	Suomen Pankki / Finlands Bank	European Central Bank	
Publication name	Financial Stability Review	Revue de la Stabilité Financière	Bank i Kredyt	Financial Stability Papers	Note di stabilità finanziaria e vigilanza	Financial Stability Notes	Financial Stability Analyses	Financial Stability Analyses	Financial Stability Review (Special Features)	Macroprudential Bulletin
Review format	Yes	Yes	Yes	No	No	No	No	No	Appendix with brief articles at end of document	Yes
Publication period	Since 2001	From 2006 to 2021	Since 1999	Since 2006	Since 2014	Since 2018	Since 2017	Since 2015	Since 2004	Since 2016
Frequency	Half yearly	Annual	Half yearly	Ad hoc	Ad hoc	Ad hoc	Ad hoc	Ad hoc	Half yearly	Ad hoc
Number of articles per issue or year	4-8 articles per issue	7-16 articles per issue (each issue focused on a specific theme)	4-6 articles per issue	1-2 articles per year	3-8 articles per year	7-16 articles per year	19-30 articles per year	4-9 articles per year	2-3 articles per issue	5-15 articles per year (each issue focuses on a specific theme)
Open to authors outside the central bank	Yes (independent contributions or in collaboration with internal authors)	Yes	Yes	Yes (in collaboration with internal authors)	Yes (in collaboration with internal authors)	No	Not available (a communication expert only appears as a contact person)	No	Yes (in collaboration with internal authors)	Yes (in collaboration with internal authors)
Public Editorial Board composition	Yes	Yes	Yes	No	No	No	ad hoc	N.A.	N.A.	N.A.

SOURCE: Devised by author on the basis of public information.

NOTE: N.A. stands for "not applicable".

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STABLECOINS AND REGULATORY POLICY: A COMPARATIVE ANALYSIS OF REGULATION IN THE UNITED STATES, THE UNITED KINGDOM AND THE EUROPEAN UNION

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BANCO DE ESPAÑA

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Abstract

The recent adoption of specific regulation in the United States, the entry into force of the European framework (MiCAR) and the United Kingdom's regulatory proposal have reopened the debate on stablecoins' regulatory implications. These implications extend beyond the functioning of the traditional financial system to encompass issues such as monetary sovereignty, competitiveness and consumer protection. US regulation seeks to promote the global use of dollar-denominated stablecoins; EU regulation aims to strengthen the European market by enhancing protection, particularly for consumers; while the UK has adopted a dual approach that imposes stricter requirements on issuers it deems systemic but affords greater discretion to lower-volume stablecoins. This article compares the three models across key aspects such as redemption rights, reserve composition, prudential requirements and crisis management, demonstrating in doing so how their differences reflect distinct priorities.

Keywords: crypto-assets, stablecoins, prudential regulation, financial innovation, big tech, capital requirements, financial stability.

1 Introduction

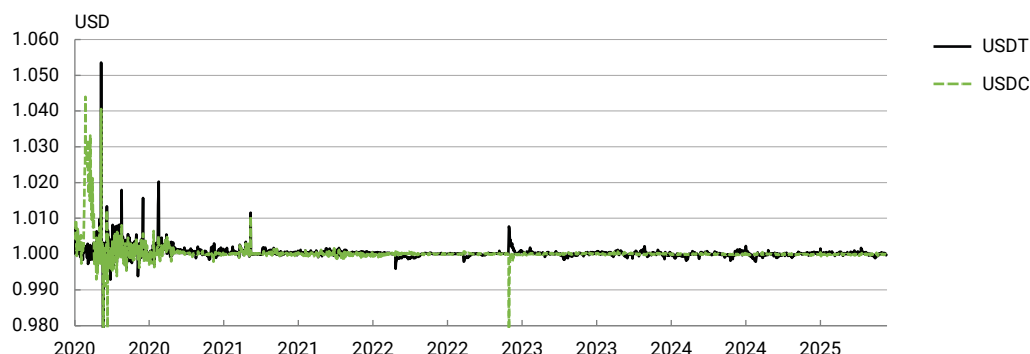
Crypto-assets can be defined as private digital assets that depend on cryptography and distributed ledger technology (DLT) or similar (Financial Stability Board [FSB], 2022a). The term crypto-asset encompasses various types of instruments with distinct characteristics, uses and risk profiles. They include stablecoins, which can be defined as crypto-assets that aim to maintain a stable value relative to a specific asset or basket of assets (FSB, 2023).

This definition refers to a reference asset, typically a fiat currency, to which the stablecoin's value is pegged. Two possible mechanisms are used to maintain this stability: (i) algorithms that control supply through arbitrage between supply and demand, or (ii) establishment and maintenance of a reserve of assets. This article analyses the latter type of stablecoin. In the EU, if the issuer is a credit institution subject to prudential requirements, the reserve of assets is the balance sheet of the institution itself, which assumes the commitment to redeem the crypto-assets at the reference value.

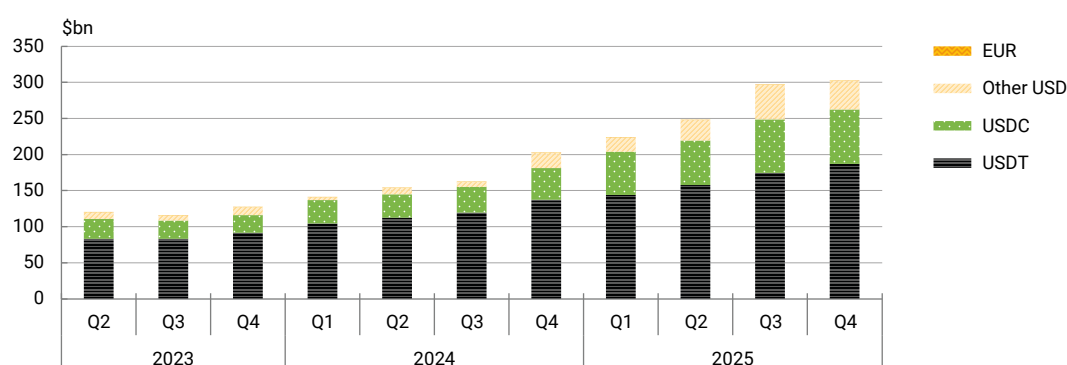
To date, stablecoin use has been limited and largely confined to a role as a means of exchange for other crypto-assets on trading platforms (FSB, 2025). However, stablecoins' potential use as a means of payment in conventional commercial transactions, particularly in cross-border operations, is beginning to attract attention. In these contexts, stablecoins' inherent security, transaction speed and cost benefits may offer them a competitive advantage over traditional payment services (Adrian et al., 2025).

Chart 1
Stablecoins and market performance

1.a USDT and USDC prices (a)



1.b Stablecoins in USD and EUR. Volume of the various aggregates (b)



SOURCE: CoinMarketCap.

a USDT and USDC represent Tether and Circle, respectively.

b Other USD represents USD-denominated stablecoins other than USDT and USDC. EUR represents the total of EUR-denominated stablecoins.

Stablecoins currently represent around 15% (over \$300 billion) of total crypto-asset market capitalisation.¹ However, just two stablecoins – USDT (Tether) and USDC (Circle), both of US origin and pegged to the US dollar (USD) – account for approximately 90% of the global volume at capitalisations of around \$190 billion and \$80 billion, respectively. None of the remaining stablecoins individually account for more than 2% of the global volume and most are pegged to the US dollar (see Chart 1.b). The main euro-denominated stablecoin by capitalisation is EURC (also issued by Circle), the volume of which stands at close to \$500 million.

Although provided with mechanisms designed to ensure their security and stability, stablecoins lack the central bank backing that would guarantee their value and acceptance as a means of payment with unlimited discharging effect. Unlike fiat currency, they are therefore not without

¹ In the second half of 2025, total crypto-asset market capitalisation reached an all-time high, exceeding \$3.6 trillion (October 2025), although it has since declined to approximately \$2.2 trillion. The market continues to be dominated by unbacked crypto-assets, such as Bitcoin (58.6%) and Ethereum (11%). Data obtained from coinmarketcap.com.

risk, such as loss of parity with the reference asset. Moreover, certain key aspects of their operation raise consumer protection concerns, prompting the introduction of regulation while endeavouring not to stifle innovation.

First, to ensure the soundness of these products and instil confidence in potential holders, requirements have been set regarding redemption conditions and asset reserve composition. Additional measures, such as the requirement to have contingency plans in place, have been introduced to guarantee issuer and crypto-asset service provider (CASP) solvency.

Second, the possibility that stablecoins could become a widely used means of payment introduces issues relating to the infrastructure that supports them, their transmission mechanisms and the legal concept of money itself that warrant regulation. Finally, the global nature of these assets, their financial character and their clear interconnectedness with the rest of the financial system pose risks to international financial stability. To address these, the FSB has established a global regulatory framework that addresses the characteristics of and risks posed by stablecoins (FSB, 2023), while the Basel Committee on Banking Supervision (BCBS) has developed criteria for the prudential treatment of banks' exposures to crypto-assets (BCBS, 2024).

This article reviews the risks associated with stablecoins and compares the main features of the regulatory measures adopted in the EU, the US and the UK in response to the FSB and BCBS guidelines, highlighting their differences and similarities.

2 Risks to financial stability

While documented conceptual proposals date back as far as 2013, the 2019 publication of the white paper on Libra (later renamed Diem) – a stablecoin promoted by an international consortium led by Facebook – triggered the first regulatory response to the stablecoin phenomenon. In October 2019, the G7 Working Group on Stablecoins published a report on stablecoins' impact (Committee on Payments and Market Infrastructures, 2019), highlighting, among other issues, the risks these crypto-assets pose to financial stability and recommending that no such scheme should enter operation until a suitably comprehensive regulatory framework had been developed to address them.

The report, among other points, underscored the risks to monetary policy transmission; the legal, operational and governance uncertainty associated with these new systems; the vulnerabilities in stablecoins' particular components and in their ecosystem; and their interconnections with the traditional financial system, particularly the banking system.

For these risks to materialise, these instruments would need to be sufficiently widely used and have a high degree of interconnectedness with the rest of the financial system. While this is not currently observed, favourable perceptions of their potential use cases are fostering steady adoption (Ahmed, Clouse, Natalucci, Rebucci and Sun, 2025).

Since 2019, stablecoin models have improved and regulatory measures have been implemented to help mitigate and manage these risks. Nevertheless, macroprudential authorities and regulators continue to monitor certain concerns closely. In particular, if their adoption were to become widespread, significant risks could emerge in areas such as credit provision, monetary policy transmission or financial integrity that could affect financial stability. Possible events that could trigger bouts of instability include mass sell-offs, contagion to the asset markets in which the reserves are invested and difficulties in applying standard anti-money laundering and combating the financing of terrorism (AML/CFT) controls in permissionless, public infrastructure-based environments lacking intermediaries (Hernández de Cos, 2026).

Furthermore, although stablecoins pegged to fiat currencies could operate as quasi-monetary assets quickly converted on demand and at minimal loss of value (i.e. high liquidity and low risk), they ultimately lack the mechanisms of fiat money (Anadu, McCabe, Pérez-Sangimino and Swem, 2026) and exhibit certain structural weaknesses that limit their ability to function as money on a grand scale (Hernández de Cos, 2026). In this regard, Chart 1.a shows several episodes of value deviation in the two main global stablecoins, including episodes associated with panic dynamics (Aldasoro, Mehrling and Neilson, 2023).

This chapter analyses the risk of interference in monetary policy transmission and foreign exchange and capital markets, as well as the risks associated with multi-jurisdiction issuance schemes. Other risks, such as interconnections with bank deposits and sovereign debt markets, as well as the main risk transmission channels likely to affect financial stability in scenarios in which stablecoin use consolidates and expands, are examined throughout the article alongside the regulations designed to address them.

2.1 Impact on monetary policy and capital and foreign exchange markets

Among the risks associated with stablecoins is the potential for local currency substitution² and the resulting increase in capital flow volatility, which could undermine monetary policy transmission effectiveness (International Monetary Fund, 2020). These risks tend to intensify in economies where inflation is high and institutions are weak or the national monetary framework has little credibility (Reuter, Agur, Copestake, Martínez Peria and Teoh, 2025). Inefficiencies in payment systems and limited access to financial services in the local currency may further reinforce these incentives. Price stability is a precondition for financial stability (European Central Bank, 2025), so reduced monetary policy effectiveness also implies a higher level of systemic risk in a more uncertain macroeconomic environment.

As already noted, the main stablecoins are denominated in US dollars. The technology-enabled functionalities that differentiate stablecoins from traditional foreign currency holdings – global transferability, continuous operability, cost reduction potential and near-instantaneous intermediation and settlement – could fuel their expansion (Hernández de Cos, 2026). If such

² Currency substitution generally refers to the use of a foreign currency instead of, or alongside, the local currency.

instruments were to be widely used in domestic or cross-border payments, network effects could accelerate substitution of local currencies. Moreover, broad adoption could hinder the development of national alternatives, such as central bank digital currencies (CBDCs)³ or stablecoins backed by local currency.

By reducing friction in cross-border payments, stablecoins may also transform capital flow and exchange rate dynamics. Reuter, Agur, Copestake, Martínez Peria and Teoh (2025) suggest that reduced friction in cross-border flows due to lower costs or shorter transfer times diminishes deviations from uncovered interest rate parity⁴ and increases capital flows. Furthermore, during real shocks,⁵ reduced friction in cross-border capital movements may make them more volatile, thereby mitigating the impact on exchange rate fluctuations. Conversely, during local financial shocks, rapid adjustments in demand for safe assets (or those backed by them, such as stablecoins) could amplify exchange rate volatility.

Stablecoins also have the potential to affect the monetary policy of the country in whose currency they are denominated. Minesso and Siena (2026) show that USD-denominated stablecoins intensify the transmission of US monetary policy to sovereign debt yields, as changes in interest rates prompt stablecoin issuers to rebalance their collateral portfolios. At the same time, the real effects of monetary policy could be dampened, for instance, by weaker exchange rate channel influence. This in turn might require the Federal Reserve to respond more forcefully to inflation to achieve predetermined levels of macroeconomic stability.

The international impact of US monetary policy would also be amplified. Shocks in the US would be transmitted more strongly abroad, as stablecoin issuances and redemptions would trigger capital flows into or out of US assets. Alternatively, external shocks, such as changes in payment needs or risk appetite, would be transmitted more directly to US sovereign debt yields than in a scenario without stablecoins. This amplification stems from the fact that, through their reserve of assets, stablecoins link global liquidity demand to the US government bond market in real time.

Finally, in a scenario of high adoption, USD-denominated stablecoins could reinforce the dollar's global dominance. Reduced frictions in cross-border payments would shorten settlement times and lower their costs while decreasing dependence on correspondent banking⁶ networks. All of this would also affect the scope for national monetary policy action.

2.2 Multi-jurisdiction issuances

The potential reach and use of a global stablecoin across multiple jurisdictions may make it systemically important in several of them. Moreover, the regulatory differences examined (see

3 A central bank digital currency (CBDC) is a form of money issued electronically by a central bank.

4 Uncovered interest rate parity is the condition whereby the interest rate spread between two economies should be offset by the expected change in the exchange rate; cross-border frictions can cause deviations from this condition, which diminish when such costs or transfer times are reduced.

5 Shocks originating in the real economy: terms of trade, productivity, external demand or commodity prices, among others.

6 Correspondent banking is a system of agreements between banks whereby they provide services to one another to execute payments and other cross-border transactions.

Sections 3 and 4) could incentivise exploitation of regulatory gaps, such as setting up multi-issuer schemes for the same stablecoin, all located in different jurisdictions, which could initially undermine the regulator's objectives and ultimately create loopholes beyond its control, increasing the risks to financial stability.

Multi-jurisdiction issuance schemes are those in which the same stablecoin is issued by the same entity or affiliated entities (i.e. co-issuers) operating in different jurisdictions (FSB, 2025). These issuances typically share the same sales and technology channels. For these schemes to operate effectively, each token must be fungible with the others within the scheme, so that, in principle, it is impossible to tell which issuer or under which jurisdiction a specific token was issued. This token fungibility across jurisdictions introduces operational, legal and risk management complexity, as well as a regulatory challenge for the jurisdictions involved.

In particular, as the issuers come from different jurisdictions, they may be subject to different prudential and operational requirements (e.g. capital and liquidity, reserve asset conditions, governance, risk management), and regulatory frameworks may impose different conditions on stablecoin redemptions (e.g. restrictions on redemption volumes or on charging fees). All this could encourage holders to actively seek the jurisdiction where redemption is most advantageous, increasing the liquidity risk for issuers in those jurisdictions, particularly in stress scenarios. Ultimately, as solvency and liquidity requirements are set on the basis of the tokens issued in a jurisdiction and not on the stablecoin's global circulation volume, it could lead to a situation where, despite compliance with national conditions, a mass sell-off by holders who have acquired tokens issued by another co-issuer causes a shortfall in the reserve of assets.

This imbalance is exacerbated when co-issuers differ significantly in size. Such is the case with Circle, authorised in France as an electronic money institution (EMI)⁷ licensed to issue USDC, where the disparity between the parent company – which has \$80 billion in circulation – and its European subsidiary – for which no current data on the volume of USDC it has issued are available⁸ – signals potential risks that warrant close attention. While Circle's European subsidiary may meet the requirements to honour redemptions of the tokens it issues, it would be unable to redeem even a fraction of the volume issued by the parent company, which is the entity that holds the reserves. The fact that certain redemption conditions are more favourable in Europe, notably the prohibition on charging redemption fees, further compounds this imbalance (European Systemic Risk Board [ESRB], 2025a).

The ESRB has stated its opposition to permitting such multi-jurisdiction issuance schemes if regulatory measures capable of preventing the potential adverse effects identified are lacking. In this regard, in September 2025 it published a Recommendation to prohibit these schemes in Europe and, should they be permitted, to implement appropriate safeguards (ESRB, 2025b).

7 According to the information publicly available, authorisation in France is subject to clarification regarding the European Commission's interpretation of the regulation. See Circle's [press release](#).

8 Circle does not provide official figures for the volume of USDC issued by its European subsidiary. Some sources estimate it at approximately \$100 million. Circle also has a euro-denominated stablecoin in circulation (EURC), with a current capitalisation of around \$430 million. Data obtained from [coinmarketcap.com](#).

To address these risks, such schemes would require effective measures to rebalance reserves between co-issuers to ensure that reserves are always distributed appropriately according to the volume of stablecoins potentially redeemable in each jurisdiction. These measures should mandate the rapid mobilisation of assets across jurisdictions to meet redemption requests, including in stress scenarios when restrictions on their transfer are more likely to be implemented (ESRB, 2025b). Significantly, current regulatory frameworks do not yet contemplate such measures.

Potential mitigation measures include the introduction of specific requirements when honouring redemption requests, such as proof of permanent residence in a given jurisdiction or a bank account opened in the issuer's jurisdiction, or the imposition of additional capital or liquidity requirements to address the possibility of redemption requests exceeding the reserves held at any given time.

From a regulatory and supervisory perspective, however, the only effective way to reduce arbitrage incentives – for both issuers and stablecoin holders – in these situations is to establish consistent regulatory frameworks across jurisdictions, as envisaged by the United States' Guiding and Establishing National Innovation for U.S. Stablecoins Act (GENIUS) and, to some extent, the UK's proposal. This would entail agreement between supervisory bodies or mutual recognition measures (equivalence and reciprocity) to ensure harmonised co-issuer recognition and treatment.

3 Regulatory response

Between 2020 and 2023, in line with the G20 mandate, the FSB developed a global regulatory framework for crypto-asset activities, which included a set of high-level recommendations (FSB, 2023) for the regulation and supervision of global stablecoins.⁹ Meanwhile, the BCBS established the prudential framework applicable to banks' exposures to crypto-assets, including stablecoins (BCBS, 2024). This framework defines various categories based on the associated risks and incorporates specific requirements and conditions that determine their classification and corresponding prudential treatment.

Once the FSB's recommendations were published, the various jurisdictions began developing their own regulatory frameworks. Progress with this task to date, however, has been uneven in both pace and scope, as highlighted by the FSB in its thematic review on the implementation of its recommendations (FSB, 2025).

The review concludes that stablecoin regulation remains highly fragmented across jurisdictions and that implementation of the international recommendations is both slow and heterogeneous. Significant shortcomings persist in areas such as risk management, capital buffers and

⁹ The first version of the FSB's high-level recommendations was published on 13 October 2020. They were updated in 2022 and the current version was published in 2023.

recovery and resolution frameworks – including insolvency regimes – while divergences between countries’ redemption rules, custody requirements, disclosure standards and reserve collateralisation frameworks create additional complexities for global stablecoin initiatives.

In May 2023, the European Commission published the Markets in Crypto-Assets Regulation (MiCAR), which entered into force for stablecoins in June 2024. The MiCAR creates a unified regulatory framework within the EU for those crypto-assets not previously covered by financial regulation with the aim of ensuring legal certainty and protecting consumers, preserving financial stability and fostering innovation under technology-neutral precepts. It sets out clear transparency and conduct rules, as well as certain prudential requirements – on capital, liquidity, risk management and governance – and supervisory standards for stablecoin issuers and CASPs.

The MiCAR is the first comprehensive crypto-asset regulation issued by a major jurisdiction. It is a broad, stringent framework that requires significant effort in terms of adaptation and learning from both public and private operators. At the same time, it has served as a benchmark for other jurisdictions and has positioned the EU as a regulatory leader, as it strengthens consumer protection and provides the most comprehensive framework currently available with which to address the risks associated with stablecoins. However, this pioneering approach carries with it the risk that market developments or regulation in other jurisdictions may render some of the MiCAR’s provisions obsolete or place entities subject to it at a competitive disadvantage.

Meanwhile, in the US, the change of administration accelerated a legislative process that culminated in July 2025 with the signing into law of the GENIUS Act.¹⁰ This marked the first time a comprehensive federal framework for stablecoins was established, applicable across all US states. The GENIUS Act, through explicit collateral, disclosure and supervisory requirements, aims to provide regulatory clarity and bolster the use of stablecoins as payment instruments.¹¹ This focus on their role as a means of payment constitutes a different approach to the MiCAR and aligns with a US monetary sovereignty strategy that encourages the proliferation of global stablecoins denominated in US dollars (Federal Register, 2025).

Stablecoins’ potential role as a means of payment must be assessed in light of the benefits they can offer – global reach, security, automation, cost reduction and speed (Adrian et al., 2025) – while considering existing alternatives. In addition to traditional payment systems, the instant payment systems currently being rolled out in Europe already provide similar solutions. Likewise, the development of CBDCs also aims to improve payment operations, whether for general or exclusively wholesale use (Ayuso and Conesa, 2020; Committee on Payments and Market Infrastructures and Bank for International Settlements, 2018).

In this regard, while the US is clearly betting on the use of stablecoins as a means of payment,¹² in the EU instant payment systems have already increased the speed of retail payments and the

10 The full text of the Act can be consulted on the [US Congress website](#).

11 Indeed, the GENIUS Act refers to "payment stablecoins".

12 The US Congress has even put forward a legislative proposal that would prohibit the Federal Reserve from issuing a digital currency to implement monetary policy or offer products and services directly to the public ([Anti-CBDC Surveillance State Act, 2025–2026](#)).

focus has been on developing the digital euro and DLT-based settlement systems (Pontes¹³ and Appia).¹⁴

Recently, US agencies have begun to implement the mandates set out in the GENIUS Act within their respective areas of competence. Of particular note is the regulatory proposal published by the Office of the Comptroller of the Currency (OCC),¹⁵ which sets out several of the key aspects applicable to stablecoin issuers under its supervision (OCC, 2026).

The Digital Asset Market Clarity Act (CLARITY),¹⁶ still under debate, seeks to establish a general framework for digital products and markets. It would regulate crypto-assets other than stablecoins and set out criteria for classifying them as financial instruments or commodities, as well as govern the provision of crypto-asset services, including those related to stablecoins. Unlike the case in the EU, the US regulatory framework for stablecoins is therefore not yet fully defined across all areas and interconnections.

Finally, since 2023 the UK authorities – the Financial Conduct Authority (FCA) and the Bank of England (BoE) – have been developing a phased framework through which to incorporate crypto-assets, including stablecoins, into the UK financial system in a way that is safe, transparent and resilient and does not stifle payment systems innovation. This objective is being pursued through successive public consultations by both the FCA (FCA, 2025a; FCA, 2025b) and the BoE (BoE, 2025). The process is expected to conclude at the end of 2026 with the approval of the final regulatory texts by the competent authorities. The UK regulatory framework finally adopted may therefore differ from the one described here.

While the stated objectives are similar, the approaches and tools used by each jurisdiction differ. The EU has prioritised holder protection, seeking to ensure issuer solvency and confidence in redemption mechanisms. The US approach, by contrast, has established rules that provide legal certainty but whose primary aim is to promote the use of USD-denominated stablecoins as a means of payment. The UK's objective, meanwhile, is more focused on addressing the systemic risk posed by certain stablecoins and their links to the banking system, establishing differentiated requirements for systemic and non-systemic stablecoins.

The three regulatory frameworks share similarities but also exhibit notable differences, reflecting distinct regulatory policy choices. All three, however, share common objectives and can be considered aligned with the overarching international framework prescribed by the FSB.

13 The Pontes project, launched by the European Central Bank, aims to enable settlement of wholesale euro-denominated financial transactions using DLT, with settlement in central bank money. Further information [here](#).

14 Apia is an initiative launched by the European Central Bank in 2025 with the long-term objective of building an integrated financial ecosystem based on tokenisation technology and DLT. Further information [here](#).

15 The US Department of the Treasury has published two regulatory proposals: the first on [state regulatory regimes for stablecoins](#), and the second on [anti-money laundering measures](#). Meanwhile, the FDIC has published its [regulatory proposal](#) for banks under its supervision seeking to issue stablecoins through subsidiaries.

16 Although launched almost simultaneously with the GENIUS Act, this initiative remains pending approval in the US Senate. According to information published in various media outlets, the main point of contention appears to be the possibility of remunerating stablecoin holdings.

3.1 Scope of application

The MiCAR defines and regulates two types of stablecoin: e-money tokens (EMTs), defined as tokens that reference “the value of one official currency” (Article 3(1)(7) MiCAR), and asset-referenced tokens (ARTs), which are tokens referenced “to another value or right or a combination thereof, including one or more official currencies” (Article 3(1)(6) MiCAR).¹⁷ EMTs are considered electronic money (Article 48(2) MiCAR) and, consequently, qualify as funds under payment services legislation and may be used to execute payment transactions.¹⁸

The GENIUS Act only regulates payment stablecoins, defined as digital assets that “are used or designed to be used as a means of payment or settlement” and whose issuer “is obligated to convert, redeem, or repurchase for a fixed amount of monetary value [...]; and represents that such issuer will maintain, or create the reasonable expectation that it will maintain, a stable value relative to the value of a fixed amount of monetary value” (Section 2(22) GENIUS). The UK’s legislative proposal, meanwhile, focuses on what it terms qualifying stablecoins, which are pegged to a single currency, leaving the regulation of other types for subsequent regulatory phases.

Given this scope, this article confines its analysis to those requirements in the US and UK regulations that can be equated to those applicable to EMTs under the MiCAR. Specifically, it examines those applicable to stablecoins whose value is pegged to an official currency and that are primarily designed to be used as a means of payment or settlement. ARTs are therefore excluded from this analysis, as no comparable category currently exists in other jurisdictions.¹⁹ For the purposes of this paper, the term stablecoin refers, in each case, to the EMTs covered by the MiCAR, the payment stablecoins envisaged in the GENIUS Act or the qualifying stablecoins referred to in the UK’s regulatory proposal.

3.2 Entry into force

The MiCAR has applied directly to EMTs since June 2024. The GENIUS Act, by contrast, still requires further implementing measures and is not expected to enter into force until 2027. It also provides a three-year transitional period for stablecoins already in circulation at the time of its enactment in July 2025, allowing them to remain in circulation until they are either prohibited or the issuer is granted authorisation. Lastly, the UK regulatory framework is expected to be approved by the end of 2026 and application is anticipated to begin in 2027.

17 This wording should not be interpreted to mean that ARTs may be tokens referenced exclusively to a single official currency, which would make them an EMT. Therefore, when referring to “official currencies”, the MiCAR should be interpreted as pointing to a combination of several, or of one official currency and another type of asset.

18 Article 2(2) of Directive 2009/110/EC of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions (E-Money Directive, or EMD) defines electronic money as “monetary value [...] which is issued on receipt of funds for the purpose of making payment transactions”.

19 According to the European Securities and Markets Authority (ESMA) register (as at 16 April 2026), no ART issuances have yet been authorised in the EU. There are, however, 38 EMT issuances on record, of which 2 have been issued by credit institutions and the remainder by EMIs.

These differing timelines for the regulations' entry into force shape market participants' behaviour. While entities that fail to comply with the MiCAR have had to cease operations in the EU,²⁰ in the US entities may continue operating until 2028 even if they clearly do not meet the requirements set out in the GENIUS Act. This mismatch allows stablecoins deemed non-compliant or prohibited in some jurisdictions to circulate and operate freely in others, creating regulatory arbitrage opportunities that are amplified by these assets' digital and global nature.

4 Comparative analysis of regulatory policy choices across jurisdictions

4.1 General provisions

4.1.1 Authorisation and supervision regime

The three regulatory frameworks share a common starting point: establishing an authorisation and operability regime that defines the types of entities eligible to act as issuers and the requirements for obtaining such authorisation. Under the MiCAR,²¹ issuers must generally be legal entities established in the EU and the issuance of EMTs is restricted to credit institutions and EMIs. The latter must obtain the relevant authorisation to operate with stablecoins and are subject to prudential supervision. Supervision is carried out by national authorities (the Banco de España in Spain's case) or, for significant stablecoins (those meeting defined criteria²² relating to issuance volume, number of users or transaction volume, among others), jointly with the European Banking Authority (EBA).

In the US, all crypto-asset issuers will require a federal licence (granted by the OCC), although they may operate under a state licence until they reach the materiality threshold of \$10 billion. Supervision is generally the responsibility of the OCC, although for certain authorised issuers the GENIUS Act assigns regulatory and supervisory powers to other federal agencies (the Federal Deposit Insurance Corporation [FDIC], the National Credit Union Administration [NCUA] and the Board of Governors of the Federal Reserve System).

Additionally, the GENIUS Act includes a specific restriction for listed companies that do not predominantly engage in one or more financial activities, prohibiting such companies or their subsidiaries from issuing stablecoins unless they obtain unanimous approval from all members of the Stablecoin Certification Review Committee.²³ This additional filter appears designed

20 The prime example is the stablecoin Tether (USDT), for which no issuer has been authorised in Europe, meaning it cannot be offered to the public within the EU.

21 Except for issuances subject to any of the exemptions under Article 9(2) of Directive 2009/110, in accordance with Article 48(4) of the MiCAR.

22 Article 43 of the MiCAR sets out the criteria and thresholds for determining stablecoin materiality, in line with the FSB's high-level recommendations.

23 The Stablecoin Certification Review Committee is a high-level body established under the GENIUS Act. It comprises the chairs of the principal federal financial agencies and is chaired by the Treasury Secretary. It coordinates certification of issuers and comparable regulatory regimes and is tasked with preserving prudential consistency within the federal stablecoin framework and preventing regulatory arbitrage.

with big tech firms in mind and would prevent them from directly obtaining OCC authorisation as non-bank issuers.

In the UK, the framework grants the FCA regulatory and supervisory authority over stablecoins. However, systemic stablecoins, once designated as such by the UK Treasury, would also fall under the regulatory and supervisory remit of the BoE. These systemic stablecoins are those pegged to sterling and widely used in retail or wholesale payments within a Treasury-recognised payment system. They also have to meet certain quantitative and qualitative criteria²⁴ defined by the Treasury on a case-by-case basis.

As regards the eligibility of banks to act as issuers, the regulatory frameworks take different approaches. The MiCAR is accommodating, not only permitting banks to issue stablecoins but also exempting them from the requirement to maintain a segregated reserve (a requirement imposed on EMIs). Instead, the backing provided by the bank's own balance sheet is deemed sufficient. The GENIUS Act, by contrast, requires issuance to be conducted through a subsidiary, keeping the business and associated risk outside the banking perimeter. The UK's regulatory proposal similarly does not explicitly prohibit banks from issuing stablecoins²⁵ but sets the expectation that issuance be conducted through separate entities. This ensures that issuer insolvency does not in any way affect the bank's solvency. Moreover, the UK framework always requires a specific segregated reserve of assets held under statutory trust.

4.1.2 Cross-border activity

The MiCAR prohibits entities not domiciled in the EU from offering stablecoins to the general public and requires EMT issuers to obtain authorisation in a Member State as either a credit institution or an EMI. Once authorised, however, they may offer stablecoins to the public throughout the EU. There is no system of international equivalence: the presence in the EU of an entity authorised under the MiCAR is required to issue and offer stablecoins to consumers in EU Member States.

The GENIUS Act, by contrast, does allow stablecoins from foreign issuers to circulate in the US if they comply with its regulatory framework. Such stablecoins must: (i) be subject to equivalent supervision and regulation, as endorsed by US authorities; (ii) be registered with the OCC; (iii) maintain sufficient reserves in US banks to cover redemption requests from users in the US; and (iv) not originate from states subject to economic sanctions by US authorities. Foreign issuers also face additional restrictions: the stablecoins they issue cannot be considered cash (or equivalent), nor can they be eligible as collateral or accepted as a settlement and clearing asset in wholesale payments or payment infrastructures.

24 The criteria laid down in the Financial Services and Markets Act (FSMA) to identify systemic payment systems include system structure, the number and value of transactions processed, the nature of the transactions (retail or wholesale), the currency in which the reserves are denominated and issuer governance.

25 The Prudential Regulation Authority's (PRA) position, as set out in its November 2023 letter to credit institution CEOs (PRA, 2023) on its supervisory expectations regarding innovation and digital finance activities, should be taken into account.

For systemic stablecoins, the UK's regulatory proposal requires issuers to establish a local entity and maintain reserves in the country, held in sovereign debt instruments or deposits with the BoE earmarked for this type of stablecoin. Foreign issuers of non-systemic stablecoins are permitted to operate, provided they comply with local regulations. No automatic equivalence with other regimes is provided for, although international cooperation in this area is anticipated.

The approaches thus differ. While the MiCAR seeks to ensure supervision and oversight of a single market for stablecoin issuances by requiring issuers to maintain a permanent presence in the EU, the GENIUS Act aims to align foreign regulation with US standards. This grants US supervisors access to European entities, whereas in Europe entities are required to operate through an internal subsidiary, limiting oversight of the parent company. The UK's approach, meanwhile, permits some cross-border activity but imposes localisation and supervisory requirements that restrict access for foreign systemic stablecoin issuers.

4.1.3 Capital requirements

In general, capital requirements for stablecoin issuers are less stringent and detailed than those imposed on banks and other financial institutions. Nevertheless, the three regulatory frameworks under review set out a range of requirements that differ in each case as regards both the areas covered and the specific rules established.

As noted earlier, the MiCAR permits only two types of regulated and supervised entities to issue EMTs: credit institutions and EMIs. For the former, the requirements are those set by their own prudential regulation and the MiCAR does not specify any further provisions. For non-bank issuers (EMIs), while the MiCAR generally defers to the prudential requirements laid down in the E-Money Directive (EMD),²⁶ it also introduces a number of specific provisions, particularly for significant issuers.

Non-bank EMT issuers²⁷ must therefore maintain a minimum capital of €350,000 and, at all times, own funds equivalent to 2% (or 3% for significant issuers)²⁸ of the average volume of stablecoins in circulation wherever this figure exceeds the minimum capital requirement. For non-significant issuers, authorities may also require own funds equivalent to 3% of the average volume in circulation.²⁹ In addition, supervisors may increase the baseline requirement by a further 20% after assessing issuer risk.

26 Directive 2009/110/EC of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

27 See Articles 4, 5(1) and 5(3) of the EMD.

28 See Article 58(1)(b) MiCAR, which, among other obligations, subjects significant EMT issuers to the provisions of Article 45(5) MiCAR.

29 Under Article 58(2) MiCAR, supervisors may require non-significant issuers to comply with all or some of the obligations laid down in Article 58(1) for significant issuers where necessary to address liquidity risks, operational risks or risks arising from non-compliance with asset reserve management requirements. These obligations include those relating to the establishment, composition, management, custody and investment of the reserve of assets, remuneration policies, reserve liquidity, stress testing and own funds requirements, among others.

Additionally, significant issuers are required to conduct quarterly solvency stress tests (six-monthly for non-significant issuers, if the supervisor so decides). These tests must cover severe but plausible stress scenarios, both financial, such as interest rate shocks, and non-financial, including operational risks. Depending on the results, supervisors of non-bank EMT issuers may increase the baseline own funds requirement by between 20% and 40%.

The GENIUS Act does not set minimum capital requirements, deferring for their specification to the implementing legislation. The OCC likewise provides no further detail under its framework, merely requiring that stablecoin issuers under its supervision hold “capital commensurate with the nature and extent of risks” and an additional capital buffer to cover at least 12 months’ operating expenses. For new issuers, however, it does establish an initial minimum capital requirement of \$5 million,³⁰ regardless of size, and this capital must be maintained for at least 36 months. After this initial phase, the amount of capital held can be adjusted according to risk exposure and performance.

Similarly to the MiCAR, in the UK non-systemic stablecoin issuers must at all times maintain own funds equal to at least the highest of: (i) permanent minimum capital of £350,000; (ii) capital equivalent to 25% of the previous reporting period’s relevant fixed expenses; or (iii) capital equivalent to 2% of the average volume issued. The BoE’s proposal for systemic issuers includes a general business risk capital requirement, covered by high-quality capital (CET1 instruments) equal to the higher of: (i) the recovery cost of the largest plausible loss event; or (ii) six months’ operating expenses. Furthermore, it requires issuers to hold segregated reserves in high-quality liquid assets, in addition to the reserve of assets, to cover (a) the financial risk³¹ associated with the reserve assets, and (b) insolvency costs.

Neither the GENIUS Act nor the UK proposal includes a mandatory requirement to conduct capital stress testing, although supervisors may impose ad hoc adjustments based on ongoing monitoring (see Box 1).

4.1.4 Other requirements

The frameworks under review also set out conditions for stablecoin issuers in the areas of governance and risk management. Broadly speaking, all three frameworks emphasise the importance of transparent governance and sound risk management and require issuers to implement and publish relevant policies. However, none of the three frameworks establishes specific, comparable requirements.

The UK’s public consultation document imposes limits on corporate and individual holdings of systemic stablecoins – £10 million per stablecoin for firms and £20,000 per stablecoin for individuals – a measure that has not been adopted in either the EU or the US.

30 In the case of stablecoins with a federal or state licence, if a higher amount is specified as part of the licensing process, that amount shall apply.

31 It must cover the market risk of holding short-term sovereign debt instruments (calculated using the simplified standardised approach [SSA], including the interest rate position risk multiplier) and the liquidity risk associated with the need to rapidly monetise assets under stress scenarios to meet redemption requests.

BANKING INVESTMENTS: THE NEW FOCUS OF PRUDENTIAL REGULATION

Prudential regulation has turned its attention to banks' investments in, and holding of, crypto-assets, including stablecoins, as reflected in the international standard on the prudential treatment of banks' exposures to crypto-assets (BCBS, 2024). This standard was due to be implemented in January 2026 through the various national frameworks, but is not yet being adopted across the board.¹

The standard sets out prudential treatments based on compliance with a series of classification conditions, which divide crypto-assets into two broad groups and determine the prudential treatment to be applied. Different treatments will apply to each group for the calculation of their risk weights, together with certain additional conditions – including the use of models, exposure limits, hedging recognition or additional add-ons – with a view to mitigating the risks for banks as investors in crypto-assets.

Crypto-assets that meet the four conditions would be classified in Group 1 (crypto-assets with lower risk and subject to more favourable prudential treatment). Crypto-assets that fail to meet them would be classified in Group 2 (crypto-assets with higher risk and subject to highly conservative treatment). These conditions are not intended to target specific products, but seek to identify the specific risk associated with each initiative. However, unbacked crypto-assets that are not digital representations of a traditional asset should always be classified in Group 2. Stablecoins could be classified in Group 1 as they meet all the classification conditions (Anguren, García Alcorta, García Calvo, Hernández García and Valdeolivas, 2023).

In the case of stablecoins, **classification condition 1 is particularly relevant**, as it requires the crypto-asset to have the same level of credit and market risk as its

traditional form, or to have a stabilisation mechanism that is effective at all times in maintaining its value relative to the reference asset or assets. For this purpose, requirements are established regarding the composition, valuation and management of the reserve assets backing the stablecoin, and regarding the issuer's status as a supervised and regulated entity subject to prudential capital and liquidity requirements.

To assess the effectiveness of the stabilisation mechanism, a "redemption risk test" must be passed,² with the objective of ensuring that the reserve assets are sufficient to enable the stablecoin to be redeemable at the peg value at all times, including during periods of extreme stress.

The three regulatory frameworks satisfy the various requirements set out in classification condition 1, albeit with varying levels of detail and using different approaches.

- They contain provisions aligned with the **redemption conditions** required in the standard (for example, clarity, short time limits, redemption at par).
- Sufficient safeguards are in place with regard to the **requirements concerning the reserve assets** (composition, valuation, liquidity, sound risk management), even where the instruments chosen differ substantially in some cases.
- All three frameworks **protect the reserve assets** from the insolvency of the issuer, so that the holders' right of redemption and access to the reserve are not impaired.

Neither the Basel Framework nor any of the other three requires that the **reserve assets exceed the aggregate peg value of all outstanding crypto-assets**, although all of them require the value of the reserve assets to be at least

1 At the time of drafting this article, neither the United States nor the United Kingdom had yet published a framework for implementing the BCBS standard on crypto-assets. As regards the EU, in June 2024 the Capital Requirements Regulation (CRR) was amended to introduce transitional provisions on the prudential treatment of crypto-assets (Article 501d). The full framework should have been presented in June 2025. However, to date, the European Commission has not initiated the relevant procedures.

Accordingly, these provisions currently constitute the applicable framework. They reflect, in simplified form, the treatment under the Basel framework, but do not refer to the classification conditions or to the calculation of exposures (net and gross positions and treatment of derivatives). In general terms: (i) exposures to crypto-assets linked to tokenised traditional assets – including e-money tokens (EMTs), pursuant to Article 5a(5) of the CRR – will be treated as exposures to the underlying traditional assets; (ii) exposures to asset-referenced tokens (ARTs) will be assigned a risk weight of 250%; and (iii) all other crypto-assets will be subject to a risk weight of 1250%, with an exposure limit of 1% of Tier 1 capital.

2 The redemption risk test establishes (i) conditions relating to the value and composition of the reserve of assets; (ii) asset quality criteria for the reserve assets, which should be liquid, low-risk and segregated from the assets of the issuer and of the custodian; and (iii) governance criteria for the management of the reserve, including the regular disclosure of its composition and value.

equal to that of the outstanding crypto-assets at all times. In practice, this means the issuer maintains reserve assets the value of which exceeds that of the outstanding crypto-assets, given the liquidity requirements for the assets making up the reserve and the obligation to maintain the reserve's value even under stress scenarios, which satisfies the redemption risk test established by the Basel standard.

Classification condition 2, which requires that all obligations and interests arising from the crypto-asset arrangement be clearly defined and legally enforceable in all the jurisdictions where the asset is issued and redeemed, ensuring at all times full transferability and settlement finality, is fully aligned with the three regulatory frameworks analysed in this box.

Classification condition 3 addresses the functions of the network on which the crypto-asset operates. All the transactions and participants must be traceable and the key functions (issuance, validation, redemption and transfer) must not pose any material risks that could impair the transferability, settlement finality or redeemability of

the crypto-assets. In general, the three frameworks are neutral vis-à-vis the traceability of transactions – they refer to the specific regulation for AML/CFT matters. Therefore, the application of this classification condition does not conflict with the national regulatory frameworks, although it establishes further requirements.

Lastly, **classification condition 4** requires that entities that execute redemptions, transfers, storage or settlement of the crypto-asset, or manage reserve assets, be regulated and supervised, or subject to appropriate risk management standards, and have in place and disclose a comprehensive governance framework.³ Although it does not explicitly say so, this condition means that the Basel standard de facto considers crypto-assets – including stablecoins – traded on permissionless networks to be Group 2 crypto-assets. As with classification condition 3, the application of this condition does not conflict with the national regulatory frameworks, which are technology-neutral with respect to the type of DLT used, but introduces an additional requirement specific to the categorisation of banking exposures.

³ In particular, to meet this condition node validators must also be regulated and supervised or, alternatively, be subject to appropriate risk management standards.

4.2 The stabilisation mechanism: the reserve of assets

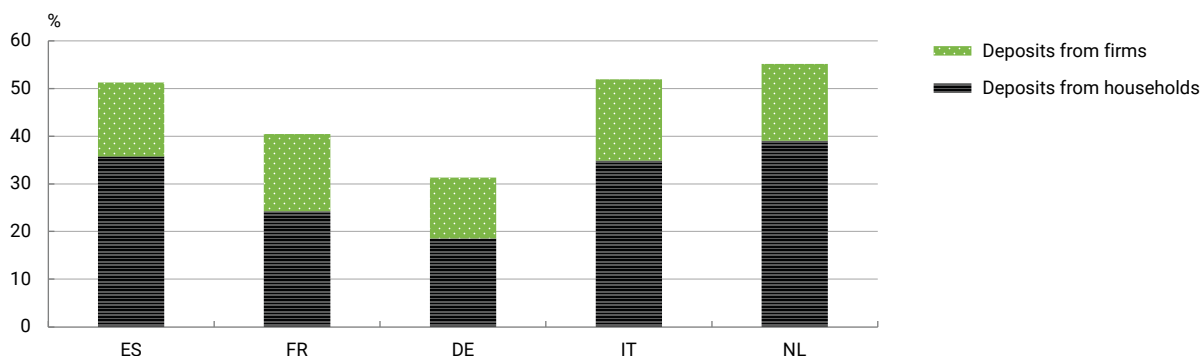
The reserve of assets is the primary guarantee underpinning a stablecoin's stable value. The stability of the reserve's composition and valuation is key to maintaining holders' confidence that the issuer will be able to meet redemption requests.

All three frameworks require that the reserve of assets maintain a value at least equal to the total volume of stablecoins in circulation at all times, including in stress scenarios. They also all require that reserve assets be liquid and carry low credit and market risk. In addition, all three frameworks establish strict measures to segregate the reserve of assets from the issuer's other assets and to ensure that it is held in custody by independent, supervised entities. This prevents the issuer from making free use of these assets and provides holders with greater protection in the event of issuer insolvency.

4.2.1 Bank deposits

Despite these shared elements, regulation nevertheless faces a dilemma: whether to prioritise the inclusion of safe liquid assets in the reserve – particularly bank deposits and sovereign

Chart 2

Deposits from firms and households as a share of total assets (a)

SOURCE: EBA Dashboard. September 2025.

a The data relate to the main institutions in each country.

debt instruments – thereby increasing interconnectedness with the banking system and reference markets, or to allow other types of instruments, thus relinquishing some control over the value of the pool required to guarantee eventual redemption.

Solutions to this trade-off must be based on a clear understanding of the links between stablecoins and the banking system and the resulting risks to financial stability. First, deposits included in the reserve could be concentrated in a limited number of custodian banks, which would increase risk in the event of a run on the stablecoin. Furthermore, the use of bank deposits as reserve assets could alter the structure of bank liabilities, encouraging the substitution of stable retail deposits with more volatile and stress-sensitive institutional deposits. Beyond the implications for financial stability, this process could intensify monetary policy transmission through the deposit channel.³²

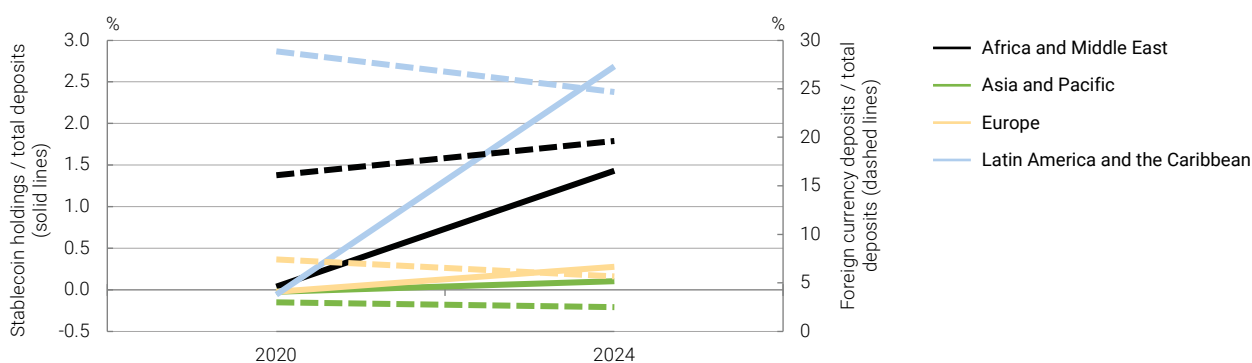
On the other hand, the expansion of stablecoins could reduce the banking sector's deposit base or alter its composition, particularly if stablecoins come to offer features perceived as substitutes for deposits, which continue to play a central role in European credit institutions' business model. As shown in Chart 2, among Europe's main banking groups the ratio of household and corporate deposits to total assets ranges between 31% and 55%, revealing a common pattern of high dependence on this retail funding source. In Spain, this ratio stands at 51%.

Chart 3 shows that while stablecoin holdings remain small compared with total deposits and foreign currency deposits, their volume has grown steadily since 2020. This increase is particularly significant in partially dollarised regions such as Africa and the Middle East, or

³² The potential reduction in institutions' deposit-taking market power, combined with lower inertia stemming from changes in depositor composition, could heighten the sensitivity of deposit flows and rates to monetary conditions (Drechsler, Savov and Schnabl, 2017).

Chart 3

Stablecoin holdings as a share of deposits (a)



SOURCE: IMF Understanding Stablecoins. 2025.

a Stablecoin holdings are calculated as the cumulative net flows of stablecoins.

Latin America and the Caribbean, where foreign currency deposits already account for a sizeable proportion of the total (around 20% in Africa and the Middle East, and 25% in Latin America and the Caribbean). This trend suggests that stablecoins could become a relevant fund reallocation channel within the financial system, reducing institutions' stable funding base and creating structural risks for the banking sector.

The MiCAR treats bank deposits as a core component of the reserve of assets, particularly for larger stablecoins. It therefore requires that at least 30% of the reserve be held in bank deposits (rising to 60% for significant EMTs)³³ denominated in the same currency as the stablecoin. Although it entails a risk of contagion to the banking system, this approach prioritises reserve asset liquidity and solvency and reflects the regulator's intention to exercise a high degree of control over the assets underpinning the crypto-asset ecosystem and prevent funds currently held in bank deposits from migrating to other products and eroding the deposit base.

The US approach establishes a far more limited link to bank deposits. The GENIUS Act allows reserve assets to include bank deposits but does not impose any requirements or restrictions. The OCC's subsequent regulatory proposal merely requires that issuers of the largest stablecoin issuances (those exceeding \$25 billion) hold bank deposits of at least 0.5% of the total reserve value, or up to \$500 million, in FDIC-insured institutions. This cap is seen as striking a balance between the need for directly redeemable and fully liquid instruments, such as bank deposits, and the need to reduce the risk of contagion to the FDIC-insured banking sector. Stablecoin issuances for volumes below \$25 billion do not have to meet any bank deposit requirements.

Finally, the UK's approach differs depending on whether the stablecoins are systemic or non-systemic. Only non-systemic stablecoins are permitted to hold reserves in bank deposits,³⁴

³³ See footnote 27.

³⁴ For non-systemic stablecoins, sight deposits and short-term government bonds (with maturities of up to one year) with immediate liquidity thresholds and no prescribed composition are permitted.

thus creating a firewall between systemic stablecoins and the banking system. For systemic stablecoins, at least 40% of the reserve must be held in non-interest-bearing deposits with the BoE.

4.2.2 Concentration limits

To mitigate potential contagion to the banking system, both the EU and US regulatory frameworks have set specific concentration limits. Under the EU's MiCAR, the value of reserves held with a single depository institution is capped at 25% for global systemically important institutions (G-SIIs) or other systemically important institutions (O-SIIs), at 15% for large institutions that are neither G-SIIs nor O-SIIs, and at 5% for all other institutions. Additionally, the amount deposited must not exceed 1.5% of the depository institution's total assets. Notably, the MiCAR does not permit issuers to hold their reserves of assets at national central banks or the European Central Bank.

The US proposal also sets thresholds for deposits held with FDIC-insured credit institutions. These are generally higher than those established under the MiCAR and do not differentiate by the size or systemic importance of the depository institution but rather, as a general rule, allow issuers to hold up to 40% of the total reserve volume with a single depository institution. Also, the US framework does permit issuers to hold reserves at any of the 12 Federal Reserve Banks.

4.2.3 Reserve asset liquidity

The EU has established additional requirements for the types and maturities of assets comprising the reserve, supplementing the MiCAR with implementing regulations³⁵ designed to ensure reserve liquidity based on the size, complexity and nature of the assets involved.³⁶ These requirements not only apply to significant stablecoins; they can also apply to non-significant ones if the supervisor considers it appropriate.

The GENIUS Act and its implementing rules, by contrast, display a clear preference for short-term US sovereign debt. While this approach reduces direct banking risk, it increases exposure to conditions in government bond markets. The FSB has identified this as a potentially systemic risk, as it could amplify stress in the event of a mass sell-off. To mitigate this, the framework provides for the use of very short-term instruments and highly compressed redemption periods (two days), thereby limiting the impact on reserve parity.

35 EBA/RTS/2024/10 to further specify the liquidity requirements of the reserve of assets under Article 36(4) of Regulation (EU) 2023/1114.

36 Among other requirements, at least 40% (20% for non-significant EMTs) of the total reserve value must consist of assets with daily maturities, including reverse repurchase agreements that can be unwound with one day's prior notice, and at least 60% (30% for non-significant EMTs) must consist of instruments with weekly maturities, including reverse repurchase agreements that can be unwound with five business days' prior notice.

The GENIUS Act imposes stricter limits than the EU regulation on the types of assets that can make up the reserve, stipulating liquid instruments with short-term maturities.³⁷ Additionally, the OCC's subsequent regulatory proposal includes maturity diversification rules and requires that the average maturity of all reserve assets not exceed 20 days.

The UK approach requires systemic stablecoin issuers to hold up to 60% of their reserve in short-term sovereign debt instruments (with maturities of less than one year). To mitigate potential adverse effects on reference markets, the framework itself provides for issuers to access central bank liquidity facilities backed by the reserves held, thereby avoiding mass redemptions and the resulting market impact.

For non-systemic stablecoins, the UK framework does not place any restrictions on the bank deposits and short-term sovereign debt instruments issuers can hold in the reserve. Since these issuers are non-systemic, the framework considers the interconnectedness with government bond markets through debt instruments, and with the banking system through deposits, to be non-material. The regulatory proposal also includes a transitional period for issuers of stablecoins designated as systemic to shift their reserve assets from bank deposits to non-interest-bearing deposits with the BoE.

Finally, the MiCAR's implementing regulations require issuers to conduct stress tests to assess the impact of adverse events on reserve liquidity.³⁸ These tests must be performed at least monthly and may result in more stringent reserve liquidity requirements. The aim is to ensure, as far as possible, reserve liquidity while preserving market integrity and depository institution liquidity.

Neither the GENIUS Act nor the UK proposal includes reserve liquidity stress testing. In the UK, however, issuers of non-systemic stablecoins are required to perform daily reconciliations of reserve asset value against the volume issued.

4.3 Redemption: going concern and recovery

4.3.1 General conditions and run risk

All three frameworks make redemption at par and on demand (i.e. at any time) mandatory. There are, however, notable differences in how redemption value is set, the time frames

37 Cash in USD; sight deposits at supervised banks; US sovereign debt instruments (T-bills) with maturities of less than 93 days; repos collateralised by debt instruments; and investments in money market funds (MMFs) that invest in T-bills and very short-term (intraday) government bond repos. In any event, the OCC may recognise other assets as eligible if, in its view, they share a similar risk profile.

38 Article 6(3) of Delegated Regulation (EU) 2025/415 of 13 December 2024 supplementing Regulation (EU) 2023/1114 of the European Parliament and of the Council with regard to regulatory technical standards specifying adjustment of own funds requirement and the minimum features of stress testing programmes of issuers of asset-referenced tokens or of e-money tokens.

involved, and how fees, interest and commissions are determined, as well as there being various operational restrictions.

The EU framework mandates redemption at par based on nominal value. Redemption must be executed as a payment in funds whenever requested by the token holder. The MiCAR does not set a predefined time frame for redemption. It also prohibits issuers from setting volume-based restrictions or charging redemption fees, except in the cases provided for in issuers' redemption and recovery plans implemented in stress scenarios.

The GENIUS Act, meanwhile, requires issuers to convert, redeem or repurchase stablecoins for a fixed monetary value expressed in fiat currency. The framework does not prohibit issuers from charging fees or imposing redemption limits for a given volume, but it does require them to implement and publish their redemption policy transparently and to include the channels and time frames as well as the fees and restrictions or minimum thresholds they impose on redemptions. The OCC's subsequent regulatory proposal sets a two-day deadline for issuers to deliver the equivalent value in fiat currency after receiving a holder's request.³⁹

In the UK, the legislative proposal requires redemption at par, regardless of the reserve's value. No minimum redemption amount may be set, and redemption must be completed no later than the next business day following the request. For systemic stablecoins, the deadline is shortened to the end of the business day on which the request is made. Fees may only be charged if they are proportionate to operational costs and may not exceed the amount redeemed. Likewise, issuers may not pass reserve asset sales losses on to the user.

Nevertheless, reserve requirements and redemption guarantees may still prove insufficient to uphold the promise of par conversion and meet all redemption requests if there is a run on the stablecoin. The second-round effects of stress on a stablecoin – whether due to a peg break or market panic – could also affect the banks holding its reserve assets and, more broadly, every intermediary with a common asset holding.

More specifically, stablecoin issuers facing redemption pressures may be forced to rapidly liquidate their reserve assets, propagating the resulting value declines to banks and other financial intermediaries that also invest in those assets, and which may in turn be compelled to accelerate their own sales. This would fuel further loss of confidence in the stablecoin, greater investor outflows and solvency and liquidity shortfalls across the system. Moreover, the effects of an investor run on a stablecoin can spread across borders.

4.3.2 Recovery and redemption plans

The insolvency regime that, in the event of bankruptcy, ultimately sets the terms of stablecoin holders' recovery of the reserve assets is one of the cornerstones of crypto-asset regulation.

³⁹ The OCC's proposal defines this as "timely redemption". This period may be extended to seven days in cases where requests within a 24-hour period exceed 10% of the total volume issued, subject to OCC verification and additional reporting requirements, among other conditions.

There are, however, differences between the regulatory approaches in the three jurisdictions under review.

The MiCAR requires stablecoin issuers to have specific recovery and redemption plans in place. The recovery plan must set out the measures the issuer has to take when a breach occurs to restore compliance with the obligations and requirements applicable to the reserve of assets. It must identify risks and define clear conditions and procedures for activating the plan before the situation undermines the issuer's redemption capacity. Among the measures the recovery plan may include are the imposition of redemption fees, the setting of quantitative limits or restrictions on daily redemptions, and even their temporary suspension.

The redemption plan must also ensure that, if the competent authority considers that the issuer may be unable to meet its obligations, or if it declares it insolvent or withdraws its authorisation, an orderly sale of the reserve assets can be executed to satisfy holders without causing undue harm or destabilising the markets in which the reserve assets are traded. The plan must include contractual arrangements, operational procedures, critical function continuity plans, equitable payment mechanisms and the possible appointment of a temporary administrator. The plan must also be submitted to the competent authority within six months of authorisation and regularly updated.

This framework ensures that preventive and corrective measures (recovery) are activated first and, should these fail, that the reserve assets are sold to safeguard holders' rights (redemption). While this approach imposes higher costs on issuers, it provides greater protection to holders while shielding reference markets from potential disruptions caused by fire sales of assets following issuer insolvency.

While the GENIUS Act does not make specific provision⁴⁰ for crisis management, the OCC's subsequent regulatory proposal does provide for certain measures if an issuer is observed to be consistently unable to maintain the value of its reserve of assets. It also establishes an automatic, tiered response mechanism for breaches of the minimum reserve asset requirement. Specifically, the issuer must immediately notify the OCC of any shortfall and is automatically prohibited from issuing new stablecoins until compliance is restored. Should the breach persist for 15 consecutive business days, the issuer must begin liquidating the reserve and redeeming the outstanding stablecoins in an orderly manner and without charging holders any fees. The OCC may also require a return-to-compliance plan or, if it determines there is a significant risk of the issuer being unable to achieve compliance within a reasonable time frame, order full redemption without prejudice to any other supervisory or enforcement measures.

The EU approach, by contrast, requires ex ante plans, following a preventive and planning-based logic, unlike the OCC regime, which is reactive and based on objective predefined conditions and thresholds. While the MiCAR emphasises advance preparation and governance

⁴⁰ The GENIUS Act includes a mandate for federal agencies to assess whether the standard insolvency procedures applied to issuers are sufficient or whether specific requirements or an insolvency regime tailored to stablecoins should be established.

in stress scenarios, the OCC's proposal prioritises early intervention and protection of redemption rights, affording the supervisor broad discretion to compel an orderly market exit if an issuer's viability is compromised.

Finally, the UK's legislative proposal has not yet addressed this aspect and defers to the ordinary insolvency regime. For systemic stablecoins, however, given their structural backing and central bank liquidity support, redemption does not depend as heavily on reserve asset liquidation, ostensibly making a preventive crisis management approach less necessary. For non-systemic stablecoins, given their limited size and complexity, no crisis management plans or measures are envisaged either, thereby favouring issuers by reducing the regulatory burden (see Table 1).

5 Conclusions

The crypto-asset ecosystem's market value and transaction volume have trended upward in recent years. Stablecoins account for 15% of this market and, while their use outside the crypto-asset ecosystem and their degree of interconnectedness with the rest of the financial system remain limited, their potential scalability raises concerns about the potentially significant risks to holders, financial stability and monetary policy transmission.

While national regulations based on the FSB guidelines have addressed some of these issues, shortcomings remain as regards the heterogeneity of certain aspects of crypto-asset regulation and, above all, supranational coordination, which in our view is insufficient given stablecoins' global nature.

Broadly speaking, the regulatory frameworks in the EU, the US and the UK share common objectives in terms of consumer protection, financial stability and not stifling financial innovation. The foundations of the various regulations are also similar: guaranteed redemption rights; a reserve of stable, liquid short-term assets segregated from the issuer; and a relatively circumscribed licensing and authorisation regime. However, the details that set them apart from each other reflect differing regulatory policy choices and differences in some of the objectives of each jurisdiction.

The way in which interconnectedness with the financial system is addressed; the imposition of requirements on all issuers or according to their potential systemicity; openness to foreign issuers; the composition of reserves; and the level of detail in solvency requirements, supervision and recovery and resolution plans all reflect different regulatory priorities.

For example, the European approach has opted for a system that exerts less direct pressure on sovereign markets but has greater exposure to the banking sector. It makes bank deposits the key element in the reserve of assets as a means of ensuring liquidity and value stability while reducing exposure to sovereign debt markets or other assets. However, this approach carries contagion risks for the financial system in stress scenarios, which is why certain mitigation measures have been put in place.

Table 1

Comparative overview of the main features of stablecoin regulation

	EU (MiCAR)	United States (GENIUS Act)	United Kingdom
Scope of application	E-money tokens (EMTs) pegged to a single fiat currency. The MiCAR also covers asset-referenced tokens (ARTs) pegged to any other value or right, which fall outside the scope of this article.	Stablecoins pegged to a single currency.	Stablecoins pegged to a single currency.
Entry into force	June 2024.	The earlier of January 2027 or 120 days after the competent agencies issue the final regulation.	Pending. Expected by the end of 2026 to complete the legislative process.
Banks as issuers	Permitted.	Only through a subsidiary.	Permitted.
Supervision	National authorities and the EBA (for significant stablecoins).	For federally regulated stablecoins, the primary supervisor is the OCC. Other government agencies (FDIC, NCUA, Fed) have jurisdiction depending on issuer type. For state-regulated stablecoins, the relevant state supervisor.	FCA for non-systemic issuers; joint FCA–BoE supervision for systemic issuers.
Capital requirements	For bank issuers: own solvency requirements. For non-bank issuers: initial minimum capital of €350,000 and own funds equal to 2% of the average volume of stablecoins in circulation (3% for significant issuers). Supervisors may increase this requirement by 20% after assessing issuer risk. Solvency stress tests (quarterly or six-monthly, depending on materiality), which may lead to higher capital requirements.	\$5 million (a) and an additional capital buffer to cover operational risk (OCC addition).	Own funds at least equal to the highest of: (i) £350,000; (ii) 25% of the previous reporting period's relevant fixed expenses; or (iii) 2% of the average volume issued. For systemic issuers: working capital equal to the higher of (i) the recovery cost of the largest plausible loss event or (ii) six months' operating expenses. Furthermore, segregated reserves in high-quality liquid assets, in addition to the reserve of assets, are required to cover (a) the financial risk associated with the reserve assets and (b) insolvency costs.
Collection of interest	Prohibited.	Prohibited.	Prohibited.
Issuance in currencies other than the national currency	Permitted (subject to restrictions and an obligation to notify the ECB).	Not specified.	Permitted for stablecoins under FCA supervision. Systemic stablecoins are pegged to sterling.
Reserve composition (b)	Liquid assets with low credit and market risk, denominated in the same currency as the EMT, and deposits with credit institutions, subject to concentration limits.	Cash; sight deposits with supervised banks; short-term US sovereign debt instruments; repos collateralised by debt instruments; and holdings in MMFs that invest in government bonds and very short-term government repos.	Sight deposits and short-term government bonds (up to one year). Other longer-term instruments, repos or MMFs under certain conditions. For systemic stablecoins, 60% in short-term government bonds and 40% in non-interest-bearing deposits with the central bank.
Asset reserve liquidity requirements (b)	Different liquidity buckets by maturity (daily, weekly and other). A minimum of 30% in bank deposits (60% for significant stablecoins). Monthly liquidity stress tests, which may result in more stringent liquidity requirements.	100% of the reserve in fully liquid instruments with an average maturity of less than 20 days, including cash, insured deposits, T-bills with a maximum 93-day maturity, repos/reverse repos and government MMFs.	For non-systemic stablecoins: guaranteed liquidity through instruments with very short maturities. For systemic stablecoins: sovereign instruments that allow immediate conversion, together with BoE liquidity facilities as a backstop to limit mass sell-offs.
Custody of the reserve (b)	Segregated from the issuer in independent entities.	Segregated from the issuer in independent entities.	Segregated from the issuer in independent entities.
Reserve excess value requirement (b)	Coverage of at least 1:1.	1:1 ratio.	1:1 ratio.

SOURCE: Compiled by author.

a In the proposal stage. After an initial phase, capital may be adjusted on a case-by-case basis according to risks and performance.

b Reserve requirements under the EU framework apply only to non-bank issuers. Banks are not required to hold a reserve of assets.

Table 1

Comparative overview of the main features of stablecoin regulation (cont'd)

	EU (MiCAR)	United States (GENIUS Act)	United Kingdom
Reserve audit (a)	Every six months.	Monthly review (not audit).	Not provided for.
Redemption conditions	On demand, at par and at nominal value.	At par at the fixed monetary value. Redemption at the latest by T+2.	Guaranteed redemption at par, with no restrictions or minimum amount. Redemption at the latest by T+1 (for systemic stablecoins, by T+0).
Redemption fees and restrictions	Not permitted.	Permitted. Contractually predefined.	Permitted. Proportionate to operational costs and never exceeding the amount redeemed or passing reserve asset sale losses on to the user.
Recovery and resolution plans	Recovery and redemption plans with specific conditions for issuers.	Ordinary insolvency regime. Reactive, staged procedure in the event of sustained non-compliance, which may lead to the orderly liquidation of the reserve of assets.	In accordance with general insolvency legislation.
Foreign issuer regime	Issuer must be European.	A foreign issuer may operate in the US if the Treasury approves regulatory equivalence and the issuer registers with the OCC.	For non-systemic stablecoins, foreign issuers that meet national requirements may operate; systemic stablecoin issuers must set up a UK entity and hold reserves in the UK.

SOURCE: Compiled by author.

a Reserve requirements under the EU framework apply only to non-bank issuers. Banks are not required to hold a reserve of assets.

Moreover, banks' role as both issuers and holders of stablecoins takes on fundamental importance given their function as financial intermediaries. In this regard, the prudential regulation developed by the BCBS establishes a common framework of conditions and requirements that classify crypto-assets according to their risk and set out the capital requirements for each of them. The fact that this regulation remains unimplemented by most jurisdictions despite the January 2026 deadline having passed underscores the divergence and heterogeneity in crypto-asset regulation.

Other details, such as permitting issuers to charge fees or setting redemption time frames, can give rise to arbitrage between holders and operators and create imbalances, particularly in such a globalised ecosystem where one of the key objectives is to reduce international transfer speed and cost. The clearest example is seen in multi-issuer schemes, where the ability to redeem fungible tokens across different jurisdictions could generate liquidity imbalances for issuers if the effective mobility of the reserve funds is not guaranteed.

An additional consideration is that, despite the existence of regulation or plans to introduce it, current development levels and implementation timelines vary significantly. In a globalised ecosystem, this creates an uneven playing field and raises competitiveness issues, which market participants exploit by issuing and operating in those jurisdictions where they find the balance between legal certainty and regulatory demands most favourable.

All this opens transmission channels for vulnerabilities that could affect financial stability. Beyond the already mentioned risks of issuer liquidity, and potential failure, and the potential erosion of bank deposits, there are also the problems arising if large volumes of reserve assets are converted to obtain liquidity, or the potential disruptions to monetary policy transmission if the use of stablecoins were to become more widespread.

In our view, the regulatory response should be to seek international regulatory harmonisation and supervisory coordination around equivalence and reciprocity regimes. As we have shown, the differences between the regulatory frameworks are not so great as to be insurmountable. If the political will were sufficient, cooperation agreements or the establishment of colleges of supervisors could overcome the differences in regulatory objectives.

REFERENCES

- Adrian, Tobias, Parma Bains, Marianne Bechara, Eugenio M. Cerutti, Stephanie Forte, Federico Grinberg, Alessandro Gullo, Martina Hengge, Kathleen Kao, Tommaso Mancini-Griffoli, Soledad Martínez Peria, Marcello Miccoli, Marco Reuter and Nobuyasu Sugimoto. (2025). "Understanding Stablecoins". Departmental Paper - International Monetary Fund. <https://doi.org/10.5089/9798229024075.087>
- Ahmed, Rashad, James A. Clouse, Fabio Natalucci, Alessandro Rebucci and Geyue Sun. (2025). "Stablecoins: A Revolutionary Payment Technology with Financial Risks". NBER Working Paper, 34475, National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w34475/w34475.pdf
- Aldasoro, Iñaki, Perry Mehrling and Daniel H. Neilson. (2023). "On Par: A Money View of Stablecoin". BIS Working Papers, 1146, Bank for International Settlements. <https://www.bis.org/publ/work1146.htm>
- Anadu, Kenechukwu E., Patrick E. McCabe, J. P. Pérez-Sangimino and Nathan Swem. (2026). "A Framework for Understanding the Vulnerabilities of New Money-Like Products". Supervisory Research and Analysis Working Paper SRA 26-01, Federal Reserve Bank of Boston. <https://doi.org/10.17016/FEDS.2026.002>
- Anguren, Rebeca, José García Alcorta, Lucas García Calvo, Diego Hernández García and Eva Valdeolivas. (2023). "Crypto-asset regulation in the current international and European framework". Financial Stability Review - Banco de España, 44. <https://doi.org/10.53479/30054>
- Ayuso, Juan, and Carlos Conesa. (2020). "An introduction to the current debate on central bank digital currency (CBDC)". Documentos Ocasionales, 2005, Banco de España. <https://repositorio.bde.es/handle/123456789/10443>
- Bank of England. (2025). "Proposed regulatory regime for sterling-denominated systemic stablecoins". Consultation paper. <https://www.bankofengland.co.uk/paper/2025/cp/proposed-regulatory-regime-for-sterling-denominated-systemic-stablecoins>
- Basel Committee on Banking Supervision. (2024). "SCO60. Cryptoasset exposures". https://www.bis.org/basel_framework/chapter/SCO/60.htm
- Committee on Payments and Market Infrastructures. (2019). "Investigating the impact of global stablecoins". <https://www.bis.org/cpmi/publ/d187.htm>
- Committee on Payments and Market Infrastructures and Bank for International Settlements. (2018). "Central bank digital currencies". CPMI Papers, 174. <https://www.bis.org/cpmi/publ/d174.pdf>
- Drechsler, Itamar, Alexi Savov and Philipp Schnabl. (2017). "The Deposits Channel of Monetary Policy". The Quarterly Journal of Economics, 132(4), pp. 1819-1876. <https://doi.org/10.1093/qje/qjx019>
- European Central Bank. (2025). "An Overview of the ECB's Monetary Policy Strategy". https://www.ecb.europa.eu/mopo/strategy/strategy-review/ecb.strategyreview202506_strategy_overview.en.html
- European Systemic Risk Board. (2025a). "Crypto-assets and Decentralised Finance : Report on stablecoins, crypto-investment products and multifunction groups : October 2025". <https://doi.org/10.2849/6616962>
- European Systemic Risk Board. (2025b). "Recommendation of the European Systemic Risk Board (ESRB/2025/9)". Official Journal of the European Union, C/2025/6342. <https://www.esrb.europa.eu/pub/pdf/recommendations/esrb.recommendation251020.en.pdf?dee2fc04d4095d477840f6dddcbcf14a>
- Federal Register. (2025). "Strengthening American Leadership in Digital Financial Technology". Federal Register, vol. 90(20), p. 8647, 31 January. <https://www.federalregister.gov/documents/2025/01/31/2025-02123/strengthening-american-leadership-in-digital-financial-technology>
- Financial Conduct Authority. (2025a). "CP25/14 – Stablecoin issuance and cryptoasset custody". Consultation Paper. <https://www.fca.org.uk/publication/consultation/cp25-14.pdf>
- Financial Conduct Authority. (2025b). "CP25/15 – A Prudential regime for cryptoasset firms". Consultation Paper. <https://www.fca.org.uk/publication/consultation/cp25-15.pdf>
- Financial Stability Board. (2023). "High-level Recommendations for the Regulation, Supervision and Oversight of Global Stablecoin Arrangements". Final report. <https://www.fsb.org/uploads/P170723-3.pdf>
- Financial Stability Board. (2025). "Thematic Review on FSB Global Regulatory Framework for Crypto-asset Activities". Peer review report. <https://www.fsb.org/uploads/P161025-1.pdf>

- International Monetary Fund. (2020). "Digital Money Across Borders: Macro-Financial Implications". <https://doi.org/10.5089/9781513559209.007>
- Hernández de Cos, Pablo. (2026). Stablecoins: Framing the debate [Speech]. Bank for International Settlements. <https://www.bis.org/speeches/sp260420.htm>
- Massimo Ferrari Minesso and Daniele Siena. (2026). "Private Money and Public Debt: U.S. Stablecoins and the Global Safe Asset Channel". ECB Working Paper, 3174. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp3174~d4cc1da5a8.en.pdf>
- Office of the Comptroller of the Currency. (2026). "GENIUS Act Regulations: Notice of Proposed Rulemaking". <https://www OCC.treas.gov/news-issuances/federal-register/2026/91fr10202.pdf>
- Prudential Regulation Authority. (2023). "Letter from David Bailey, Nathanaël Benjamin and Vicky Saporta on 'Innovations in the use by deposit-takers of deposits, e-money and regulated stablecoins'". <https://www.bankofengland.co.uk/prudential-regulation/letter/2023/innovations-in-the-use-of-deposits-emonney-and-regulated-stablecoins>
- Reuter, Marco, Itai Agur, Alexander Copestake, María Soledad Martínez Peria and Ken Teoh. (2025). "Payment Frictions, Capital Flows, and Exchange Rates". IMF Working Paper, 2025/171. <https://doi.org/10.5089/9798229022521.001>

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IMPACT ON MORTGAGE LENDING OF A REDUCTION IN SPANISH HOUSEHOLDS' BORROWING CAPACITY

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Abstract

This article examines, by means of a natural experiment, the effects on mortgage lending of exogenous changes in Spanish households' borrowing capacity. The nature of these changes allows their implications to be interpreted as analogous to those that could arise from the introduction of macroprudential borrower-based measures (BBMs) aimed at limiting leverage at loan origination. The empirical analysis conducted utilises data generated by a temporary change in 2011 in the tax treatment of principal residence purchases that was applied in regions under the ordinary tax regime, but not in those subject to special tax regimes, and that was subsequently retroactively reversed. This episode created an exogenous constraint on the borrowing capacity of potentially affected households without permanently altering their disposable income. Using micro data from the Banco de España's Central Credit Register and applying a difference-in-differences strategy with exhaustive controls for supply and demand, we find significant reductions in new mortgage loan amounts and loan-to-value (LTV) and loan-to-income (LTI) ratios, as well as in the future probability of default on those loans. The evidence aligns with the effects attributed to BBMs in the literature and provides relevant insights applicable to ex ante evaluation of BBMs in the Spanish context.

Keywords: macroprudential measures, borrower-based measures, BBMs, LTV, LTI, borrowing.

1 Introduction

Ex ante evaluation of macroprudential borrower-based measures (BBMs), designed to constrain borrower indebtedness and curb accumulation of systemic risk, is key to assessing their potential efficacy and appropriate calibration, and evaluating any potential unintended impacts on credit markets.

In mortgage lending, these tools include limits on the loan-to-value (LTV) ratio, the loan-to-income (LTI) ratio and the debt service-to-income (DSTI) ratio. Such measures have been widely adopted in multiple jurisdictions and there is credible evidence of their success in both bolstering banking system resilience and moderating credit cycles.

In Spain, the regulatory framework enabling the activation of BBMs was developed between 2018 and 2021 to strengthen financial stability by containing credit risk linked to excessive household borrowing.¹ Activating these tools imposes quantitative restrictions on mortgage

¹ These measures were introduced in Spain through [Royal Decree-Law 22/2018](#) and [Royal Decree 102/2019](#). Implementation was completed through [Banco de España Circular 5/2021](#), which amended [Banco de España Circular 2/2016](#) to include Articles 75 and 76.

lending standards (for instance, through caps on LTV, LTI or DSTI ratios) that exogenously constrain borrower leverage at origination. However, given the absence of sufficient signals of systemic risk, these tools remain as yet unused. This lack of practical application means there is little direct empirical evidence available on which to model their potential effects or properly calibrate their parameters.

In this context, using alternative approaches to assess, preliminarily, the potential impact of implementing a BBM policy in Spain is particularly relevant. Such approaches may include simulations based on theoretical models and reviews of evidence drawn from international experience (see Carro, Galán, Martorell and Vegas, 2025). A complementary strategy is to analyse past economic policy episodes that, while not constituting macroprudential measures, generated comparable effects on household borrowing decisions. Adopting this strategy, this article examines the temporary removal in 2011 of the tax deduction on principal residence purchases across most of Spain. We interpret this intervention as a shock that exogenously reduced the borrowing capacity of certain households and produced effects analogous to those of a BBM designed to limit borrower leverage relative to income. Annex 1 formalises this analogy between the fiscal shock and a BBM, treating it as a local and conditional equivalence valid for the set of households subject to the LTI/DSTI ratio constraints at origination.

The fiscal measure under analysis entered into force on 1 January 2011 and entailed the complete removal of the tax deduction for principal residence purchases for taxpayers residing in regions operating under the ordinary tax regime and receiving an income exceeding €24,000.² For affected households, the measure reduced the sum of future disposable income that could be committed to mortgage repayments, thereby constraining the maximum loan amount. Thus, like the various forms of macroprudential lending limits,³ this exogenous fiscal shock restricted household borrowing capacity.⁴ Unexpectedly, the deduction was reinstated in its original form on 30 December of the same year, allowing affected mortgage holders to benefit from the deductions for the tax year in which the loan was granted and thereby restore their disposable income as if the measure had never been introduced.

This combination of factors, coupled with the absence of concurrent changes in other policies,⁵ allows us to establish quasi-experimental conditions by comparing unaffected regions against

2 This fiscal reform was introduced by Law 39/2010 of 22 December 2010 on the State Budget for 2011. The threshold applies to the taxpayer's taxable income. For further details, see Section 3.

3 BBMs can take very different forms. While we have cited limits on LTV, LTI and DSTI ratios, BBMs can generally be expressed either as a constraint on the maximum loan amount (L) a household can access or as a cap on the fraction of the discounted future income (F) it can commit to the loan, defined as the sum of the present value of that income (ΣIncome). For instance, the constraint $\text{LTV} < 1$ implies $L < V$, where V denotes the property value, which can also be interpreted as a cap on the maximum fraction of future income committed, $F < V / \Sigma \text{Income}$. Similarly, the constraint $\text{LTI} < 1$ implies $L < I$, where I represents the borrower's current income, likewise restricting the fraction of future income that they can commit to $F < I / \Sigma \text{Income}$.

4 The analogy is only partial since a fiscal measure may also affect households for which a macroprudential constraint would not be binding and, more broadly, it may also affect the sum of available future income (ΣIncome). In the episode studied, however, this difference is limited, since the income shock was temporary and subsequently retroactively reversed, reinforcing its comparability with a constraint on borrowing at origination.

5 On 20 August 2011, a temporary reduction in value added tax (VAT), lowering the rate applicable to new-build home purchases from 8% to 4%, entered into force. While this measure could have triggered anticipation effects, the risk in this case is limited

regions⁶ in which the removal of the deduction generated an exogenous demand shock that influenced home purchase decisions and the terms and conditions of the mortgages taken out during this period. Moreover, the retroactive reinstatement of the deduction meant that, ex post, the disposable income of the households affected by its earlier removal was not actually reduced. Thus, the temporary elimination of the deduction operated solely through a reduction in new mortgage loan amounts and, consequently, through lower leverage, allowing the measure's effect on future default rates to be isolated.

In short, this shock's distinctiveness lies in three specific features: i) its non-application in the regions under special tax regimes (Basque Country and Navarre), where no further changes were made to the rate or other aspects of the tax, enabling us to construct a control group unaffected by the measure; ii) its focus on high-income households, which facilitates design of the identification strategy in the absence of individual household income data; and iii) its unexpected retroactive reinstatement at the close of 2011, which neutralises the permanent effect on disposable income and thus isolates the channel constituting financial leverage on loan risk.

The results show that, in the short term, the temporary removal of the home purchase deduction led to a 6% decrease in new mortgage loan amounts (compared with those originated in regions under special tax regimes, which were unaffected by the change), resulting in a 3.3 percentage point (pp) reduction in the LTV ratio and a 24 basis point (bp) reduction in the LTI ratio. Neither the property's appraisal value nor interest rates were impacted. As a consequence, mortgages granted in the areas affected by the measure recorded a decrease in future probability of default, firstly because borrower leverage at origination was lower and, secondly, because household disposable income was not compromised by virtue of both the temporary nature of the deduction's removal and its retroactive application in the same tax year. Moreover, while aggregate new mortgage lending fell by 23% there were no observed effects on consumer lending.

To conduct this analysis we drew on the Banco de España's Central Credit Register (CCR). The month-by-month information in this database allows us to identify all new mortgages taken out on principal residences between July 2010 and June 2011 across all of Spain. The database contains detailed information on each transaction (including the amount granted, term, interest rate applied and origination date), as well as relevant data on borrowers (such as their sector of activity and age). It also records the residence's postcode, enabling each household to be

since the estimation window closed in June 2011 and the reduction was announced unexpectedly as part of an emergency package. Regardless, for greater robustness we excluded from the sample all transactions identified as new-build purchases (based on construction date) without this exclusion significantly altering the results.

6 Ideally, having access to individual household income at loan origination would allow absolute precision when analysing the impact of the measure. No such data, however, are available. For this reason, as a proxy we use the average income of the postcode in which the borrower is located. In general, all the regions operating under the ordinary tax regime are affected to some degree by the removal of the deduction (as they include households with incomes above €24,000), while those operating under special tax regimes remain unchanged. Thus, in the baseline regression we work only with mortgages granted in regions under special tax regimes and with those granted to high-income households in regions under the ordinary tax regime. Section 4.1 provides a detailed explanation of the sample considered.

assigned an average income based on external data. The CCR likewise identifies the financial institution granting each loan, allowing exhaustive bank-level controls to be incorporated.

The article is structured as follows: First, we review the literature on the effects of macroprudential policies designed to limit borrower indebtedness on various mortgage indicators in a variety of countries. Next, in Section 3, we describe in detail the fiscal shock under analysis, discuss its analogy with a demand shock that constrains bank borrowing and explain the databases used. In Section 4, we set out the identification methodology adopted and analyse the effects of the temporary removal of the tax deduction on the characteristics of the new mortgages granted, supplementing the results with a set of additional robustness checks. Finally, in Section 5, we present the conclusions drawn from the analysis.

2 Review of the academic literature on the effects of borrower-based macroprudential policies

In the wake of the global financial crisis, research into the effects of macroprudential BBMs expanded substantially, yielding a vast body of both theoretical and empirical literature on the subject.⁷

The theoretical literature, which predominantly employs general or partial equilibrium models, indicates that BBMs impact credit, house prices and financial stability. Specifically, easing caps on LTV, LTI or DSTI ratios, among others, tends to drive up house prices and household indebtedness, thus heightening vulnerability and curbing consumption in the event of adverse shocks. These studies also find that such measures complement bank capital requirements and monetary policy while bolstering household resilience. More recent literature analysing agent-based models shows that BBMs reduce indebtedness, credit risk and probability of default.⁸

The empirical literature's first strand examines the relationship between loan origination standards and default risk, particularly in the US and UK mortgage markets. Broadly, it finds that high LTV and loan service-to-income (LSTI) ratios significantly increase default risk. Moreover, the effect is non-linear and intensifies sharply beyond certain thresholds.⁹ It also shows that simultaneously applying BBMs that cap loan amounts relative to both property values and borrowers' repayment capacity enhances their effectiveness.¹⁰ A notable study in this strand, focused on Spain (Galán and Lamas, 2025), reveals that mortgages with high loan-to-price (LTP) ratios had significantly higher probabilities of default, suggesting that LTP should complement LTV when assessing mortgage risk.

A second strand of the empirical literature examines whether BBMs, through their impact on macroeconomic and financial aggregates, have effectively contained vulnerabilities affecting

7 For a comprehensive review of this literature, see Carro, Galán, Martorell and Vegas (2025).

8 Herrera (2025); Ingholt (2022); Chen, Finocchiaro, Lindé and Walentin (2023); Alpanda and Zubairy (2017).

9 May and Tudela (2005); Ambrose, Capone and Deng (2001); Deng, Quigley and Order (2000).

10 Hejlová, Holub and Plašil (2021), and Haughwout, Peach and Tracy (2008).

financial stability. These studies show that while LTV and DSTI caps effectively curb excessive growth in household borrowing during expansionary phases of the financial cycle, in crises their activation has no significant impact since the banks themselves tend to implement stricter credit underwriting standards than required by the regulations.¹¹

Finally, a third strand of the empirical literature on the impact of BBMs uses granular loan- or borrower-level data, which enables the identification of transmission mechanisms and heterogeneous effects according to the stage of the business cycle or the institutional framework. Peydró, Rodríguez-Tous, Tripathy and Uluc (2024) show that in the United Kingdom, introducing an LTI ratio cap reduced both lending and default rates among lower-income borrowers while moderating house price growth in areas where banks were granting the highest-risk loans. Meanwhile, in the Netherlands, Bekkum, Gabarro, Irani and Peydró (2024) find that LTV caps reduced mortgage borrowing, house prices and default rates, particularly among low-income borrowers.

In conclusion, the literature reviewed provides evidence that BBMs are effective in reducing the probability of default, dampening credit growth in expansionary phases and, broadly, strengthening the resilience of the financial system. However, their effects vary according to the stage of the cycle and the financial conditions and are heterogeneous across borrowers depending on borrower income and other socio-economic characteristics. The literature also suggests that the flexible and simultaneous application of different BBMs enhances their effectiveness and reduces unintended consequences.

3 Details on the removal of the deduction for principal residence purchases in 2011, identification strategy and databases used

3.1 2011 change in deduction for principal residence purchases

In Spain, the tax deduction on investment in the principal residence had for decades been one of the most significant fiscal benefits available to taxpayers. Until 2010, the framework broadly allowed a 15% deduction in the tax payable on amounts invested (principal, interest, mandatory insurance, etc.)¹² in the purchase or refurbishment of the taxpayer's principal residence. The maximum amount eligible for relief was capped at just over €9,000 per annum and there were no limits by income. This deduction could therefore yield mortgage holders a maximum tax saving of €1,356 per year. Law 39/2010 on the State Budget for 2011 introduced a sweeping change by linking the deduction to the taxpayer's income and removing it entirely for annual incomes above €24,107.¹³

11 Claessens, Ghosh and Mihet (2013); Lim et al. (2011).

12 The deduction also applied to cash purchases, as it was based on the amount invested in acquiring the main home and there was no requirement to finance the purchase through third parties.

13 The Law stipulated that for new borrowers with a taxable income of €17,700 or less, the existing deduction would remain in place, while for those with taxable incomes between €17,700 and €24,107, the maximum amount eligible for deduction would be reduced linearly, disappearing entirely above the €24,107 threshold. The 2011 reform also included a transitional regime to protect those who had purchased their principal residence before 31 December 2010.

The 2011 framework also had a clear territorial dimension: the income-based restriction applied only to Spain's autonomous communities operating under the ordinary tax regime, leaving the Basque Country and Navarre – where regulatory power over personal income tax has been devolved – unaffected. In practice, this created a fiscal divide in 2011 between regions under the ordinary regime, where the new income threshold applied, and those under special tax regimes, which maintained their existing rules.

Thus, on 1 January 2011, the universal nature of the tax deduction for principal residence purchases was abandoned in favour of an income criterion that effectively eliminated the deduction for incomes above €24,000 in regions under the ordinary tax regime. This amendment, however, proved temporary. Following the general election on 20 November 2011, a change of government led to the reinstatement of the deduction in its original form, without income thresholds. [Royal Decree-Law 20/2011](#) of 30 December 2011 retroactively restored the deductions that had been in place prior to Law 39/2010, allowing taxpayers to benefit from the measure for the entire 2011 tax year.

The measure therefore reduced the expected current disposable income of households purchasing or refurbishing their principal residence. It is thus reasonable to expect that the measure would have generated a negative income effect, which in the short term would have had a direct negative impact on new mortgage loan amounts. This, in turn, would have directly affected the LTI and the LTV ratios.¹⁴

Moreover, given the unexpected retroactive reinstatement of the deduction, the financial risk associated with affected mortgages would have fallen without ultimately compromising the household's expected income prior to the introduction of the measure. This allows us to assume that, all other things being equal, the lower future risk of the affected loans would be attributable solely to the lower LTV or LTI ratios, making it possible to treat this event as a natural experiment with which to assess the causal effect of exogenous changes in financial ratios on the future probability of default.

In this analysis, we do not assume a priori that households are financially constrained. Instead, we use the estimated magnitude of the response of the loan amount to an exogenous change in income as indicative evidence of the presence of such constraints. In an environment without financial constraints, a transitory income shock would therefore be expected to have a limited effect on borrowing at origination, as it would not substantially alter the household's permanent income. This would not be the case if financial constraints existed. For financially constrained households, the level of indebtedness is capped at a certain percentage of their income, meaning variations in the debt held would be expected to be roughly proportional to variations in their income. If the estimated variation in debt following the removal of the deduction were equal to or greater than the observed variation in income, the effects found would be consistent with the existence of financial constraints. Conversely, a more muted

14 Assuming that property values were not affected in the short term by the removal of the deduction.

response in debt level would indicate that a significant portion of households are not subject to such constraints.

Section 4.1 shows that the results are consistent with the representative household being financially constrained. This interpretation is further reinforced by analysing the heterogeneity between households with financial constraints. In this regard, we observe that for a segment of the population less likely to be subject to financial constraints, the fiscal shock does not generate significant effects on the mortgage amount. This finding supports the hypothesis that the observed aggregate response is driven primarily by financially constrained households.

3.2 Databases

This study uses the Banco de España's CCR, a confidential credit database kept since 1984 that lists the stock of loans extended in Spain each month by all the banks operating in the country. The initial reporting threshold was very low (€6,000) and it has been further reduced over time. For the purposes of this analysis, we focus on loans to households and, specifically, on all mortgages on principal residences originated between 1 July 2010 and 30 June 2011, thus creating a time window around the shock under study.

The database provides detailed information on borrowers, loan terms and conditions and the lending institution. Regarding borrowers, it distinguishes between individuals with no business activity and sole proprietors (self-employed). For the former, it records employment status (employee, retiree, rentier, student, unemployed, among other categories), while for the latter it records the economic sector in which they operate, categorised according to the three-digit National Classification of Economic Activities. It also includes the borrower's postcode, foreign national status, gender and age.

The borrower's age allows us to assign a household reference person, defined as its oldest member, to each mortgaged household. This classification facilitates association of each mortgage with the corresponding household's sociodemographic characteristics. For instance, based on the postcode of residence we assign an income level to the mortgage, using for this purpose the average household income in that location as provided by the National Statistics Institute (INE). This figure is subsequently used as the denominator in the LTI ratio.

As for loan-specific information, the CCR records the purpose of the loan (enabling us to identify mortgages for the purchase of principal residences) and, at origination, the amount granted in euro, the term in months, the interest rate type (fixed or variable) and corresponding percentage, as well as the property's appraisal value in euro, from which the LTV ratio can be calculated. Additionally, the database documents the loan's status in terms of non-performance, allowing us to classify a loan as non-performing if, at any point in its lifetime up to 2025, it is in arrears for more than 90 days.

4 Identification strategy and results

4.1 Effects on mortgage transactions

The core analysis examines the impact of the 2011 fiscal shock on the characteristics of new mortgages originated for principal residence purchases. Specifically, it assesses whether the temporary removal of the tax deduction for principal residence purchases for high-income taxpayers in regions under the ordinary tax regime (which reduced their effective borrowing capacity in a manner analogous to a borrower-based macroprudential policy) affected various dimensions of mortgage transactions, such as the amount granted, the LTV ratio, the LTI ratio, the interest rate applied, the appraisal value of the property and the future probability of default. The validity of the results is tested using a broad set of robustness checks, including matching techniques designed to improve comparability between the treatment and control groups. Additionally, the analysis examines the aggregate effect on the total volume of mortgage lending and assesses whether there were any spillover effects on consumer lending.

Spain's institutional particularities provide an ideal context for causal identification, as the regions under special tax regimes enjoy full fiscal autonomy and were unaffected by the temporary removal of the deduction. Moreover, since the removal of the deduction affected only taxpayers in higher income brackets and given that Spain's higher-income households are well represented in the regions under the special tax regimes, the treatment group is defined as those households located in regions under the ordinary tax regime whose average income exceeds the median for that territory (around €30,000).¹⁵

This delimitation serves two key purposes. First, it precisely isolates the effect of the deduction's removal on high-income segments – the very taxpayers directly affected by the reform. Second, as noted earlier, it enhances comparability between treated and untreated mortgages by ensuring that households in regions under the ordinary tax regime have income levels closely aligned with those in regions under the special tax regimes. Consequently, the control group comprises households residing in regions under special tax regimes, where the deduction remained in force and unchanged. This selection strategy allows us to identify the fiscal shock's impact on the segments directly exposed to the reform more accurately.

The main estimate adopts a difference-in-differences (DiD) approach, comparing affected and control mortgage transactions before and after the reform's entry into force.

Formally, the treatment variable is defined as the interaction between the binary variable *Treated*, which takes the value 1 for new mortgages originated in high-income postcodes of regions operating under the ordinary tax regime (and 0 otherwise), and the binary variable *Post*, which takes the value 1 for mortgages originated in 2011 (and 0 otherwise). The coefficient of

¹⁵ The remaining mortgages in regions under the ordinary tax regime were excluded from this analysis. Although some of these mortgages were reincorporated into the dataset in the robustness checks, the estimates that included them showed no material differences.

the interaction Treated $\times$ Post captures, within a narrow window around the time of the regulatory change, the average effect of the fiscal shock on various mortgage characteristics in affected regions versus those under special tax regimes. The estimated equations take the following form:

$$\text{Mortgage Characteristics}_{hbt} = \beta \text{Treated}_{hbt} \times \text{Post}_t + \theta_{ht} + \eta_{bt} + \varepsilon_{hbt} \quad [1]$$

where the subscript h denotes the new mortgage granted, b identifies the lending bank, and t spans the months from July 2010 to June 2011. The dependent variable, Mortgage Characteristics, encompasses various dimensions of the mortgage transaction, including the amount granted, the LTV ratio, the LTI ratio, the interest rate applied, the property's appraisal value and the probability of default over the lifetime of the loan.¹⁶

To ensure conditional comparability between the treatment and control groups, we incorporate a comprehensive set of controls that capture both demand- and supply-side factors. Specifically, η_{bt} accounts for time-varying supply factors associated with the lending bank (bank-time fixed effects).¹⁷ Meanwhile, θ_{ht} includes a set of controls that proxy mortgage applicants' household wealth and characteristics through fixed effects linked to postcode, the household reference person's sector of activity and foreign national status, as well as through other compositional factors captured by interactions between foreign national status, female gender and sole proprietorship before and after the shock. We also add a time-varying fixed effect for fixed-rate mortgages to ensure comparability in the interest rate dimension across loans with different contractual structures. The idiosyncratic component unexplained by the remaining factors is denoted by ε_{hbt} . The standard errors in the estimates are clustered at postcode, bank and mortgage level.

In this type of analysis, it is essential to ensure that mortgages in the control group are as comparable as possible to those in the treatment group to obtain valid causal inferences. A preliminary test of averages provides an early indication of the degree of similarity between the two groups. Additionally, to further strengthen comparability between the treatment and control groups, we apply a prior matching procedure. The weights derived from this matching are subsequently incorporated into the estimates to reweight the sample and ensure greater similarity in the distribution of observed covariates between the two groups.

A DiD model also requires the parallel trends assumption to hold, whereby if the shock had not occurred the treatment group would have followed a similar trajectory to the control group. We assess this condition in the supplementary estimates presented in Annex 2, where the Treated variable is allowed to vary over time.

16 Only mortgages still outstanding in 2018 are considered since the Banco de España's CCR did not report all origination characteristics prior to that date. Nevertheless, the sample retains over 80% of new mortgages granted (both in number and amount). It should be noted, however, that this sample restriction may introduce potential survivor bias if mortgages with lower initial leverage are more likely to remain active over time.

17 Since the shock under analysis primarily affects household credit demand, we control for supply using bank-time fixed effects.

Table 1

Comparison of treated and untreated mortgages (a) (b)

	Baseline sample				
	Treated = 0		Treated = 1		Standardised difference
	(1) Average	(2) Standard deviation	(3) Average	(4) Standard deviation	(5) Test
Amount (€000s)	163.18	(87.84)	163.96	(97.97)	0.01
LTV (%)	62.70	(38.37)	79.70	(32.85)	0.34
LTI	4.79	(2.44)	4.45	(2.45)	-0.10
Interest rate (pp)	0.89	(0.63)	0.89	(0.68)	0.00
Future default (0/1)	0.02	(0.13)	0.02	(0.13)	0.01
Log (income)	10.43	(0.17)	10.50	(0.19)	0.29
Term (years)	29.75	(7.87)	28.92	(7.72)	-0.08
Appraisal value (€000s)	203.08	(93.03)	195.33	(95.20)	-0.06
Foreign national (0/1)	0.01	(0.08)	0.02	(0.12)	0.07
Self-employed (0/1)	0.01	(0.11)	0.02	(0.13)	0.04
Female (0/1)	0.34	(0.47)	0.39	(0.49)	0.08
Number of observations	6,510		44,795		

SOURCES: Banco de España, INE and authors' calculations.

- a** The table shows the average (columns 1 and 3) and standard deviation (columns 2 and 4) of a set of variables grouped according to whether they are considered treated (mortgages originated in high-income postcodes in regions under the ordinary tax regime) or untreated (regions under special tax regimes) for the matching analysis.
- b** The standardised difference column presents a statistic to assess the test of averages proposed by Imbens and Wooldridge (2009), for which Imbens and Rubin (2015) suggest a heuristic threshold of 0.25 (in absolute value). The standardised difference statistic tests the null hypothesis of no differences in averages between the treatment and control groups using a scale- and sample-size-independent estimator. Values above this threshold would indicate systematic differences.

Table 1 presents a test of averages comparing characteristics of treated and untreated mortgages.¹⁸ The results show a high degree of comparability between the two groups across most observed characteristics (standardised difference statistic < 0.25 in absolute value).¹⁹ The average loan amount is virtually identical in both groups (around €163,000), as are the interest rate applied (0.89%), the contractual term (approximately 29 years) and the future probability of default (around 2%). The remaining covariates also exhibit minimal differences.

Two material differences nevertheless emerge. First, assigned income is higher in treated areas (approximately €37,000 versus €35,000 in untreated areas),²⁰ a pattern consistent with the criterion of constructing the treatment group from high-income areas in regions under the ordinary tax regime. This selection, however, improves comparability between the groups, as the average income of all households under the ordinary tax regime with incomes above

¹⁸ While the tests of averages are calculated on the full sample, the results remain unchanged when the comparison is restricted to the pre-treatment sample.

¹⁹ The standardised difference statistic, which tests the null hypothesis of no differences in averages between the treatment and control groups using a scale- and sample-size-independent estimator, was proposed by Imbens and Wooldridge (2009). Imbens and Rubin (2015) later suggested a heuristic threshold of 0.25 in absolute value, with values above this threshold indicating systematic differences.

²⁰ The average values are calculated on the income level and do not coincide with the exponential of the average income values expressed in logarithms shown in the descriptive tables.

Table 2

Impact of the removal of the house purchase deduction on mortgage characteristics (a)

Dependent variable	(1) Amount	(2) Value	(3) LTV	(4) LTI	(5) Interest rate	(6) Default
Treated × Post	-0.060*** (0.016)	0.006 (0.015)	-3.252** (1.141)	-0.244*** (0.077)	-0.001 (0.024)	-0.008* (0.004)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,305	51,305	51,305	51,305	51,305	51,305
Pseudo R2/R2	0.262	0.310	0.497	0.229	0.440	0.197

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of estimation at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

€24,000 stands at around €30,000, a figure far more removed from that observed in the regions under special tax regimes than the one in our refined sample.

Second, the LTV ratio is substantially higher in the treatment group (80% versus 63%), indicating that high-income households in regions under the ordinary tax regime accessed significantly higher leverage, likely driven in large part by income differentials.

These differences underscore the need to carefully control for demand and compositional factors, as we do in the empirical analysis. Additionally, in the robustness checks we apply a matching procedure based on income level. The results show that, once this matching is performed, the observed differences are virtually eliminated and the main findings of the analysis remain unchanged.

Table 2 presents the results of estimating equation [1]. It is worth noting that, when the dependent variable is expressed in monetary terms, we use a Poisson pseudo-maximum likelihood model, whereas for the other dependent variables we use ordinary least squares (OLS) estimates.²¹

The estimated coefficients reveal that, in affected areas and compared with the regions under special tax regimes, the removal of the deduction led to a 6% decrease in average new mortgage

²¹ As Santos Silva and Tenreiro (2006) and Cohn, Liu and Wardlaw (2022) demonstrate, OLS estimates are potentially biased when logarithms of monetary amounts are used as dependent variables, a problem that does not arise with a Poisson model.

loan amount but did not significantly change the property's appraisal value. As a result, the LTV ratio fell by 3.3 pp and the LTI ratio by 24 bp. Interest rates showed no statistically significant variation. Finally, the future probability of default decreased by approximately 0.8 pp.

As discussed in earlier sections, the observed reduction in the future probability of default likely stems from lower initial leverage rather than from permanent changes in households' expected income. The fiscal shock acted as a temporary constraint on borrowing capacity at origination that reduced the LTV and LTI ratios. The deduction was retroactively reinstated later that same year, leaving expected income largely unaffected. Consequently, the improvement in solvency indicators solely reflects a lower debt burden at origination, which in turn reduces ex post default risk.

To minimise the differences observed between the treatment and control groups (documented in Table 1), we apply a matching technique based on income level, the primary variable responsible for the discrepancies identified. This matching procedure generates weights that are subsequently incorporated into the DiD model.

In our empirical context, the control group is substantially smaller than the treatment group, which means that conventional matching techniques would require discarding a significant portion of the sample and result in a loss of statistical efficiency and representativeness. To avoid these undesired outcomes, we adopt two approaches. First, we use entropy balancing (EB), a matching procedure that assigns weights to observations to equalise the averages of selected observable characteristics (in this case, income) without reducing the sample size. Second, we apply inverse probability weighting (IPW), which reweights control group observations so that the average of the covariates used (particularly income) is similar to that of the treatment group, again without eliminating observations. Both EB and IPW thus preserve the available information and enhance sample balance between two groups of highly unequal size (see Hainmueller (2012) and Hirano, Imbens and Ridder (2003)).

Table 3 replicates the test of averages presented in Table 1, incorporating the weights derived from EB. The results show that, after reweighting, the differences between the treatment and control groups are markedly smaller and cease to be statistically significant for all the characteristics considered. This confirms that the procedure achieves a high degree of convergence in the composition of the two groups, thus bolstering the validity of the subsequent causal analysis.

Table 4 presents the results of estimating equation [1] using the EB methodology. The findings confirm the robustness of the main estimates, as the same mortgage characteristics that proved significant in the baseline estimate (Table 2) retain their statistical significance and are of very similar magnitudes. Specifically, in affected areas new mortgage loan amounts fell by 6.1% versus those granted under special tax regimes, the LTV ratio decreased by 2.4 pp, the LTI ratio by 25 bp, and the future probability of default improved by 0.9 pp.

Annex 2 (Tables A2.1 and A2.2) shows the results of IPW. The estimates preserve both the sign and magnitude of those obtained through EB and for the unweighted sample. Ultimately, the

Table 3

Comparison of treated and untreated mortgages following EB matching (a) (b)

	EB-matched sample				
	Treated = 0		Treated = 1		Standardised difference
	(1) Average	(2) Standard deviation	(3) Average	(4) Standard deviation	(5) Test
Amount (€000s)	172.07	(96.90)	163.96	(97.97)	-0.06
LTV (%)	82.26	(29.88)	85.90	(29.66)	0.09
LTI	4.70	(2.44)	4.45	(2.45)	-0.07
Interest rate (pp)	0.87	(0.62)	0.89	(0.68)	0.02
Future default (0/1)	0.01	(0.12)	0.02	(0.13)	0.02
Log (income)	10.50	(0.22)	10.50	(0.19)	0.02
Term (years)	29.64	(7.90)	28.92	(7.72)	-0.07
Appraisal value (€000s)	213.09	(97.57)	195.33	(95.20)	-0.13
Foreign national (0/1)	0.01	(0.07)	0.02	(0.12)	0.07
Self-employed (0/1)	0.01	(0.11)	0.02	(0.13)	0.04
Female (0/1)	0.34	(0.47)	0.39	(0.49)	0.08
Number of observations	6,510		44,795		

SOURCES: Banco de España, INE and authors' calculations.

- a** The table shows the average (columns 1 and 3) and standard deviation (columns 2 and 4) of a set of variables grouped according to whether they are considered treated (mortgages originated in high-income postcodes in regions under the ordinary tax regime) or untreated (regions under special tax regimes) for the matching analysis. Matching is performed on income and the resulting weights stem from an EB approach.
- b** The standardised difference column presents a statistic to assess the test of averages proposed by Imbens and Wooldridge (2009), for which Imbens and Rubin (2015) suggest a heuristic threshold of 0.25 (in absolute value). The standardised difference statistic tests the null hypothesis of no differences in averages between the treatment and control groups using a scale- and sample-size-independent estimator. Values above this threshold would indicate systematic differences.

Table 4

Impact of the removal of the house purchase deduction on mortgage characteristics. EB-matched sample (a)

Dependent variable	(1) Amount	(2) Value	(3) LTV	(4) LTI	(5) Interest rate	(6) Default
Treated × Post	-0.061*** (0.018)	-0.004 (0.016)	-2.377** (1.169)	-0.252*** (0.077)	0.001 (0.031)	-0.009** (0.004)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,305	51,305	51,305	51,305	51,305	51,305
Pseudo R ² /R ²	0.297	0.347	0.613	0.256	0.460	0.231

SOURCES: Banco de España, INE and authors' calculations.

- a** The table presents the results of a weighted estimation (following EB matching) at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level.
- * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

similarity of the results with and without matching supports the validity of the empirical strategy and provides further evidence that the estimated effects are not driven by observable imbalances between the groups but instead reflect the impact of the fiscal shock under analysis.

Finally, Table A2.3 in Annex 2 presents the estimate of equation [1]. It employs EB matching and allows the Treated variable to vary at bimonthly intervals over time to assess the parallel trends assumption. Overall, the results show no significant differences in the variables of interest between the treatment and control groups in the pre-shock period, validating the assumption that the control group provides an appropriate counterfactual for the treatment group.²²

4.1.1 Robustness checks

So far, in order to identify the fiscal shock's impact with greater clarity, we have classified as treated only those mortgages granted in high-income postcodes (above the median) in regions under the ordinary tax regime. This strategy seeks to minimise the risk of misclassification since we lack individual data on each household's exact income (and, in particular, on the taxable income to which the fiscal reform applies), which prevents us accurately identifying which mortgages were actually affected. By restricting the treatment group to high-income postcodes, we reduce the likelihood of including mortgages classified as treated that, in reality, were not.

To assess whether this restriction affects the results obtained so far, we include as a robustness check an alternative treatment definition that encompasses all mortgages granted in regions under the ordinary tax regime to households with an assigned income exceeding €24,000. The results, shown in Table 5, are consistent with the main findings, despite this assignment method potentially being subject to greater classification error and despite the larger income differences with the control group.

Specifically, the estimates show that, following the fiscal shock, the loan amounts of new mortgages granted in regions under the ordinary tax regime fell by 5.4% compared with those formalised in the Basque Country or Navarre. Likewise, the LTV ratio decreased by 3.2 pp and the LTI ratio by 22 bp. The future probability of default also fell by 0.5 pp, although like the estimates for the appraisal value and the interest rate this effect is not statistically significant.

As noted in the introduction, the removal of the deduction for principal residence purchases need not affect the borrowing decisions of all households potentially exposed to the fiscal change in the same way. Even among those within the measure's scope of application, the response may differ depending on the additional assets available to households (such as financial savings, land or other properties and assets) allowing them to reduce their reliance on borrowing.

²² Although the results are consistent whether using IPW matching or not applying any matching procedure, in the latter case some evidence emerges of pre-existing trends in the appraisal value.

Table 5

Impact of the removal of the house purchase deduction on mortgage characteristics. Treatment group with income greater than €24,000 (a)

Dependent variable	(1) Amount	(2) Value	(3) LTV	(4) LTI	(5) Interest rate	(6) Default
Treated × Post	-0.054*** (0.015)	0.005 (0.020)	-3.235*** (1.205)	-0.217*** (0.073)	0.009 (0.021)	-0.005 (0.004)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	96,046	96,046	96,046	96,046	96,046	96,046
Pseudo R2/R2	0.271	0.330	0.492	0.227	0.431	0.191

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of a weighted estimation (following EB matching) at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

To illustrate the magnitude of the shock, we consider a representative household with an average mortgage. The temporary removal of the deduction for principal residence purchases implies a maximum annual reduction in net income of €1,356 (around 3.5% of the annual net income of the group considered, estimated at around €38,000).²³ Meanwhile, the empirical estimates show a reduction of close to 6% in new mortgage loan amounts.²⁴

While an annual flow (income) and a stock (loan principal) are not directly comparable, the two can be reconciled by acknowledging that a 6% reduction in principal translates into a proportional decrease in the annual amount repaid. For a representative mortgage, and given typical DSTI ratios of 35-45%, this reduction in the repayment amount is of a similar order of magnitude to the annual income loss associated with removal of the deduction for principal residence purchases.²⁵ Taken together, these results are consistent with the interpretation of the episode as an effective constraint on borrowing at origination (see Annex 1).

²³ Average value for high-income households in regions under the ordinary tax regime, the group considered affected by the reform in this study, as described in greater detail in Section 4.

²⁴ It should be noted that, at the time of loan origination, households did not anticipate the retroactive reinstatement of the tax deduction (a measure adopted following the change of government after the November 2011 general election) and therefore made their borrowing decisions as if the shock were permanent. From this perspective, the relevant comparison is between the expected loss of permanent income and the observed adjustment in borrowing at origination. While the text illustrates the magnitude of the shock using the maximum annual loss associated with removal of the deduction, an assessment in present value terms would not qualitatively alter the interpretation, since both the deduction and household income scale similarly when considered as permanent flows.

²⁵ Under a French amortisation schedule, for a representative mortgage of €163,000 at an interest rate of 0.9% and with a term of 29 years, a 6% decrease in the principal implies a reduction of approximately €385 in the annual repayment. With a DSTI limit of 35-45%, this reduction is consistent with a decrease in annual net income of between €855 and €1,100, comparable to the annual deduction of around €900 to which this representative mortgage would have been entitled.

It is also of interest to identify a subset of potentially less constrained households in order to assess whether the reform had a differential, or more limited, impact on them.

This task is made challenging by the lack of direct data on borrowers' wealth. To create a proxy for this information, we employ an indirect strategy that examines post-origination behaviour. Specifically, given that we know the initial loan amount, term and contractual rate of interest, we compare, for example at December 2016, the outstanding balance of the mortgages analysed with the simulated balance that would have existed at that date if a standard French amortisation schedule had applied from the start of the loan. Based on this comparison, we classify households as unconstrained if they have made significant early repayments. Operationally, we define as unconstrained those loans for which the simulated amortised percentage is greater than the median of its distribution.²⁶ Applying this variable isolates around 16% of the mortgages in the sample.

It should be emphasised that this metric is not a direct indicator of wealth and may reflect, in addition to greater financial headroom, factors such as the temporary availability of liquidity or preferences for debt reduction. In this regard, the aim of the exercise is not to identify every single household not subject to financial constraints at origination, but rather to isolate a subset with a lower likelihood of being constrained and to assess whether the effects of the fiscal shock are smaller in this group (see Annex 1).

Table 6 replicates the analysis in Table 2, distinguishing between households classified as unconstrained and the rest. The results yield two main conclusions. First, households classified as unconstrained show no significant changes in any of their credit standards following the fiscal reform, suggesting that their borrowing capacity was not compromised by the removal of the deduction. Second, the estimated effects for the remaining households are similar to those observed in the full sample, which is consistent with this group's predominance in the population analysed. Taken together, this heterogeneity indicates that the impact of the fiscal shock is concentrated among financially constrained households, reinforcing the interpretation that the tax change acts as an effective constraint on borrowing at origination, analogous to the introduction of macroprudential limits on the LTI ratio (see Annex 1).

4.2 The effects of the LTV or LTI ratios on future default

To identify the effect of the LTV or LTI ratio at mortgage origination on subsequent credit performance, it is important to note that, in the absence of an exogenous shock, both ratios are endogenous: higher-risk borrowers tend to opt for greater leverage because they have less equity, thus creating a positive correlation with default.

²⁶ The amortised percentage is defined as $\text{Max}(\text{Simulated Debt 2016} - \text{Actual Debt 2016}, 0) / \text{Initial Debt} \times 100$. The results remain qualitatively unchanged for the thresholds of the amortised percentage distribution between the 35th and 65th percentiles.

Table 6

Impact of the removal of the house purchase deduction on mortgage characteristics (a)

	(1) Amount	(2) Amount	(3) Value	(4) Value	(5) LTV	(6) LTV	(7) LTI	(8) LTI	(9) Interest rate	(10) Interest rate	(11) Default	(12) Default
Dependent variable	Unconstrained	Rest	Unconstrained	Rest	Unconstrained	Rest	Unconstrained	Rest	Unconstrained	Rest	Unconstrained	Rest
Treated × Post	-0.024 (0.049)	-0.059*** (0.015)	-0.016 (0.033)	0.014 (0.016)	1.123 (2.093)	-3.697*** (1.239)	-0.068 (0.260)	-0.257*** (0.079)	0.033 (0.070)	-0.016 (0.028)	-0.007 (0.007)	-0.010* (0.005)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,208	42,276	7,208	42,276	7,208	42,276	7,208	42,276	7,208	42,276	7,208	42,276
Pseudo R2/R2	0.437	0.268	0.436	0.318	0.622	0.502	0.407	0.244	0.615	0.441	0.292	0.213

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of estimation at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. A household is classified as unconstrained if it made significant early mortgage repayments by 2016 (see Section 4.1.1). "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

In this context, the fiscal shock under analysis provides a source of exogenous variation since its implementation was independent of household decisions, occurred within clearly defined temporal and geographical bounds and directly affected initial borrowing capacity. This makes it a valid means by which to identify the causal effect that LTV and LTI ratios exert on future probability of default. Formally, we use instrumental variables to estimate the following equation:

$$\text{Future Default}_{hb} = \gamma \text{LS}_{hbt} + \theta_{ht} + \eta_{bt} + \varepsilon_{hbt} \quad [2]$$

where LS (lending standard) denotes either the LTV or LTI ratio at origination, instrumented in the first stage through equation [1]. The remaining components of the equation were defined in Section 4.1. The fiscal shock's significance when used as an instrument is measured by the first-stage F-statistic, which yields values close to the heuristic threshold of 10 (8.1 for LTV and 10.0 for LTI).²⁷

27 An F-statistic of 10 or greater signals a strong relationship between the instrumental variable and the instrument, indicating the statistic's significance as an instrument. This threshold should be interpreted as a rule of thumb rather than a definitive criterion, particularly in cases – such as this study – where the instrument's exogeneity is robustly supported (Angrist and Pischke, 2009). Nevertheless, it is worth noting that a low F-statistic may lead the instrumental variable model to produce imprecise and high (in absolute value) estimates with wide confidence intervals. In such cases, the qualitative impact would be more significant than the quantitative one.

Table 7

Impact of changes in the LTV or LTI ratio on the future probability of mortgage default (a)

Dependent variable	Default	
	(1)	(2)
LTV	0.002** (0.001)	
LTI		0.036** (0.017)
Fixed Effects: Bank × Time	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes
Other household and mortgage controls	Yes	Yes
F-statistic	8.1	10.0
Observations	51,305	51,305

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of instrumental variable estimation at mortgage-bank-time level using a linear probability regression model to analyse the impact on the future probability of default of the LTV or LTI ratio at origination, instrumented by the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

The second-stage instrumental variable estimates are presented in Table 7. The estimates for both the LTV and LTI ratios indicate that greater initial leverage significantly increases mortgage credit risk. Conversely, exogenous reductions in these ratios improve loan credit quality. Specifically, a 1 pp decrease in the LTV ratio (or 1 bp in the LTI ratio) leads to an approximate 13% (2% for the LTI ratio) reduction in the probability of default relative to its average value. The estimated economic magnitude of the leverage ratios' impact on probability of default should be interpreted cautiously, given the instrument's limited significance.

4.3 Aggregate effects by postcode and bank

To i) verify the robustness at aggregate level of the results obtained at individual transaction level; ii) analyse the change in total lending; and iii) examine potential spillover effects on consumer credit, we conduct a complementary analysis of new transaction volumes by postcode and financial institution. This approach is relevant as it captures possible adjustments in credit supply and demand that may not manifest at the micro level but do emerge in aggregate financial institution decisions or in local credit composition.

As in the disaggregated analysis, we estimate a DiD model in which the treated postcodes match those used in the loan-level exercise. Here, the estimated equation is equivalent to equation [1], though in this case aggregated by postcode-bank-time. We also include bank-time and postcode-bank fixed effects to allow exhaustive control for supply factors and persistent local heterogeneity. Standard errors are clustered at postcode and bank level.

Table 8

Impact of the removal of the house purchase deduction on new loans. Aggregate analysis (a)

Dependent variable	House purchase			Consumer credit		
	(1) Average amount	(2) Total amount	(3) Number of loans	(4) Average amount	(5) Total amount	(6) Number of loans
Treated × Post	-0.067** (0.027)	-0.228*** (0.046)	-0.178*** (0.041)	-0.012 (0.045)	-0.009 (0.111)	0.048 (0.109)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,090	20,738	20,738	72,172	65,207	65,207
Pseudo R2	0.390	0.491	0.160	0.480	0.575	0.313

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of estimation at postcode-bank-time level using a Poisson model to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Average amount" represents the sum of all new mortgages (in thousands of euro) divided by the number of new mortgages granted. Standard errors are clustered at postcode and bank level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

This approach enables us to assess the fiscal shock's impact on both average new loan amounts and aggregate credit volume, including potential reallocation to consumer loans following the regulatory change.

Table 8 presents the aggregate impact of the temporary removal of the deduction for principal residence purchases on the volume of new credit transactions, distinguishing between home mortgages and consumer loans. Columns (1) and (2) show the effects on the average amount and total amount of the new mortgages, respectively, while columns (4) and (5) contain the results for consumer credit. Finally, columns (3) and (6) analyse the changes in the number of mortgages (intensive margin) to detect whether anticipation effects extend beyond December 2010.²⁸

The results reveal a negative and statistically significant impact on mortgage lending in treated areas. Specifically, the estimated coefficient in column (1) indicates that average new mortgage loan amount fell by around 6.7%, consistent with the effects observed in the disaggregated analysis. Column (2) shows a 22.8% decrease in the total loan amount of the new mortgages granted. Column (3) helps clarify the aggregate effect by demonstrating that it largely stems from anticipatory behaviour by borrowers and/or heightened uncertainty, which led to postponement of borrowing decisions. In particular, following the fiscal shock, and even when

²⁸ The data show an unusually high volume of transactions in December 2010, attributable to anticipatory behaviour ahead of the fiscal measure's entry into force. To prevent this effect from distorting the results and to strengthen the robustness of the analysis, transactions from that month are excluded in this exercise. Nevertheless, the estimated effect remains influenced by the pre-December anticipatory behaviour, as shown by the figures for the number of transactions following the measure's entry into force.

December is excluded from the data, the number of new mortgages in treated areas fell by around 18%.

By contrast, no statistically significant effects on consumer credit (columns (4) and (5)) or on the number of consumer loans (column (6)) are found. Both the average amount and the total amount of the new loans yield statistically insignificant coefficients close to zero, suggesting no spillover or substitution effects between mortgage lending and consumer credit following the fiscal shock.

5 Conclusion

This article analyses the effects on mortgage lending in Spain of the temporary removal of the tax deduction for principal residence purchases. The institutional design of the reform – which did not apply to the Basque Country or Navarre and was later unexpectedly reversed with retroactive effect – provides quasi-experimental conditions particularly suitable for identifying exogenous changes in household borrowing capacity without permanently altering expected income. This feature allows the effects of the shock under analysis on financially constrained households' debt burden to be interpreted as analogous to those of a macroprudential BBM aimed at limiting borrower leverage through caps on the LTI or DSTI ratios.

The results show that the removal of the deduction led to a significant decrease in both new mortgage loan amounts and the main leverage indicators at origination without having an effect in the short term on property prices or interest rates. This evidence suggests that the measure operated primarily through the loan amount and its financial structure. Furthermore, the lower initial debt burden assumed by borrowers translated into a significant decrease in future probability of default, highlighting a clear channel through which constraints on borrowing at origination can improve mortgage credit quality.

Taken together, the findings point to the efficacy of imposing limits on mortgage lending standards as a means of curbing household indebtedness and reducing risk of future default. These results should nevertheless be interpreted with caution since the analysis relies on a proxy for household income and a specific time window. The evidence presented should therefore be assessed alongside that from other studies and contexts.

It is worth emphasising, moreover, that this analysis focuses primarily on the efficacy of constraints on borrowing at origination, as measured by their effects on mortgage lending and mortgage credit quality, and does not comprehensively address the potential spillover or general equilibrium effects associated with this type of measure. In particular, while some short-term effects on consumption are examined, the study does not systematically explore how a persistent restriction on mortgage lending might affect, in the longer term, equilibria in the owner-occupied and rental housing markets, the reallocation of credit between the real estate sector and other productive sectors, or potential distributional effects across different

household groups. Analysis of these channels would contribute to a more comprehensive evaluation of macroprudential policies and represent a natural avenue for future research.²⁹

In short, these results' qualitative consistency both with the international evidence on macroprudential policies designed to constrain borrower indebtedness and with previous studies by the Banco de España (which document the ability of these measures to reduce credit risk) reinforces confidence in the existence and economic relevance of the identified channel and in the efficacy of such measures. Overall, this article contributes to the debate in Spain on the suitability and design of macroprudential tools, providing empirical evidence of their potential to bolster financial stability.

29 See Section 2 for a review of the theoretical and empirical evidence on the general equilibrium effects and potential spillovers associated with macroprudential BBMs (including effects on consumption, housing markets and credit reallocation between sectors).

REFERENCES

- Alpanda, Sami, and Sarah Zubairy. (2017). "Addressing household indebtedness: Monetary, fiscal or macroprudential policy?". *European Economic Review*, 92, pp. 47-73. <https://doi.org/10.1016/j.euroecorev.2016.11.004>
- Ambrose, Brent W., Charles A. Capone Jr. and Yongheng Deng. (2001). "Optimal Put Exercise: An Empirical Examination of Conditions for Mortgage Foreclosure". *The Journal of Real Estate Finance and Economics*, 23, pp. 213-234. <https://doi.org/10.1023/A:1011110501074>
- Angrist, Joshua D., and Jörn-Steffen Pischke. (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. <https://doi.org/10.2307/j.ctvc4j72>
- Bekkum, Sjoerd van, Marc Gabarro, Rustom M. Irani and José-Luis Peydró. (2024). "The real effects of borrower-based macroprudential policy: Evidence from administrative household-level data". *Journal of Monetary Economics*, 147(103574). <https://doi.org/10.1016/j.jmoneco.2024.103574>
- Carro, Adrián, Jorge E. Galán, Enric Martorell and Raquel Vegas. (2025). "A literature review on ex-ante and ex-post analysis of the implications of borrower-based macroprudential measures". Documento Ocasional, 2524, Banco de España. <https://doi.org/10.53479/41425>
- Chen, Jiaqian, Daria Finocchiaro, Jesper Lindé and Karli Walentin. (2023). "The costs of macroprudential deleveraging in a liquidity trap". *Review of Economic Dynamics*, 51, pp. 991-1011. <https://doi.org/10.1016/j.red.2023.09.005>
- Claessens, Stijn, Swati R. Ghosh and Roxana Mihet. (2013). "Macro-Prudential Policies to Mitigate Financial System Vulnerabilities". *Journal of International Money and Finance*, 39, pp. 153-85. <https://doi.org/10.1016/j.jimonfin.2013.06.023>
- Cohn, Jonathan B., Zack Liu and Malcolm Wardlaw. (2022). "Count (and count-like) data in finance". *Journal of Financial Economics*, 146(2), pp. 529-551. <https://doi.org/10.1016/j.jfineco.2022.08.004>
- Deng, Yongheng, John M. Quigley and Robert van Order. (2000). "Mortgage Terminations, Heterogeneity and the Exercise of Mortgage Options". *Econometrica*, 68(2), pp. 275-307. <https://onlinelibrary.wiley.com/doi/abs/10.1111/1468-0262.00110>
- Galán, Jorge E., and Matías Lamas. (2025). "Beyond the LTV Ratio: Lending Standards, Regulatory Arbitrage, and Mortgage Default". *Journal of Money, Credit and Banking*, 57(1), pp. 107-150. <https://doi.org/10.1111/jmcb.13041>
- Hainmueller, Jens. (2012). "Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balances Samples in Observational Studies". *Political Analysis*, 20(1), pp. 25-46. <https://doi.org/10.1093/pan/mpr025>
- Haughwout, Andrew, Richard Peach and Joseph Tracy. (2008). "Juvenile delinquent mortgages: Bad credit or bad economy?". *Journal of Urban Economics*, 64(2), pp. 246-257. <https://doi.org/10.1016/j.jue.2008.07.008>
- Hejlová, Hana, Libor Holub and Myroslav Plašil. (2021). "Calibration of Borrower-based Macroprudential Measures for Mortgage Exposures: Rigorous Approach and Its Application to the Czech Republic". *Prague Economic Papers*, 30(3), pp. 316-335. <https://doi.org/10.18267/j.pep.769>
- Herrera, Luis. (2025). "Building-up financial resilience: The role of borrower-based macroprudential policies", Documentos de Trabajo, Banco de España. Forthcoming.
- Hirano, Keisuke, Guido W. Imbens and Geert Ridder. (2003). "Efficient Estimation of Average Treatment Effects Using the Estimated Propensity Score". *Econometrica*, 71(4), pp. 1161-1189. <https://doi.org/10.1111/1468-0262.00442>
- Imbens, Guido W., and Donald B. Rubin. (2015). *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction*. Cambridge University Press. <https://doi.org/10.1017/CBO9781139025751>
- Imbens, Guido W., and Jeffrey M. Wooldridge. (2009). "Recent Developments in the Econometrics of Program Evaluation". *Journal of Economic Literature*, 47 (1), pp. 5-86. <https://doi.org/10.1257/jel.47.1.5>
- Ingholt, Marcus M. (2022). "Multiple Credit Constraints and Time-Varying Macroeconomic Dynamics". *Journal of Economic Dynamics and Control*, 143(104504). <https://doi.org/10.1016/j.jedc.2022.104504>
- Lim, Cheng, Francesco Columba, Alejo Costa, Piyabha Kongsamut, Akira Otani, Mustafa Saiyid, Torsten Wezel and Xiaoyong Wu. (2011). "Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences". IMF Working Papers, 238, International Monetary Fund. <https://doi.org/10.5089/9781463922603.001>
- May, Orla, and Merxe Tudela. (2005). "When is mortgage indebtedness a financial burden to British households? A dynamic probit approach". Staff Working Papers, 277, Bank of England. <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2005/when-is-mortgage-indebtedness-a-financial-burden-to-british-households.pdf>

- Peydró, José-Luis, Francesc Rodriguez-Tous, Jagdish Tripathy and Arzu Uluc. (2024). "Macroprudential Policy, Mortgage Cycles, and Distributional Effects: Evidence from the United Kingdom". *The Review of Financial Studies*, 37(3), pp. 727-760. <https://doi.org/10.1093/rfs/hhad070>
- Santos Silva, J. M. C., and Silvana Tenreyro. (2006). "The Log of Gravity". *The Review of Economics and Statistics*, 88(4), pp. 641-658. <https://doi.org/10.1162/rest.88.4.641>

This annex presents a highly simplified theoretical framework designed to clarify the conditions under which a fiscal shock – one that affects borrowing capacity at loan origination – may produce empirical effects comparable to those of a macroprudential BBM, such as a cap on the LTV ratio, the LTI ratio or the DSTI ratio. The analogy is not proposed as a general equivalence between the two instruments, but rather as a local and conditional relationship valid for the subset of households whose borrowing decisions are effectively constrained at origination.

In this exercise, we consider a household purchasing a property of value V , financed by a mortgage of amount L . The household receives an exogenous income and decides its level of indebtedness at loan origination. To simplify the exposition, we ignore dynamic consumption decisions and focus exclusively on determination of initial leverage.

In the absence of credit constraints, the household would choose an internal level of borrowing, L^* , determined by its preferences and the effective cost of the debt. In the mortgage market, however, observed borrowing is limited by underwriting standards, which can be expressed as a set of quantitative constraints (BBMs) in terms of caps on the LTV, LTI and/or DSTI ratios. In brief:

$$L \leq \lambda V, L \leq \kappa I, p(r,T) L \leq \varphi I,$$

where $p(r,T)$ is the annual repayment per euro of principal (an annuity factor that depends on interest rate r and term T), I denotes the net disposable income relevant to debt servicing at origination, and λ , κ and φ are positive parameters that define the regulatory/credit thresholds for the LTV, LTI and DSTI ratios, respectively. The principal granted therefore satisfies:

$$L \leq \min \{L^*, \lambda V, \kappa I, \varphi I / p(r,T)\}$$

Within this framework, a BBM can be represented as an exogenous change in one of the regulatory parameters, such as a reduction in κ (the LTI cap), λ (the LTV cap) or φ (the DSTI cap). Such measures truncate the set of feasible borrowing options and affect only those households for which the constraint is binding at origination. Thus, a reduction in κ , λ or φ mechanically reduces the loan amount for constrained households but does not directly affect the borrowing of unconstrained households, except through general equilibrium effects.

This property is central to the interpretation of BBMs: their effects are concentrated on those borrowers with greatest initial leverage, who are precisely those of greatest interest from the standpoint of financial stability.

We now consider a fiscal shock associated with a mortgage-financed home purchase (for example, the removal of a tax deduction). This shock operates, in principle, as a change in the

net cost of financing: it alters either net repayment of the loan or the net income available to service the debt. It would thus lead to a higher effective repayment amount (due to the lower deduction) or a fall in the net income available to service the debt.

Unlike a BBM, this shock does not directly impose a regulatory constraint on borrowing, but instead operates through the effective cost of the debt and the household's net income, affecting interior optimum L^* (via prices). It could therefore affect all households, including those that are unconstrained. Nevertheless, its effects on initial borrowing depend crucially on whether the household is subject to credit constraints.

For unconstrained households, the fiscal shock may marginally alter optimal borrowing level L^* , but it does not change the set of feasible options. Consequently, in a static, short-term setting, the adjustment in borrowing L may be minimal or undetectable and is not comparable to a BBM except through general equilibrium effects.

For constrained households, however, the fiscal shock may be observationally equivalent to a BBM since it operates similarly to lowering the relevant cap. If the binding constraint is LTI ($L = \kappa I$), the change in loan amount would be proportional to the change in income. If it operates through DSTI [$L = \phi I / p(r, T)$], removing a deduction and consequently increasing effective repayment p or reducing net income I would mechanically lower the maximum loan amount, making the adjustment at the margin proportional to the change in income and inversely proportional to the change in effective repayment.¹

This mechanism precisely mirrors the effective truncation of borrowing at origination produced by an LTI/DSTI-type BBM, though in this case the truncation is induced by a fiscal change in the net cost of borrowing.

Under the assumptions that i) house prices and interest rates remain largely constant over a short time window, and ii) the credit origination process is subject to LTV, LTI and/or DSTI ratio caps, a fiscal shock that reduces the household's relevant net income or increases the effective loan repayment is equivalent, for households on which the constraint is binding, to a tightening of a BBM (i.e. a reduction in parameters κ or ϕ). In both cases, the effect materialises as an adjustment in the maximum loan amount and, therefore, in changes to the LTV and LTI ratios at origination.

This theoretical framework has several key implications for empirical interpretation: i) the effects of the shock are concentrated among financially constrained households, and ii) these households experience a reduction in initial leverage at origination. As a corollary, unconstrained households may not exhibit any statistically significant effects in the observed response.

The analogy between a fiscal shock and a BBM is not therefore generally applicable but is instead partial and conditional; it holds only insofar as the analysis focuses on the group of

1 The effect could be more pronounced in practice if combined with other concurrent constraints.

households whose borrowing capacity is limited by credit constraints at origination. From this perspective, a transitory fiscal shock that reduces the relevant net income at origination or increases the effective loan repayment amount can be interpreted as a natural and informative experiment that provides insights into the effects of a BBM policy, albeit subject to the limitations noted and bearing in mind that it is not directly extrapolatable to all households.

Table A2.1

Comparison of treated and untreated mortgages following IPW matching (a) (b)

	IPW-matched sample				
	Treated = 0		Treated = 1		Standardised difference
	Average	Standard deviation	Average (%)	Standard deviation	Test
Amount (€000s)	166.47	(90.77)	16396.08%	(97.97)	-0.02
LTV (%)	82.47	(29.88)	85.90	(29.66)	0.08
LTI	4.71	(2.42)	4.45	(2.45)	-0.07
Interest rate (pp)	0.88	(0.63)	0.89	(0.68)	0.01
Future default (0/1)	0.02	(0.12)	0.02	(0.13)	0.01
Log (income)	10.47	(0.17)	10.50	(0.19)	0.15
Term (years)	29.70	(7.88)	28.92	(7.72)	-0.07
Appraisal value (€000s)	207.77	(94.77)	195.33	(95.20)	-0.09
Foreign national (0/1)	0.01	(0.07)	0.02	(0.12)	0.07
Self-employed (0/1)	0.01	(0.11)	0.02	(0.13)	0.04
Female (0/1)	0.34	(0.47)	0.39	(0.49)	0.08
Number of observations	6,510		44,795		

SOURCES: Banco de España, INE and authors' calculations.

- a** The table shows the average (columns 1 and 3) and standard deviation (columns 2 and 4) of a set of variables grouped according to whether they are considered treated (mortgages originated in high-income postcodes in regions under the ordinary tax regime) or untreated (regions under special tax regimes) for the matching analysis. Matching is performed on income and the resulting weights stem from an IPW approach using inverse probability of treatment weighting.
- b** The standardised difference column presents a statistic to assess the test of averages proposed by Imbens and Wooldridge (2009), for which Imbens and Rubin (2015) suggest a heuristic threshold of 0.25 (in absolute value). The standardised difference statistic tests the null hypothesis of no differences in averages between the treatment and control groups using a scale- and sample-size-independent estimator. Values above this threshold would indicate systematic differences.

Table A2.2

Impact of the removal of the house purchase deduction on mortgage characteristics. IPW-matched sample (a)

Dependent variable	(1) Amount	(2) Value	(3) LTV	(4) LTI	(5) Interest rate	(6) Default
Treated × Post	-0.063*** (0.017)	-0.004 (0.015)	-2.298** (1.136)	-0.259*** (0.082)	-0.013 (0.027)	-0.007* (0.004)
Fixed Effects: Bank × Time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × Household	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,305	51,305	51,305	51,305	51,305	51,305
Pseudo R2/R2	0.264	0.539	0.315	0.232	0.442	0.197

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of inverse probability of treatment weighting estimation (after IPW matching) at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

Table A2.3

**Temporary impact of the removal of the house purchase deduction on mortgage characteristics.
EB-matched sample (a)**

Dependent variable	(1) Amount	(2) Value	(3) LTV	(4) LTI	(5) Interest rate	(6) Default
Sep-Oct 2010	0.005 (0.034)	-0.023 (0.020)	0.474 (2.054)	-0.101 (0.220)	-0.048 (0.039)	-0.005 (0.007)
Nov-Dec 2010	0.056 (0.039)	-0.001 (0.023)	0.900 (2.205)	0.157 (0.184)	-0.064 (0.048)	-0.003 (0.006)
Jan-Feb 2011	0.055 (0.050)	-0.006 (0.028)	-5.570** (2.679)	-0.311* (0.180)	-0.045 (0.055)	-0.012 (0.009)
Mar-Apr 2011	-0.064** (0.032)	-0.022 (0.019)	-0.368 (3.182)	-0.332** (0.134)	-0.059 (0.059)	-0.011 (0.010)
May-Jun 2011	0.023 (0.037)	-0.004 (0.023)	-0.322 (2.748)	0.018 (0.139)	-0.026 (0.038)	-0.012* (0.006)
Fixed Effects: Bank × time	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects: Postcode × household	Yes	Yes	Yes	Yes	Yes	Yes
Other household and mortgage controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,305	51,305	51,305	51,305	51,305	51,305
Pseudo R2/R2	0.298	0.347	0.613	0.257	0.460	0.237

SOURCES: Banco de España, INE and authors' calculations.

a The table presents the results of a weighted estimation (following EB matching) at mortgage-bank-time level using a Poisson regression model (columns 1 and 2) or a linear regression model (columns 3, 4, 5 and 6) to assess the impact of the removal of the principal residence purchase deduction in regions under the ordinary tax regime for the period between July 2010 and June 2011. "Treated" is a binary variable that takes the value 1 for new mortgages originated in high-income postcodes (above the median) in regions under the ordinary tax regime and 0 otherwise. "Post" is a binary variable that takes the value 1 for mortgages originated in 2011 (the year the fiscal change was introduced) and 0 otherwise. The "Amount" of the mortgage is measured in thousands of euro; "Value" refers to the property's appraisal value in thousands of euro; "LTV" is the loan-to-value ratio; "LTI" is the loan-to-income ratio (assigned by postcode); "Interest rate" is the percentage mortgage rate; and "Default" is a binary variable that takes the value 1 if the mortgage becomes non-performing at any point in its lifetime (up to 2025) and 0 otherwise. The controls used are explained in Section 4. Standard errors are clustered at postcode, bank and mortgage level. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01.

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TEN YEARS OF BANK RESOLUTION IN EUROPE: DEVELOPMENTS, LESSONS LEARNED AND FUTURE CHALLENGES

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Abstract

This article examines developments in the European bank resolution framework over the last decade, since the creation of the Single Resolution Mechanism and the Single Resolution Board in 2015. Its origins lie in the weaknesses exposed by the major financial crisis of 2008 and in the need to establish a uniform, predictable and sector-funded regime for tackling banking crises. We review the main milestones achieved since then, including most notably the creation of the Single Resolution Fund and institutions' compliance with the minimum requirement for own funds and eligible liabilities. Also, we analyse recent banking crises, both within and outside the Banking Union, highlighting the main lessons learned. Furthermore, we identify outstanding challenges, such as the need to improve the liquidity support mechanism in resolution, implement the European deposit guarantee scheme and harmonise national insolvency regimes. Lastly, we highlight the key new developments of the new European legislative package on crisis management and deposit insurance (CMDI), which improves the current resolution regime and enables national deposit guarantee schemes to play a more significant role in the management of banking crises.

Keywords: resolution, Single Resolution Mechanism, banking crises, MREL, CMDI.

1 Bank resolution: origins and foundations

The Great Recession, which took place in 2008-09, was triggered by a severe financial crisis with drastic consequences for the real economy. The excessive accumulation of risks on banks' balance sheets led to massive losses for institutions, exacerbated by the rapid deleveraging processes they were forced to undertake. The limited loss-absorbing capacity of some institutions caused numerous bank failures, which had a major direct impact on the global economy and on the fiscal capacity of governments worldwide, and resulted in financial instability and a deep sovereign debt crisis. This was particularly significant in the European Union (EU), especially following the bail-out of credit institutions using public funds.

The banking sector offers products and services that are essential to the functioning of the economy, through the granting of loans and credit, the provision of payment services and, above all, the taking of deposits. Thus, the failure of a credit institution can have a significant impact on the economy. This is why, when no private alternative has been found, banking crises have traditionally been resolved through a public bail-out, as resolving them through ordinary insolvency proceedings can, at times, lead to greater instability in the financial system, a contagion effect on the other institutions and, ultimately, a larger increase in the direct and indirect economic costs generated by the banking crisis and a greater spillover of its effects into the real economy.

The use of public funds has been particularly pronounced in systemic crises, when it was not possible to find solvent buyers or buyers with sufficient appetite to purchase troubled institutions, or when there was a widespread lack of confidence in the market and with regard to the true scale of the crisis. However, one of the fundamental problems with public bail-outs is that they exacerbate the vicious circle between banking risk and sovereign risk. State funding for the bail-out of a financial institution, whether by absorbing losses or supporting its recapitalisation, has a significant impact on the public finances, thereby increasing the public deficit. This also creates disparities in the way in which each crisis is resolved and, therefore, generates greater market uncertainty, particularly among creditors, including depositors.

In Spain, the effects of the Great Recession manifested themselves in the bursting of the property bubble and a sharp rise in unemployment, and had a severe impact on the banking sector, especially savings banks, which had considerable exposure to the property sector and suffered from governance shortcomings; this brought to light the vulnerabilities that had built up over the years of economic expansion. Public intervention in the financial system involved the disbursement of substantial amounts of taxpayers' money, but it prevented the greater financial instability that would have resulted had the failing credit institutions been wound up through ordinary insolvency proceedings, which could have caused the crisis to spread to sound institutions. Furthermore, this could have generated heavy losses for depositors and exacerbated the already low level of market confidence, thereby further impacting the financing of economic activity and the prevailing unemployment situation.

Against this backdrop of financial instability in Spain and across the EU, where the fiscal capacity of certain Member States and even the very future of the euro were being called into question, in 2012 the European Council¹ agreed on a roadmap for the completion of the Economic and Monetary Union. This included the adoption of a single supervisory mechanism and new rules on bank bail-outs and resolution (see Figure 1) and on deposit guarantee schemes in the euro area countries. Thus, the three pillars of what is known as the Banking Union were first established.

2 Single Resolution Mechanism: milestones and developments in the second pillar of the Banking Union

The establishment of the Single Resolution Mechanism (SRM) was inspired by the standards published by the Financial Stability Board (FSB) in 2011 ("**Key Attributes of Effective Resolution Regimes for Financial Institutions**"), applicable to institutions deemed to be systemically important; these standards provided a set of rules and safeguards for establishing an orderly resolution regime in each jurisdiction, so as to avoid a taxpayer-funded bail-out. The SRM was to have the necessary powers and appropriate tools to carry out the resolution of any credit institution established within the Banking Union, and was to be funded by contributions from

¹ Conclusions of the European Council of 13 and 14 December 2012 (EUCO 205/12).

Figure 1

Glossary on bank resolution

Resolution	Process whereby the resolution authorities intervene in a failing institution, where there are no private or supervisory measures to prevent its failure and where it is established that there is a public interest.
Winding-up	Alternative process to resolution, in which the institution would be wound up in accordance with normal national insolvency proceedings, where it is established that there is no public interest.
Public interest assessment	Assessment of whether resolution enables any of the resolution objectives to be better achieved than would be the case if the institution were wound up under normal insolvency proceedings.
Resolution objectives	- To ensure the continuity of the activities, services and operations the discontinuance of which could lead to the disruption of services that are essential to the real economy or disrupt financial stability. - To avoid adverse effects on the stability of the financial system, by preventing the contagion of one institution's difficulties to the system as a whole and by maintaining market discipline. - To ensure the most efficient use of public funds, by minimising any extraordinary public financial support which it may be necessary to grant. - To protect depositors whose funds are guaranteed by the Credit Institutions' Deposit Guarantee Scheme and investors covered by the Investment Guarantee Fund. - To protect repayable funds and other assets belonging to the institutions' customers.
Resolution principles	- Shareholders or partners, as applicable, shall be the first to bear losses. - Creditors shall, where applicable, bear losses stemming from the resolution after the shareholders or partners and in accordance with the order of priority of their claims under insolvency legislation. - Creditors of the same rank shall be treated equally. - No shareholder or creditor shall incur greater losses than would have been incurred if the institution had been wound up under insolvency proceedings (the "no creditor worse off" principle). - Directors and chief executives shall be replaced, unless, in exceptional circumstances, their retention is considered strictly necessary for the achievement of the resolution objectives. - Directors and chief executives must provide all necessary assistance to achieve the resolution objectives. - Directors of the institutions and any other natural or legal person shall be liable for damages caused in proportion to their shareholding and the severity of such damages. - Guaranteed deposits shall be fully protected. - Resolution action taken shall be accompanied by the corresponding guarantees and safeguards provided for in this Law and its implementing regulations.
Resolution tools	- Sale of business: transferring the shares (share deal) or all or part of the assets and liabilities (asset deal) of the institution to a buyer. - Bridge bank: transferring the shares or all or part of the assets to a bridge institution, controlled by the resolution authorities and set up on a temporary basis to maintain the critical functions carried out by the institution. - Asset separation: separating the institution's problematic assets so that they are managed by another company. - Bail-in: writing down and converting equity instruments and certain liabilities to absorb the institution's losses and recapitalise it.

SOURCE: Devised by the authors.

the financial sector itself. The aim, therefore, was for the costs of an institution's crisis to be borne by its shareholders and creditors and, ultimately, by the financial system itself.

To this end, it was necessary to equip the European regulatory framework with a set of uniform and appropriate provisions to manage the failure of a credit institution, which would

Figure 2

Pillars of the Banking Union

The Banking Union has three pillars, designed to ensure that institutions in the euro area are subject to a single supervisory system, thereby strengthening their solvency and establishing a single mechanism for managing banking crises.

Pillar 1. Single Supervisory Mechanism (SSM)

This is the EU's supranational banking supervision system, made up of the ECB and the national supervisory authorities, which apply the same prudential rules.

Pillar 2. Single Resolution Mechanism (SRM)

Its aim is to ensure the resolution of failing institutions, while safeguarding the continuity of critical functions, thereby preserving financial stability and minimising the use of public funds.

Pillar 3. Single European Deposit Insurance Scheme (EDIS)

It guarantees the protection of deposits (up to €100,000). A proposal to create a common scheme is pending approval.

A key objective was to create a single rulebook and a more integrated European financial market, thereby breaking the vicious circle between banking risk and sovereign risk.

SOURCE: Devised by the authors.

safeguard both the critical functions² it performs and the financial system itself. Until then, each Member State had managed banking crises independently, applying the rules laid down in their respective legal systems or, on numerous occasions, introducing specific legislation to deal with them, which led to considerable heterogeneity in the way banking crises were resolved. This caused fragmentation in European markets and even unequal treatment of creditors depending on where the institution was based.

A prime example can be found in the Spanish banking sector crisis following the Great Recession. Since 2008, a number of liquidity and capital measures have been introduced, including the creation of the Fund for the Orderly Restructuring of the Banking Sector (FROB by its Spanish acronym) and the reform of the savings bank sector, which ultimately led to Law 9/2012 on the restructuring and resolution of credit institutions. In response to domestic and international pressure to resolve the serious problems affecting the Spanish financial system, a law was drafted which, for the first time and in a comprehensive manner, established the regulatory framework for early intervention, restructuring and resolution procedures for credit institutions. Law 9/2012 was the precursor to the current resolution regime, insofar as it laid down the rules and regulations for intervening in credit institutions in difficulty, resolving credit institutions deemed to have failed and dividing the cost of the institution's failure among its shareholders and creditors.

Lastly, 2014 saw the adoption of Directive 2014/59/EU establishing the framework for the restructuring and resolution of credit institutions and investment firms, and of Regulation (EU) No 806/2014 of 15 July 2014 establishing the SRM and the regulatory framework for bank resolution (see Figure 2). A key factor in ensuring the credibility of the new system was the

² Critical functions are considered to be the activities, services or operations, the discontinuance of which is likely to lead in one or more Member States to the disruption of services that are essential to the real economy or to disrupt financial stability due to the size, market share, external and internal interconnectedness, complexity or cross-border activities of an institution or group, with particular regard to the substitutability of those activities, services or operations.

establishment of a European authority with the necessary powers and resources to dispel any doubts regarding the management of the crisis affecting credit institutions in the euro area. Thus, in January 2015, the Single Resolution Board was created, as the Banking Union's central resolution authority.

Since then, the work carried out by the resolution authorities has led to a number of achievements, which are highlighted below:

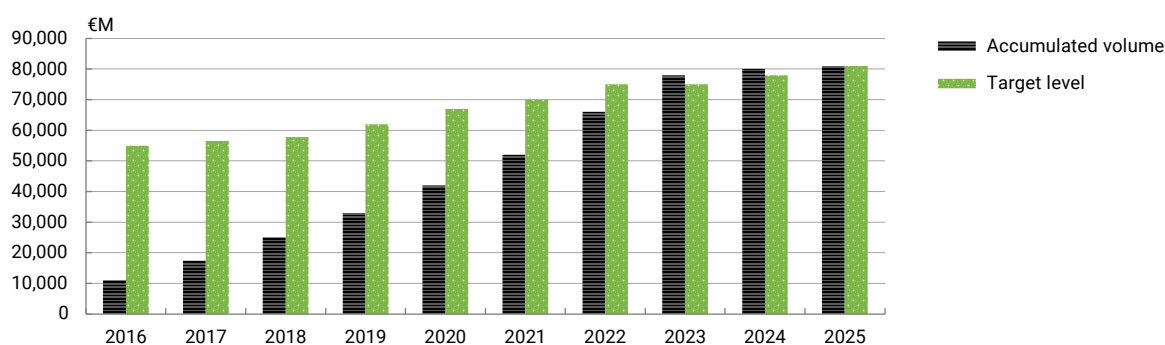
- **Institutions' compliance with the minimum requirement for own funds and eligible liabilities (MREL).** The most significant milestone of the past decade has probably been the institutions' accumulation of a substantial volume of own funds and eligible liabilities. This is an essential step towards ensuring that institutions contribute directly to guaranteeing that there is sufficient loss-absorbing capacity and, where appropriate, recapitalisation capacity, in the event of a hypothetical resolution, thereby facilitating the effective implementation of the measures set out in the resolution scheme.

Requiring all institutions with a resolution strategy, not just global systemically important institutions, to comply with the MREL means that they must bear the cost of their own failure, which ensures greater adequacy of the resources available to fund the institution's potential resolution and considerably reduces the likelihood of having to resort to public support. In the standards published in 2011, the FSB itself recognised that resolution planning work could be relevant for those institutions which, while not currently considered systemic, might become so in the event of a crisis, and that the authorities should consider the need for them to have a certain loss absorbing capacity. Recent banking crises have confirmed the relevance of this, as the FSB itself recently acknowledged again (Financial Stability Board, 2024).

At the end of the first half of 2025, institutions within the Banking Union held approximately €2.67 trillion in own funds and eligible liabilities for MREL compliance. Consequently, since these requirements were introduced, they have undertaken a major programme of issuing equity and debt instruments, for which they have had to adjust their balance sheets and bear the associated financing costs. The creation of the MREL and its gradual implementation have made the euro area banking sector more resilient and better prepared to handle the various crisis scenarios that may arise in the future.

- **Establishment and build-up of the Single Resolution Fund (SRF).** This represents another of the most significant milestones since the creation of the SRM. To ensure the effective application of the resolution tools, a mechanism was needed to finance resolution in those exceptional cases where the capacity of the institution's shareholders and creditors to absorb losses and, potentially, recapitalise the institution was insufficient. And, to ensure that the use of public funds was minimised, it was essential for this mechanism to be funded by the industry itself.

Chart 1
Assets of the Single Resolution Fund



SOURCE: Devised by the authors.

The SRF has, therefore, been funded by *ex ante* contributions from credit institutions and, by the end of 2023, it had met the target set at the outset: 1% of the covered deposits across the entire Banking Union. At the end of 2025, this figure stands at approximately €81,000 million, providing a substantial volume of funds with which to adopt the measures designed to ensure the effectiveness of the resolution (see Chart 1).

Specifically, the SRF can be used to strengthen both the resolution institution's liquidity position and its solvency.³ It will, therefore, be able to provide guarantees for an institution's assets and liabilities following its resolution, grant loans or purchase assets from an institution under resolution, finance the establishment of a bridge bank and adopt other measures to facilitate its sale. A contribution from the SRF may only be made for the purpose of absorbing losses or recapitalising the institution under resolution in cases where a liability or class of liabilities is excluded from the internal recapitalisation, provided that the institution's shareholders and creditors have already borne losses totalling not less than 8% of the institution's own funds and liabilities. In such cases, the maximum contribution from the SRF may not exceed 5% of these own funds and total liabilities.

- **Increase in the level of readiness and in the resolvability of institutions through resolution planning work.** Another of the most significant developments has been the progress in the resolvability of credit institutions, stemming from an ongoing and increasingly detailed resolution planning process undertaken by the resolution authorities and the institutions themselves.⁴ Preventive resolution has been one of the main drivers behind the increase in the structural resilience of the banking system.

³ It may also be used to pay compensation to shareholders and creditors who incurred greater losses in resolution than they would have incurred had they been wound up.

⁴ Unlike in other jurisdictions, such as the United States, within the Banking Union it is the resolution authorities that draw up the resolution plans, rather than the institutions themselves. In any case, the institutions provide the resolution authorities with all the information they need to draw up the plans.

International bodies such as the International Monetary Fund and the FSB have stressed that the Banking Union is currently one of the world's most advanced jurisdictions in terms of resolvability assessment, precisely due to its resolution planning tasks (Croitoru, Dobler and Molin, 2018; Financial Stability Board, 2026).

In recent years, with the aim of operationalising plans, the Banking Union resolution authorities have moved towards a more practical approach, focusing their efforts on testing, both by institutions and by the resolution authorities themselves. The initial predominantly conceptual focus has given way to a more detailed system, with verifiable capabilities and more tangible expectations, enabling institutions to develop and consolidate their governance and operational continuity in resolution procedures, as well as their information and communication systems. This new testing phase involves carrying out tests such as real-time resolution simulations, deep dives and, from 2026, inspection visits. The aim is to check, in practice, the applicability of the plans and to identify areas for improvement in order to continue increasing the level of resolvability and the authorities' capacity to manage banking crises.

- **Successful management of banking crises.** In total, since 2015, the resolution authorities making up the SRM have dealt with the failure of two significant credit institutions and several less significant credit institutions by applying the resolution regime.⁵ Of particular note are the resolution cases of Banco Popular Español and Sberbank Europe AG, which will be discussed in the following section, alongside other resolution cases related to less significant institutions.

Although the achievement of these milestones has undoubtedly helped strengthen the banking crisis management framework, the first ten years of the SRM have also highlighted existing weaknesses, which will require regulatory changes or further action going forward, some of the most important of which will be addressed in the fifth section of this article.

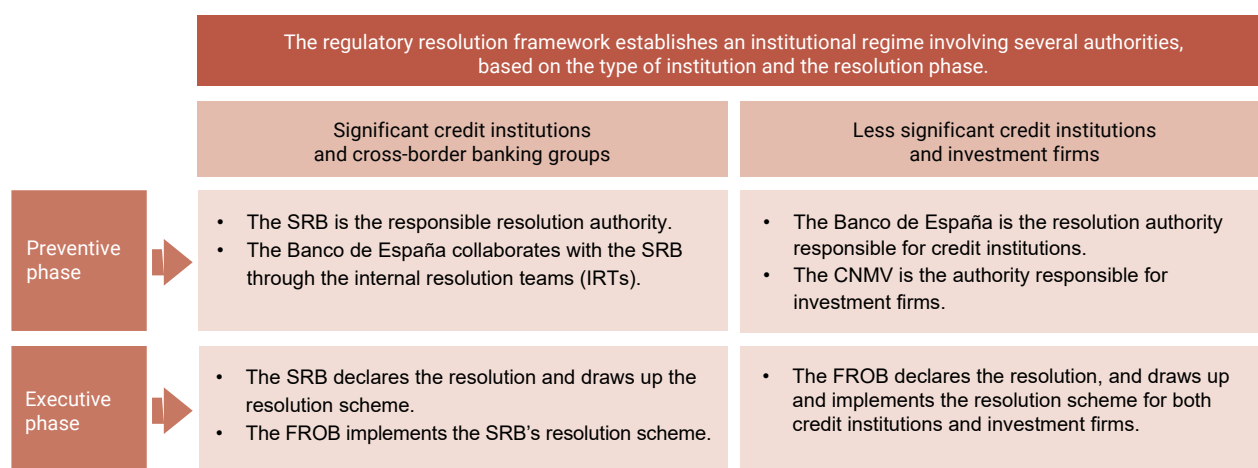
In any case, the progress made must be given due credit. The very idea of having uniform rules to deal with a banking crisis in a homogeneous manner across the euro area countries was difficult to imagine during the great financial crisis of 2008, given the political consensus it required. Likewise, having a resolution plan for each banking group or credit institution, which sets out the instruments to be applied should it fail, and the resolvability assessment work carried out annually, represent significant progress as compared to the level of readiness at that time.

3 The Banco de España as the preventive resolution authority

In Spain, Law 11/2015 of 18 June 2015 transposed Directive 2014/59/EU (Bank Recovery and Resolution Directive, BRRD) into Spanish law. The main aim of this Directive was to provide the

⁵ For further information, see Annex 9 of the [European Commission Staff Working Document of 18 April 2023 on the impact assessment report for the CMDI proposal](#).

Figure 3

Institutional resolution architecture in Spain

SOURCE: Devised by the authors.

authorities with effective tools to prevent and manage banking crises, bringing the national regulatory framework into line with European standards on bank resolution. This Law was implemented by Royal Decree 1012/2015.

Law 11/2015 assigned the Banco de España the role of preventive resolution authority for credit institutions and the FROB the role of executive resolution authority for both credit institutions and investment firms (see Figure 3). This arrangement is exceptional within the Banking Union, insofar as Spain is the only jurisdiction in which a distinction is drawn between the preventive resolution authority and the executive resolution authority. In fact, in most European countries, all resolution functions (i.e. preventive and executive resolution functions) related to credit institutions are assigned to the authority responsible for banking supervision, which generally forms part of the corresponding central bank.

The main functions assigned to the Banco de España and the key work carried out to date are set forth below:

- **Drawing up and updating resolution plans for all credit institutions within its remit.** Since 2020, all Spanish credit institutions have had a resolution plan, which is updated periodically and which analyses whether the institutions perform critical functions, carries out the relevant public interest assessment to determine whether a resolution or wind-up strategy should be adopted, identifies a single point of entry (SPE) or multiple points of entry (MPE) strategy, and sets out the preferred resolution tool in the event of failure. In the case of Spanish significant credit institutions and foreign banking groups with Spanish significant subsidiaries, the Banco de España actively collaborates with the Single Resolution Board (SRB) to draw up their resolution plans.

It forms part of 15 internal resolution teams (IRTs) and is a member of 7 resolution colleges and 1 crisis management group (CMG)⁶ for credit institutions, as well as 5 resolution colleges for central counterparties.

- **Determining the minimum requirement for own funds and eligible liabilities (MREL) for all credit institutions within its remit.** The Banco de España periodically determines the MREL that each less significant credit institution must meet, calibrating its various components on the basis of the financial characteristics and proposed resolution strategy for each institution. Thus, the MREL is established for institutions with a resolution strategy, and this enables them to cover both a level of losses equivalent to the capital required by the supervisor – the loss-absorption amount (LAA) – as well as a sufficient volume to enable the institution to meet prudential requirements after resolution – the recapitalisation amount (RCA). In institutions with a liquidation strategy, however, the MREL is equivalent to the LAA, since, in the event of failure, this would be managed through the application of ordinary insolvency proceedings. Furthermore, the Banco de España is responsible for implementing the MREL decisions laid down by the SRB for credit institutions within its remit.
- **Assessing the resolvability of institutions within its remit and adopting measures to remove obstacles that prevent resolvability.**⁷ Following an intensive initial phase, focused on drawing up resolution plans and identifying areas for improvement across the various dimensions of resolvability, work is now centred on increasing the level of operational readiness through testing. In recent years, the Banco de España has participated in the real-time resolution simulations of two significant banking groups and one less significant credit institution, as well as in nine deep dives, alongside other domestic and foreign resolution and supervisory authorities. As from 2026, participation in this type of test will increase significantly, following the approval of a multi-annual testing programme, drawn up on a bank-by-bank basis.
- **Monitoring MREL compliance across all Spanish credit institutions.** The Banco de España is responsible for ensuring that all institutions maintain a robust financial structure and have a sufficient and appropriate base of eligible instruments to meet the MREL regulatory requirements. This work involves not only verifying compliance with the minimum requirements, but also periodically assessing the quality and composition of these instruments, as well as their loss-absorbing capacity in crisis situations.

6 CMGs are cross-border fora made up of regulatory, supervisory and resolution authorities, set up to manage the failure of global systemically important institutions.

7 An institution is resolvable if, should it meet the conditions for resolution, it can be wound up under insolvency proceedings or resolved by making use of the various resolution instruments and powers. The resolvability assessment assesses seven dimensions, each comprising different levels and principles with which institutions must comply: governance, loss absorption and internal recapitalisation, funding and liquidity in resolution, operational continuity and access to market infrastructures, management information systems, communication in resolution, and separability and business reorganisation after resolution.

- **Advising on resolution policies and, in particular, assessing the impact of regulatory proposals and changes.** The Banco de España assesses the various resolution initiatives proposed at the international level, prepares technical reports and proposals for improvement and carries out in-depth analyses of key aspects, such as institutions' liquidity and market access, as well as the level of interconnectedness within the banking system.
- **Collaborating with Spanish or international bodies in the field of financial stability and resolution.** In addition to the necessary day-to-day coordination with the other resolution authorities, particularly the SRB and the FROB, collaboration with Spanish and international bodies, such as the European Banking Authority (EBA) and the Financial Stability Board, is essential to ensure a coordinated and consistent approach to crisis management.

4 A decade of implementation: lessons learned from the most recent banking crises

Since the establishment of the Single Resolution Mechanism, the failure of several credit institutions in the EU has been declared. Within the Banking Union, several of these institutions were dealt with by applying resolution procedures. There have also been major banking crises outside the EU, including one involving a global systemically important bank (G-SIB). While these crises have been both idiosyncratic and systemic in nature, and have been triggered by a variety of causes, it has been possible to identify common patterns that highlight the need to continue improving the regulatory framework.

The most significant characteristics of each of these crises and the main lessons learned are set forth below.

4.1 Banking crises in the Banking Union

Banco Popular Español

The resolution of Banco Popular has been widely regarded as a landmark case within the then fledgling Banking Union resolution framework, both because of when it took place – just two years after the creation of the SRB – and because of its scale, as Banco Popular was the sixth-largest institution in the Spanish financial system in terms of the size of its balance sheet. However, beyond its symbolic significance, the case served to test the mechanisms designed to handle a banking crisis without resorting to public funds, passing on the losses to shareholders and creditors and without resorting to public support.

The financial difficulties the institution was facing had already progressively weakened its capital position, requiring substantial provisions to be set aside in response to the impairment

of assets. Nevertheless, the pressing liquidity problems the institution had been facing in the preceding months ultimately led to its failure. On 6 June 2017, the European Central Bank (ECB), in its capacity as the competent supervisor, determined that the institution was failing or, in any event, it was likely to fail in the near future, due to its inability to meet its payment obligations.

Banco Popular was resolved in a single day, which required coordinated action by all the authorities involved (basically the SRB, the ECB, the Banco de España, the FROB and the European Commission).⁸ It was sold to Banco Santander following the relevant process of write-down and conversion of the equity instruments, which made it possible to safeguard financial stability in Spain and Portugal, ensure the continuity of the critical functions carried out by the institution, protect all depositors, senior debt holders and the institution's customers, and prevent contagion to other institutions, without resorting to public support or resources from the Single Resolution Fund (SRF).⁹

One of the most valuable lessons learned was the importance of operational readiness work to ensure that all the information needed to carry out an accurate valuation of the institution under resolution is available and to apply the most appropriate resolution tool, taking into account the nature of the banking crisis. In this regard, it was noted that, in banking crises caused by liquidity problems, the internal recapitalisation tool alone cannot stem the outflow of deposits caused by a loss of confidence, and it is therefore necessary for the resolution to provide for the injection of liquidity by a potential buyer or, if none is available, by the SRF. In these cases, transfer tools (sale of business, bridge bank) have proved to be more effective.

Sberbank

The resolution of the Sberbank banking group was prompted by the significant outflow of deposits from its European subsidiaries, as a result of the invasion of Ukraine and the sanctions imposed by the European authorities. The group's parent company, based in Russia, decided not to take any measures to stem the liquidity deterioration of its European subsidiaries, which led the ECB to declare their failure on 28 February 2022.¹⁰

The SRB decided to impose a temporary moratorium, with the aim of halting the rapid significant deterioration in the liquidity situation, while it designed the resolution scheme and coordinated with the other national resolution authorities to adopt a joint strategy. The adoption of this measure involves imposing a suspension of payments, including limits on customers' deposit withdrawals, for a maximum period of 48 hours. Accordingly, this type of measure must always

8 Banco Popular had a subsidiary in Portugal, so coordination with the Banco de Portugal was also necessary to ensure the effective application of the resolution scheme and guarantee the success of the procedure.

9 Following the acquisition of Banco Popular, Banco Santander carried out a capital increase of approximately €7,000 million to meet the capital needs arising from the transaction.

10 A resolution strategy (sale of business) was determined for the subsidiaries based in Croatia, Slovenia, Serbia and Bosnia and Herzegovina. In contrast, in the absence of any public interest, the subsidiaries in Austria, the Czech Republic and Hungary were wound up in accordance with national insolvency proceedings.

be properly weighed up, as the benefits achieved must be balanced against the need for additional time to devise the resolution scheme, particularly in the event of rapidly spreading banking crises, and the risk of triggering bank runs that could exacerbate deposit outflows. The presence of subsidiaries in several European countries, each with its own specific characteristics, highlighted that cooperation among cross-border resolution authorities is essential, not only for banking groups with a multiple points of entry (MPE) strategy, but also for those with a single point of entry (SPE) strategy, as the legal and operational realities of each institution may differ, both in terms of their inherent nature and on the basis of the point in time at which failure occurs.

Other cases

In addition to the two resolution cases mentioned above, there have been other crisis cases within the Banking Union which have been managed without resorting to resolution proceedings. One example is the case of ABLV Bank and PNB Banka, two Latvian less significant credit institutions (with balance sheets totalling around €3,600 million and €550 million, respectively), the failure of which was declared on 23 February 2018 and 15 August 2019, respectively, due to solvency problems in both cases. The institutions were wound up in accordance with ordinary insolvency proceedings, with no need, therefore, to initiate resolution proceedings, as it had been determined that there was no public interest, since they did not perform critical functions and their winding up did not jeopardise financial stability. It was thus demonstrated that, in certain cases, particularly those involving very small institutions, insolvency proceedings enable the resolution objectives to be met at least to the same extent as under bank resolution proceedings.

In fact, only a small number of banks within the Banking Union have been subject to a resolution process to date. This is generally because their crises have not been of such public interest as to justify the application of the resolution mechanism. However, in certain cases, the failure has been managed through national initiatives with public support. In 2017, the failure of two medium-sized Italian banks, Banca Popolare di Vicenza and Veneto Banca, was declared. The SRB determined that their resolution was not necessary given the absence of public interest and, therefore, both institutions were wound up in accordance with Italian law. This wind-up received broad support from the Italian State: an emergency decree was adopted to provide public capital, mobilising around €4,800 million and up to €12,000 million in guarantees. This support made it possible to transfer these institutions' sound assets to the bank Intesa Sanpaolo for the symbolic price of one euro.

Similarly, another Italian bank, Monte dei Paschi di Siena, took a different approach to resolution that year: following the identification of a significant capital shortfall in stress tests, the institution was recapitalised as a precautionary measure with public support. It was considered that the bank was still solvent and could be restructured without the need to activate the resolution process and, therefore, the Italian authorities, with the approval of the European Commission, injected public capital as a preventive measure.

These national interventions – through precautionary recapitalisations or through orderly wind-ups with public funds – were carried out in accordance with the European State aid Regulations of the European Commission’s Directorate-General for Competition. However, they have sparked debate as to the consistency of the resolution framework within the Banking Union. In this regard, it is worth recalling that the 2013 European Commission Communication (*Official Journal of the European Union*, 2013) on State aid to the financial sector remains in force. This was originally conceived as an exceptional measure during the financial crisis and, as such, it contains criteria that could be considered obsolete or difficult to reconcile with the philosophy of the current resolution regime, which is based on the premise that institutions should be resolved without recourse to State funds. Accordingly, the review and harmonisation of these rules, initiated by the European Commission with a view to ensuring consistency across the regulatory framework, is considered timely.

4.2 Banking crises outside the Banking Union

The 2023 US regional banking crisis

In March 2023, the US regional banking sector was plunged into severe financial turmoil as a result of a loss of market confidence, leading to bank runs and sharp falls in share prices. Silicon Valley Bank (SVB), a medium-sized bank (\$209,000 million), suffered an unprecedented outflow of deposits: more than \$40,000 million were withdrawn within 24 hours, largely as a result of the impact caused by social media messages warning of the extent to which these deposits were covered by the Federal Deposit Insurance Corporation (FDIC). The contagion of other institutions with a similar funding structure (Signature Bank, First Republic Bank) was immediate, prompting the US authorities to invoke the systemic risk exception, which allows all bank deposits to be guaranteed.¹¹ We will revisit this in the next section.

Beyond shortcomings in the institutions’ own risk management, this scenario highlighted once again that banking crises tend to be associated with solvency or governance weaknesses, but that failure is, in general, ultimately triggered by liquidity problems. It is therefore essential to have sufficiently robust liquidity mechanisms in place to resolve any crisis, particularly systemic or large-scale crises, which may require resources beyond those available in the SRF.

These banking crises were resolved by means of the use of transfer tools, either through the sale of business or – more commonly – through the establishment (and subsequent sale) of a bridge bank, thus highlighting the prevalence of this type of instrument as a natural means of resolving a financial institution. This is largely due to the need to instil confidence in creditors and, most particularly, in depositors. Furthermore, it became clear that even institutions considered to be of medium size could cause a significant contagion effect and influence

¹¹ Generally speaking, deposit guarantee schemes must comply with the least cost test rule, meaning that they cannot take resolution measures that are more costly than those that would have been taken in the event of wind-up. In the case of the United States, the systemic risk exemption allows the FDIC to be exempt from this rule where there are serious adverse effects on economic conditions or financial stability.

financial stability, which highlighted the importance of working on resolution planning for non-systemic institutions and confirmed that the Banking Union's decision to require institutions to meet the minimum requirement for own funds and eligible liabilities in order to ensure the financing of resolution increases the resilience of the banking system.

The newest aspect was probably the impact of bank digitalisation and social media on the mass exodus of depositors. While the banks in crisis in the United States were not subject to the liquidity requirements set out in Basel III, there are doubts as to whether the current regulatory ratios required of all EU institutions would have enabled them to manage a deposit outflow of such magnitude.¹² The role that resolution authorities' communication policies can play in a banking crisis is now crucial in seeking to contain bank runs and prevent adverse effects on the markets, given that maintaining confidence is essential to resolving the crisis and preventing contagion.

Credit Suisse

Credit Suisse was a Swiss bank, classified as a G-SIB (with a balance sheet totalling around €513,000 million), which was sold to its main domestic competitor, UBS, on 19 March 2023, coinciding, therefore, with the crisis in the US regional banking sector. One of the most controversial measures adopted was the write-down of all Additional Tier 1 (AT1) capital instruments without first writing down Common Equity Tier 1 (CET1) capital. In fact, the initial market reaction was negative, with sharp falls in the price of debt instruments qualifying as AT1 capital. However, it is important to clarify that no resolution proceedings were ever actually opened and the Swiss supervisor (FINMA) never formally declared the failure of Credit Suisse in the terms required for resolution proceedings to be initiated.¹³

The case of Credit Suisse shows that compliance with capital requirements does not always prevent uncertainty about an institution's situation or a loss of confidence. This is a fundamental issue to be taken into account in future banking crises when considering the implementation of the bail-in tool, since, although the tool can enable an institution under resolution to meet its solvency requirements, it cannot address liquidity problems unless accompanied by other measures.

Getin Noble Bank (GNB)

GNB was a medium-sized Polish bank (with assets of around €9,000 million) that was facing a prolonged deterioration in profitability and capital, primarily due to losses arising from litigation

12 Basically, the liquidity coverage ratio, which measures an institution's capacity to withstand short-term liquidity outflows, and the net stable funding ratio, which aims to ensure that institutions maintain a stable funding structure over the medium and long term.

13 FINMA stated that a "viability event" – as defined in the terms and conditions of the AT1 instruments – had occurred, as the institution required extraordinary public support. This is what made it possible to write down the entire AT1 without having previously written down the CET1, which is what would have happened had the institution entered into resolution.

related to a substantial portfolio of foreign-currency mortgage loans, and the refusal of its main shareholder to recapitalise the bank. The Polish supervisor declared the bank's failure on 29 September 2022 and established a bridge bank (VeloBank) as the resolution tool, which was funded both by the banking sector itself and by the Polish resolution authority.

This case demonstrated the usefulness of the bridge bank in preserving an institution's critical functions without affecting depositors or borrowers. However, it also entails risks related to potential deposit outflows following resolution. Another notable feature of the case was the direct support for the resolution by the country's banks,¹⁴ as a means of avoiding systemic contagion that could have resulted in greater losses in the short and medium term. This support took the form of extraordinary contributions to finance the high payments that Poland's deposit guarantee scheme would have had to make had GNB been wound up under ordinary insolvency proceedings.

5 Challenges and strategic priorities

Recent banking crises have shown that there is room for improvement and that priorities must be set in order to complete the regulatory framework and resolve the problems identified. Some of these issues have already been addressed in the recent reform of the Crisis Management and Deposit Insurance Framework (CMDI), which will be discussed in the following section.

Set forth below, as a complement to the lessons learned outlined in the previous section, are the main areas where the current European resolution framework needs to be improved, indicating which of these are expected to be addressed with the entry into force of the CMDI.

- **Potential extension of the resolution regime to a greater number of institutions.**

Although there have been several cases of resolution since the Single Resolution Mechanism (SRM) came into force, there have also been some cases of crisis management involving small and medium-sized institutions, where their failure was addressed through processes which, exceptionally, involved some form of public support. This situation, which the SRM was intended to prevent when it came into force, prompted a review of whether it was necessary to reform the current framework in order to extend resolution processes, with greater safeguards, to a larger number of small and medium-sized institutions (primarily the least significant institutions, for which it was previously more difficult to demonstrate their public interest) without the need for any form of public support. While this is an issue that will need to be assessed in each EU country on the basis of the specific characteristics of its institutions, the CMDI reform and its transposition into the various countries' legislation will make it possible to address this issue and broaden the possibilities for dealing with crisis

¹⁴ The leading Polish private banks contributed 51% of the required funding, whilst the remaining 49% was contributed by the resolution authority.

cases affecting this type of institution, as will be detailed in the relevant section, while increasing the funds available for resolution at the same time.

- **Financing the minimum requirement for own funds and eligible liabilities (MREL) for small and medium-sized institutions.** Partly linked to the previous point, it has been noted that in certain jurisdictions, small and medium-sized institutions do not always have access to markets to comply with the MREL through instruments other than share capital (Ibáñez, Kruse, Pollos, Serena and Tarí, 2024). Although this situation does not arise in all jurisdictions, in those affected by shallower markets and/or limited opportunities to issue debt instruments, the institutions' share capital has loss absorbing capacity, but would not be able to contribute to recapitalising the institutions should the need arise.

This is exacerbated by the fact that, although the funding structure of many small and medium-sized institutions consists mainly of own funds and deposits, it is not desirable for these deposits to be converted during resolution proceedings, given their potential for indirect contagion. Faced with this dilemma, the CMDI will enable the use of industry funds available in each national Deposit Guarantee Scheme, in order to support resolution processes and/or bridge any potential *gaps* that may arise between the sum of the institutions' financial instruments that are eligible for MREL and those that are not eligible for MREL which can absorb losses and/or contribute to their recapitalisation and the minimum threshold required to access the Single Resolution Fund (SRF) should the need arise, which is set by the regulations at 8% of the institution's total liabilities and own funds (TLOF) for solvency crises.

- **Completion of the Banking Union through the implementation of the third pillar.** The European Deposit Insurance Scheme (EDIS) has not yet been implemented or approved. As mentioned in the preceding paragraph, the CMDI allows national guarantee schemes to be used to support resolution. While this option represents a clear improvement with respect to the current situation, the capacity to support resolution will be limited in practice by the amounts available to each national Deposit Guarantee Scheme. The creation of the third pillar of the Banking Union, the EDIS, would allow for the mutualised use of the funds available in the deposit guarantee schemes of all the Banking Union countries, thereby removing national capacity limits and helping achieve greater protection and a better chance of maintaining financial stability, regardless of the country in which the crisis occurs.

Therefore, it is important to overcome current political reluctance and make progress towards establishing the third pillar, especially at a time when it is clear that institutions are increasingly expanding their international activity, to the point where they have a significant presence in several Banking Union countries, which would need to coordinate their efforts to manage their failure should it arise (Laboureix, 2025). Maintaining an approach based on national borders is far removed from the reality of banking in the current context and may lead to greater difficulties in managing crises

in the future. In fact, in a broad-based system in which supervisory and resolution responsibilities are centralised, deposit insurance should also be mutualised, which would also help to further reduce fragmentation in the banking market.

- **Improving the framework for the provision of liquidity in resolution.** In numerous crisis cases, including the most recent episodes in the United States and Switzerland, it has been observed that, regardless of their origin, institutions' problems manifest themselves as liquidity crises, and the speed at which these unfold has increased alarmingly due to advances in digitalisation and social media. Within the Banking Union, the SRF, which could provide liquidity support if necessary, has already reached its target level; however, it does not yet have the backing of the European Stability Mechanism (ESM),¹⁵ which could provide additional funds if necessary. If ratified, the ESM could provide a revolving credit facility of up to €68,000 million, which would almost double the SRF's capacity to act in the event of a severe systemic crisis. Any funds lent to the SRF by the ESM should be repaid through subsequent contributions from the banks themselves, in order to maintain fiscal neutrality for Member States.

In this context, there is a risk that, should it be necessary to deal with a liquidity crisis of a large institution or several simultaneous crises of medium-sized institutions, the funds available in the SRF might not be sufficient to address the crises with assurance. Although progress is being made in parallel with the European Central Bank to ensure that institutions have access to liquidity (subject to certain conditions) after resolution (European Central Bank, 2026), it is still necessary to develop a more ambitious mechanism so that large-scale liquidity crises can be addressed with sufficient assurance. This aspect is particularly important, as the very design and availability of such a system can provide bank customers with the confidence and peace of mind required to prevent mass withdrawals of deposits in crisis cases, without it ever actually being necessary to use it. Until a new mechanism capable of providing the necessary safeguards is in place, the sale of business resolution tool has proved useful in tackling liquidity crises, as larger acquiring institutions with a comfortable capital and liquidity position help to swiftly restore confidence in the institution under resolution.

- **Improving the current framework to be able to handle failure caused by operational factors.** While the recent adoption of the Digital Operational Resilience Act (the DORA Regulation) (*Official Journal of the European Union*, 2022) undoubtedly helps strengthen the operational resilience of banking institutions, it cannot be entirely ruled out that some cases of failure might arise solely as a result of operational shortcomings. Current resolution legislation focuses primarily on providing options

15 The ESM is an intergovernmental organisation established by member states of the euro area in 2012. Its mission is to enable the countries of the euro area to avoid and overcome financial crises and to maintain long-term financial stability and prosperity. It carries out this mission by providing loans and other types of financial assistance to member states. In other words, the ESM acts as a "lender of last resort" for euro area countries when they are unable to refinance their government debt in financial markets at sustainable rates.

for addressing liquidity and solvency crises and, therefore, it is necessary to continue making progress on regulatory developments and resolution planning in order to clearly establish the possible courses of action available to resolution authorities, in cases where failure might stem exclusively from operational shortcomings, regardless of their origin (cyber attacks, internal shortcomings in institutions' systems, etc.).

- **Introduction of a systemic risk exception.** As mentioned above, in the 2023 US regional banking crisis, the US authorities were able to invoke a special provision ("systemic risk exception") which allowed them, in their response to the crisis, to disregard the traditional limits imposed by what is known as the "least cost test". Under this rule, the funds that resolution authorities may use in the event of a crisis must not exceed the amount it would have cost to repay covered deposits in the event of the winding up of the institutions concerned. The activation of this special measure provides more room for manoeuvre for dealing with exceptional cases in which a large institution or a number of medium-sized institutions may be affected, giving rise to concerns that the crisis could spread uncontrollably to the rest of the financial system. In any event, any funds used would subsequently be recovered through *ex post* contributions raised from the banking sector. This option does not currently exist under European legislation, and its introduction would provide additional safeguards for taking action to address cases of exceptional gravity or magnitude.

It is also worth noting in this regard that the International Monetary Fund's latest assessment of the euro area, as part of the euro area financial system stability assessment programme, explicitly recommends introducing a financial stability exemption for access to the SRF (International Monetary Fund, 2025), so that it can be drawn upon in circumstances of systemic risk, without requiring compliance with the specified limits of 8% of the TLOF, thereby protecting certain creditors beyond what would ordinarily be envisaged.

- **Harmonising national insolvency frameworks across the EU.** While the adoption of Directive 2014/59/EU (Bank Recovery and Resolution Directive, BRRD) and its subsequent updates, including the future adoption of the CMDI, enables a high degree of harmonisation of resolution regulations at the European level, insolvency legislation remains a national matter, with significant differences between countries. Its harmonisation would enable greater homogeneity to be achieved at the European level on such key issues as determining the public interest of institutions, as this must be done by comparing whether the resolution objectives are best achieved by applying the resolution framework (with a high degree of harmonisation at the European level) or the liquidation framework (which is not harmonised). Furthermore, it would help provide investors with greater clarity regarding the likely treatment they would receive in the event of a crisis affecting financial institutions in any European country and, indirectly, support progress towards the long-awaited single European capital market.

- **Continuing to strengthen cooperation among authorities for banking groups with an international presence**, so that not only the authorities responsible for the main jurisdictions in which each international banking group operates, but also authorities in jurisdictions that could be affected by a crisis in the group, even where they are not members of the relevant Crisis Management Group (CMG), can be engaged sufficiently early. This could be the case if there are groups present (through subsidiaries or branches) that require the relevant authorities to recognise the resolution actions taken by the resolution authority responsible for the group, or in cases where, even without such branches or subsidiaries being present, the interconnections with the affected banking group may be significant and may lead to indirect contagion to other banking groups.
- **Recognition of resolution measures in third countries.** To continue the ongoing work to ensure the applicability and recognition, with full guarantees, of resolution implementation decisions adopted in the EU in third countries where subsidiaries and branches are affected. In this regard, joint work in the CMGs is once again essential, as is close cooperation among the authorities to promote actions that can reconcile the differences between the various legal frameworks.

6 Implications of the European legislative package on crisis management and deposit insurance

In June 2025, following a lengthy period of negotiations among the EU member states, a political agreement was reached on the adoption of the reform of the Crisis Management and Deposit Insurance Framework (CMDI).

The CMDI reform involves updating Directive 2014/59/EU (Bank Recovery and Resolution Directive, BRRD), Regulation (EU) No 806/2014 (SRMR) and Directive 2014/49/EU (DGSD). The final texts were published on 20 April 2026.

This reform aims to improve the effectiveness of the current framework for managing banking crises, especially for medium-sized and smaller institutions. The current framework provides that, in the event of failure, the institutions' shareholders and creditors, in accordance with their rank in the hierarchy of claims, will contribute to absorbing losses and to financing the implementation of the institution's resolution strategy. The use of funds provided by the banking sector is subject to fairly strict limits under current regulations, for example: there are conditions governing the use of deposit guarantee schemes (DGSs), and a minimum bail-in of 8% of the institution's total liabilities and own funds (TLOF) is required in order to access the Single Resolution Fund (SRF), which, particularly in the case of small and medium-sized institutions, with greater difficulties in accessing the market to issue debt, could, in extreme scenarios, result in uncovered deposits being used to contribute to recapitalisation.

This situation could lead to financial instability, generate a loss of confidence amongst depositors and, consequently, prompt the adoption of national crisis management measures

to prevent such effects from requiring the use of taxpayers' money. Furthermore, although there have already been several cases of resolution in various EU countries, it has been observed that, in certain institutions' crises, solutions have been chosen which have indirectly entailed some form of public support, an issue that the new resolution framework sought to avoid.

To address this situation, the CMDI:

- **Provides for the possibility of increasing the number of institutions to which resolution could be applied in the event of a crisis**, thereby extending the assessment of whether institutions perform critical functions to the regional level, as opposed to the national level to which this assessment was previously confined. Critical functions carried out by credit institutions are considered to be the activities, services or operations whose discontinuance, due to the institution's failure, is likely to lead to the disruption of the real economy or financial stability.
- **Facilitates access to additional sources of funding beyond those available to institutions** – the minimum requirement for own funds and eligible liabilities (MREL) and non-MREL-eligible instruments with loss absorbing and recapitalisation capacity – to address resolution and, more specifically, to national DGSs, which would in turn facilitate access to the SRF should the need arise. This aspect is crucial, since, should there be an increase in the number of institutions subject to resolution, additional sources of funding will be required in order to deal effectively with this expanded scope, particularly as these will be institutions that do not always have access to markets to issue debt and meet the MREL, or the instruments required to ensure their resolution is carried out with assurance (Restoy, 2025).
- **Ensures the availability of effective and consistent measures** (preventive and alternative measures), in addition to those already available under the resolution framework. As in the previous case, it is essential to have access to additional sources of funding, beyond the resources directly available to institutions, in order to effectively implement preventive measures that avoid a resolution scenario, or alternative measures that allow at least the covered deposits to be transferred to another institution.
- **Increases the possibilities and expectations for the timely declaration of situations of failure by the authorities**, promotes better cooperation among them, fundamentally between supervision and resolution authorities, and helps clarify the possibilities for applying early intervention measures (EIMs) by supervisors.

The CMDI reform will entail an enhanced role for the DGSs in the management of credit institutions' crises, given their capacity to intervene in order to adopt crisis prevention measures, to provide funding in resolution and/or to use their own funds to complement the adoption of alternatives to traditional liquidation, which will necessitate greater cooperation

and interaction between the resolution authorities and the authorities responsible for the DGSs, provided that these two responsibilities fall to different institutions.

Preventive measures consist of financial support provided by the DGSs which must be used early to prevent the credit institution's financial situation from deteriorating. Alternative measures consist of financial support that may be provided in the event of failure, although in this case, the DGS may only be used to finance the transfer of non-covered deposits and other unsecured liabilities to a recipient if the transfer is strictly necessary and proportionate to prevent contagion, if the transfer maximises the value of the assets at the time of sale, or if the preservation of customer relationships maintains confidence.

The possibility of using DGS funds to implement preventive measures, which would be taken prior to a potential failing or likely to fail (FOLTF) declaration, is subject to a number of conditions, including the application of the least cost test rule, which, under the CMDI, will mean that any DGS funds used for resolution must not exceed the cost to the DGS of paying out the covered deposits (guaranteed up to €100,000) in a winding-up process. These conditions include most notably:

- the beneficiary institution must submit a programme of measures to secure compliance with the supervisory authorities' requirements, actions to mitigate the risk of deterioration and an exit strategy for repaying the support received;
- the institution must submit a business reorganisation plan within six months of receiving the initial financial support; and
- if the institution fails to fulfil the commitments undertaken in the programme referred to in the first point or in the business reorganisation plan, it must submit a remediation plan. If the remediation plan is not credible or feasible, or if the institution fails to comply with it, no further preventive measures can be taken and an assessment must be performed as to whether the institution is in an FOLTF situation.

Furthermore, the possibilities for using DGSs in relation to the various resolution tools under CMDI, while always respecting the least cost test rule, include:

- if the bail-in tool is applied, DGSs could contribute to recapitalisation in lieu of covered deposits; and
- if transfer tools are applied, DGSs could help bridge the gap between transferred assets and the amount of covered deposits, thereby ensuring the neutrality of the impact on the acquiring institution's capital requirements. In principle, this contribution would be capped at 62.5% of the DGS target level.

The use of DGSs in resolution may be considered to facilitate access to the SRF where necessary (known as "bridge the gap") following the contribution of at least 8% of the TLOF to

loss absorption and recapitalisation by the institution's shareholders and creditors, provided that this is necessary in order to protect the depositors (covered and uncovered depositors not eligible for MREL) of the affected institution. However, in order to help bridge the gap, it is essential to always respect the least cost test rule in the use of DGS funds and to meet a number of conditions, such as:

- the institution has been earmarked for resolution in the resolution plans in the last two years;
- the institutions for which the transfer tools are proposed must be subject to minimum MREL levels, which within the Banking Union will be 16% of risk-weighted assets and 4.75% of the total exposure measure, and, in addition, they must have met these requirements for a minimum period prior to the FOLTF declaration;
- all instruments eligible for MREL must have previously contributed to the institution's loss absorption and recapitalisation and, in order to access the SRF, uncovered depositors who are not eligible for MREL would also need to contribute;
- the use of DGS funds for the bridge the gap mechanism must lead to the market exit of the institution under resolution, in order to mitigate any knock-on effects that might affect competition and/or give rise to moral hazard;
- the use of DGS funds for the bridge the gap mechanism is restricted to institutions with a balance sheet total of less than €80,000 million (small and medium-sized institutions), in order to avoid the SRF having to make large contributions; and
- limits are also imposed on contributions to the DGS, as a percentage of its target level (62.5%) and a proportion of the TLOF of the institutions affected (2.5%), although this latter requirement would apply only if the size of the institutions was between €30,000 million and €80,000 million.

The CMDI framework also provides for the possibility of using the DGSs if the SRF has already contributed an amount equivalent to 5% of the TLOF and further contributions are still required so that depositors are not affected, although this would only occur in very extreme cases.

Another possibility provided for by the CMDI is the use of DGSs to implement alternative measures in the case of institutions deemed to be FOLTF, for which there are no alternative measures to prevent their failure and which have a negative public interest assessment. However, in such cases, the use of DGSs should not be counted towards eligibility for the SRF, i.e. they cannot be used to bridge the gap. In this case, the conditions to be observed stipulate that the relevant national authority must justify the use of DGSs to finance a transfer of liabilities other than covered deposits on the basis of the need to prevent contagion, maximise value and preserve the bank-customer relationship in order to maintain confidence. Moreover, the transfer of own funds, subordinated debt and senior non-preferred debt cannot be financed by the DGS.

It should be noted that the use of DGSs will be subject to the State aid regime of the European Commission's Directorate-General for Competition, insofar as the decision on their use, albeit funds from the private sector, is deemed to be subject to a decision by the public administration. The current Banking Communication from the European Commission's Directorate-General for Competition stipulates that state aid is only permitted if it is necessary to prevent serious disruption to the economy, and its granting is subject to conditions regarding the sharing of losses and the contribution to recapitalisation by shareholders and subordinated creditors, and to the submission of restructuring and capital raising plans and restrictions on competition, among other matters.

Current legislation classifies even the use of private funds as state aid where the decision on their use is taken by the public administration, which is applicable in the case of the use of the SRF and, depending on how the DGSs are configured in the Member States, it could also be applicable to the use of funds from these DGSs. In practice, this interpretation of what constitutes public aid may, depending on the case, entail additional practical and procedural complexity when seeking to mobilise funds from the DGSs and/or the SRF, given that the current resolution framework already includes a whole series of strict conditions governing their use, some of which overlap with or even go beyond the provisions set out in the aforementioned communication.

Following the adoption of the CMDI reform, this State aid regime is entering a period of adjustment, presumably with a view to bringing it more into line with the resolution framework. It would be desirable, insofar as it is possible, to limit its application strictly to the use of State funds – a remote possibility under the current resolution framework – rather than to the use of private funds at the discretion of public authorities, so as to streamline resolution-related procedures where DGS and/or SRF funds are used.

The broader scope for the use of DGSs in crisis management provided for by the CMDI has raised some specific concerns within the banking sector regarding the adequacy of their resources and the potential increase in costs for the banking system. However, in this regard, it should be noted that:

- the use of DGS funds for interventions beyond the payment of covered deposits in the event of institutions being wound up tends to minimise the cost of banking crises for all stakeholders involved, including possibly the DGS itself;
- to ensure the efficient use of funds contributed by the banking sector to the DGSs, a whole series of conditions must be applied, as mentioned above, including most notably the least cost test rule. CMDI standardises the method for calculating this rule, in view of the complexities of the current calculation, by setting the figure for covered deposits as the maximum contribution amount for the DGSs, which provides greater *ex ante* visibility of the available scope for action; and
- in addition, the possibility of a greater use of DGS funds would clearly help to boost public confidence in credit institutions and maintain financial stability. Ultimately, this could even lead to a reduction in banks' funding costs.

The increased cooperation between supervisory and resolution authorities provided for under the CMDI also constitutes an additional safeguard to ensure that FOLTF determinations are made in a timely manner. This avoids delaying intervention in crisis situations, thereby avoiding the depletion of all or almost all of the institutions' capital, as this would increase the recapitalisation needs to be met subsequently by the creditors of the institution concerned and/or deposit guarantee schemes and/or resolution funds.

Other significant changes introduced by the CMDI reform concern the following areas:

- Changes to the hierarchy of deposits in insolvency. Currently, covered deposits and the DGS, where it is a creditor, rank *pari passu* at the highest level of priority, followed by uncovered deposits of natural persons and SMEs, and then by all other deposits. Under the CMDI, the following categories are distinguished, in descending order of priority: deposits covered by the DGS, ranking *pari passu* with DGS claims; uncovered deposits of SMEs, natural persons and non-sophisticated public authorities; and all other deposits. There could even be a fourth category comprising deposits that qualify for MREL. In the latter case, such deposits are required to meet a series of conditions, such as not belonging to *retail* customers or SMEs; the traditional requirement that they have a residual maturity of more than one year; that their terms and conditions clearly state that they are intended to meet the MREL and are not covered by the DGS; and, in addition, they must obtain prior authorisation from the resolution authorities in order to be included in the calculation.
- As regards the governance of the SRM, the Executive Session of the SRB must consult the Plenary Session before adopting guidelines, general instructions and other standards of general application within the SRM. Also, the Vice-Chair of the SRB will now have a vote.
- A list of cases of extraordinary public support outside of resolution is included in Article 32(c) of the BRRD and Article 18(a) of the SRMR. The CMDI reform clarifies that the preventive measures adopted with DGS funds that qualify as State aid do not trigger a FOLTF determination. It also details the conditions that precautionary recapitalisation must meet.
- As regards EIMs, the reform increases legal certainty and avoids overlaps between EIMs and the supervisory powers set out in Directive 2013/36/EU (CRD), while maintaining an escalation ladder of measures (see Articles 27-29 of the BRRD). It promotes and strengthens coordination between the competent supervisory authorities and the resolution authorities (see Article 30(a) of the BRRD and Article 13(c) of the SRMR). In addition, it introduces a new measure which grants the power to require the institution to draw up a voluntary wind down plan.
- It strengthens cooperation between supervisory authorities and resolution authorities to avoid a late FOLTF declaration and to ensure that resolution authorities can prepare for a potential resolution sufficiently early.

As regards the planned timetable for the adoption of the CMDI package, a transposition period is allowed until April 2028, although certain provisions related to the updating of the SRMR will apply from the second quarter of 2026.

The European Commission also intends to publish a report on the single banking market in 2026, which would include a roadmap for completing the Banking Union. This report is also expected to set out possible ways of simplifying the current regulatory framework, including matters related to resolution. With regard to this last point, it should be noted that, irrespective of that report, the resolution authorities within the Banking Union have been working for some time on measures to simplify the current framework, such as the simplification of resolution plans, institutions' reporting and certain procedures, amongst others.

7 Conclusions

Although the Single Resolution Mechanism (SRM) is relatively recent, it has made major progress in its first ten years. The joint work between resolution authorities and institutions in resolution planning has enabled institutions to make significant progress in terms of resolvability and to meet their minimum requirements for own funds and eligible liabilities during this period, as well as a considerable degree of readiness to deal with future crises, which helps to ensure financial stability, prevent significant impacts of crises on the real economy and safeguard taxpayers' money. Also, during this period, the Single Resolution Fund, which is financed by institutions' contributions, reached its target level, with total assets of approximately €81,000 million, which would reinforce the use of resolution tools should the need arise and provided that the relevant conditions are met.

During these first ten years, the SRM has been put into practice in two crisis cases involving significant institutions (Banco Popular and Sberbank), as well as in several crisis cases involving less significant institutions, and in all of these cases, the resolution objectives were achieved, thereby avoiding the historically negative consequences of public bail-outs. Even in other jurisdictions, recent crisis cases, such as those that occurred in the United States in 2023, have highlighted the importance of extending the resolution framework to institutions that in principle were not considered systemic, but which were ultimately determined FOLTF due to their capacity for contagion to the rest of the system.

Despite all these achievements, there is still room for improvement in certain areas, some of which will be addressed by the reform of the crisis management and deposit insurance framework; this represents an important step in the right direction, but is still not sufficient to ensure a truly robust resolution framework. Key outstanding issues include most notably the need to implement the third pillar of the Banking Union, the European deposit insurance scheme, and to continue working to strengthen the provision of liquidity in resolution where necessary, through the approval of the European Stability Mechanism's backstop and the development of potential alternatives to increase the funds available, especially in view of recent crisis cases. Also, the possibility of introducing a systemic risk exception to deal with

exceptionally serious cases should be assessed in depth, and work should be undertaken to harmonise national insolvency frameworks within the European Union. Lastly, progress must continue on the cooperation with third-country authorities and on securing greater legal certainty regarding the execution of resolution in third countries, and, finally, work must continue to strengthen prevention and readiness for all crisis cases that may be related to operational problems.

Although there is still considerable work to be done, a great deal has been achieved so far, in a relatively short space of time. As a result, we now have a more robust financial system and, with it, greater financial stability guarantees and support for the real economy, while protecting taxpayers' money – in stark contrast to what happened during crises prior to the establishment of the SRM. Let us hope that these achievements will inspire us to continue progressing in the above-mentioned areas.

REFERENCES

- Croitoru, Oana, Marc Dobler and Johan Molin. (2018). "Resolution Funding: Who Pays When Financial Institutions Fail?". Technical notes and manuals, 18/01, International Monetary Fund. <https://www.imf.org/-/media/files/publications/tnm/2018/tnm1801.pdf>
- European Central Bank. (2026). *ECB amends monetary policy implementation guidelines*. [Press release]. <https://www.ecb.europa.eu/press/pr/date/2026/html/ecb.pr260127~8dc0530a30.en.html>
- Financial Stability Board. (2011). *Key Attributes of Effective Resolution Regimes for Financial Institutions*. https://www.fsb.org/uploads/r_111104cc.pdf
- Financial Stability Board. (2024). *The importance of resolution planning and loss-absorbing capacity for banks systemic in failure*. <https://www.fsb.org/2024/11/the-importance-of-resolution-planning-and-loss-absorbing-capacity-for-banks-systemic-in-failure-public-statement/>
- Financial Stability Board. (2026). *2025 Resolution Report. From Plans to Practice: Operationalising Resolution*. <https://www.fsb.org/uploads/P210126-1.pdf>
- Ibáñez, Lucía, Miguel Kruse, María Pollos, José María Serena and Miquel Tari. (2024). "The euro area banking sector and MREL: a challenge for medium-sized banks?". *Financial Stability Review - Banco de España*, 46, Spring. <https://repositorio.bde.es/handle/123456789/36635>
- International Monetary Fund. (2025). *Euro Area Policies: Financial System Stability Assessment*. IMF Staff Country Report, 25/203. <https://doi.org/10.5089/9798229017923.002>
- Laboureix, Dominique. (2025). "Towards a simpler, stronger Banking Union". *The Eurofi Views Magazine*, September 2025, p. 166. <https://www.srb.europa.eu/en/content/towards-simpler-stronger-banking-union-eurofi-article-srb-chair-dominique-laboureix>
- Official Journal of the European Union*. (2013). Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis. C216, 30 July, pp. 1-15. [https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:52013XC0730\(01\)](https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:52013XC0730(01))
- Official Journal of the European Union*. (2022). Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011. L333/1, 27 December. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2554>
- Official Journal of the European Union*. (2026a). Directive (EU) 2026/804 of the European Parliament and of the Council of 30 March 2026 amending Directive 2014/49/EU as regards the scope of deposit protection, the use of deposit guarantee schemes funds, cross-border cooperation, and transparency. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202600804
- Official Journal of the European Union*. (2026b). Directive (EU) 2026/806 of the European Parliament and of the Council of 30 March 2026 amending Directive 2014/59/EU as regards early intervention measures, conditions for resolution and funding of resolution action and Directive 2014/24/EU as regards valuation services in resolution. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202600806
- Official Journal of the European Union*. (2026c). Regulation (EU) 2026/808 of the European Parliament and of the Council of 30 March 2026 amending Regulation (EU) No 806/2014 as regards early intervention measures, conditions for resolution and funding of resolution action. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202600808
- Restoy, Fernando. (2025). *Can MREL be lower?* EFDI 2025 Annual International DGS Conference, Madrid, 6 June. <https://www.bis.org/speeches/sp250606.htm>

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TOWARDS A CULTURE OF RESPONSIBILITY: THE ROLE OF INDIVIDUALS UNDER THE EUROPEAN CAPITAL REQUIREMENTS DIRECTIVE IN LIGHT OF THE LATEST AMENDMENTS

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Abstract

This article examines how Directive 2013/36/EU,¹ known as the Capital Requirements Directive (the Directive), and, in particular, its latest amendment by Directive (EU) 2024/1619,² strengthens the governance of credit institutions in the European Union (EU) by placing emphasis on essential aspects of individual responsibility regimes already present in the national legislation of some Member States. It analyses the Directive's key features designed to reinforce the accountability of senior officers responsible for managing and controlling the banking business, such as the mapping of duties, the individual statements of responsibilities and the suitability framework. The reforms are also considered in the light of comparative experience in other countries, in particular Ireland's *Individual Accountability Framework*. On the basis of this comparison, the article discusses possible differences between Member States following the transposition of Directive (EU) 2024/1619, and whether the reforms will succeed in moving towards a more harmonised, predictable and streamlined regulatory framework that facilitates supervisory work and reduces unnecessary burdens in the EU's drive towards regulatory simplification.

Keywords: Capital Directive, governance, individual responsibility, accountability, suitability.

1 Introduction

Effective governance of credit institutions depends to a large extent on the commitment and responsibility of the individuals within them. Ultimately, it is individuals who make decisions, manage risks and ensure compliance with regulations and best practices. The 2008 financial crisis revealed significant governance shortcomings in credit institutions. In particular, in large banks decisions are taken at multiple levels and often in collegiate bodies, which can blur the lines of accountability and makes it difficult to attribute responsibility to specific individuals.

In response to these shortcomings, some countries established regulatory frameworks specifically aimed at strengthening the individual accountability of senior executives in credit institutions, later extending those frameworks to other sectors. The UK *Senior Managers and Certification Regime* (Financial Conduct Authority, 2019) and the Irish *Individual Accountability Framework* (Central Bank of Ireland, 2023a) are examples of standalone regimes in Europe that

1 Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

2 Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks.

address individual accountability in credit institutions. These regimes generally have three core features in common:

- they define the functions or duties that are essential for the sound functioning of institutions and set minimum standards for the senior executives responsible for them;
- they require institutions to prepare a mapping of duties and individual statements of responsibilities for the individuals concerned; and
- they allow for individuals subject to the regime to be held directly accountable for shortcomings within their areas of responsibility, unless they can show that they took reasonable steps to prevent the breaches.

Meanwhile, and also in response to the 2008 financial crisis, the European Union (EU) has progressively strengthened the governance requirements for credit institutions laid down in the Directive, which has moved beyond general principles towards more specific requirements, particularly as regards the individuals responsible for the management and control of institutions. Greater emphasis is now placed on ensuring that institutions have sound organisational structures, with clearly defined and independent control functions, and that both members of the management body and senior management are fit to discharge their duties, have appropriate incentives, meet supervisory expectations and can be held accountable for their decisions.

Although the Directive does not establish a standalone and comprehensive individual accountability regime comparable to those in place in some national legal systems, it does include key provisions aimed at strengthening a sense of responsibility among institutions and their managers. These provisions seek, on the one hand, to foster an appropriate risk culture and, on the other, to provide supervisors with tools enabling them to assess decision-making processes more accurately and to take early action where necessary. These provisions most notably include:

- the definition of roles and the clear allocation of functions and responsibilities within credit institutions, in order to determine who makes decisions, who oversees them and, consequently, who may be held accountable in the event of potential breaches;
- a suitability assessment regime³ to ensure that not only members of the management body but all individuals discharging key functions have the necessary skills, experience and integrity, and

3 It may be argued that the suitability assessment regime does not, strictly speaking, form part of the accountability regime, but rather constitutes an independent pillar within a broader framework of sound governance. Its purpose is to ensure, ex ante, that those ultimately responsible for the banking business meet the necessary standards of competence, integrity and reputation required to discharge their duties. By contrast, accountability instruments operate primarily ex post, with a view to supervising and holding individuals accountable for their conduct, performance and compliance with obligations once they have taken up their positions. Nonetheless, the two systems are structurally interdependent: initial suitability lacks effectiveness without a robust framework for supervision and individual responsibility, while individual accountability is insufficient without first ensuring that the individuals occupying the positions are qualified for the role and are of good repute. Therefore, this analysis deals with both regimes as complementary aspects of the same framework.

- a broad set of sanctioning powers available to supervisors over individuals where breaches are detected that could undermine sound governance or financial stability.

The article is organised into six sections, preceded by this introduction. Section 2 examines the organisational structure and the role of the management body, of senior management and of key function holders. Section 3 describes the suitability regime and Section 4 analyses other relevant tools of accountability regimes, while Section 5 focuses on the sanctioning and supervisory powers available to supervisors in this area. The article ends with a brief set of conclusions.

This article focus solely on credit institutions, although the Directive also applies to financial holding companies and mixed financial holding companies subject to approval under Article 21a of the Directive, as well as to investment firms subject to Title VII of the Directive pursuant to Article 1(2) and (5) of Regulation (EU) 2019/2033.⁴

Throughout the article, references to the Directive should be understood as references to Directive 2013/36/EU. References to CRD VI refer specifically to Directive (EU) 2024/1619 amending Directive 2013/36/EU. Any reference to the regime applicable before the amendment will be clearly indicated. Likewise, references to the *Guidelines on internal governance* and the *Guidelines on suitability* – both currently under consultation – correspond, respectively, to the *Draft revised Guidelines on internal governance*, of the European Banking Authority (EBA, 2025), and to the *Draft Joint Guidelines on the assessment of the suitability of members of the management body and key function holders*, of the European Securities and Markets Authority (ESMA) and the EBA (ESMA and EBA, 2026).

2 Organisational structure and the role of the management body, senior management and key function holders

As a key element of the individual accountability framework, CRD VI provides supervisors with new tools to support their work of reviewing institutions' governance arrangements, and specifies the scope of accountability for members of the management body in its management function, for senior management and for key function holders.

Prior to the amendments introduced by CRD VI, the Directive merely set out general principles on internal organisation, focusing on the upper levels of institutions' governance structure, namely the management body – with particular emphasis on its supervisory function – and senior management. CRD VI has introduced two substantial changes.

First, the requirement to draw up specific documents – a mapping of duties and individual statements of responsibilities – to enable more accurate monitoring of decision-making processes

⁴ Regulation (EU) 2019/2033 of the European Parliament and of the Council of 27 November 2019 on the prudential requirements of investment firms and amending Regulations (EU) No 1093/2010, (EU) No 575/2013, (EU) No 600/2014 and (EU) No 806/2014. In addition, pursuant to Article 9 of Directive 2014/65/EU, competent authorities must ensure that investment firms and their management bodies comply with Articles 88 and Article 91 of Directive 2013/36/EU.

at all levels of the institution, and a comprehensive definition of the roles and responsibilities of the individuals within that organisational structure. This change aims to ensure that institutions clearly define the allocation of responsibilities and that supervisors can understand how decision-making and control processes are structured and escalated. As Recital 54 of CRD VI expressly states, this enhanced transparency is intended to strengthen individual accountability.

Second, the Directive places particular emphasis on the senior officers who manage and control credit institutions, irrespective of whether they are formally part of the management body or of senior management.

2.1 Mapping of duties and statement of responsibilities

The general principles governing the organisation of institutions are set out in Article 74 of the Directive, which establishes that institutions shall have robust internal governance arrangements, including, among other things, a clear organisational structure with well-defined, transparent and consistent lines of responsibility. It also states that these governance arrangements must be comprehensive and proportionate to the nature, scale and complexity of the risks inherent in the business model and the institution's activities.

Against this background, the newly added paragraph 3 of Article 88 of CRD VI gives effect to these principles by requiring institutions to draw up both a document setting out roles or mapping duties and individual statements of responsibilities. Although these documents serve distinct purposes, they are closely linked. The mapping of duties describes the management structure and reporting lines, thereby defining the “what” and the “how” of the internal organisation. The individual statements, in turn, specify the duties assigned to each manager, identifying the “who”. Institutions are therefore required to present their organisational model and allocation of responsibilities in a clear and consistent manner.

Pursuant to Article 88(3), the mapping of duties must include details of the reporting lines, lines of responsibility, and of the persons who are part of the institution's governance arrangements, indicating the duties assigned to each of them. This document therefore goes beyond a formal organisational chart and must:

- be prepared on an individual basis and, in accordance with Article 109 of the Directive, also on a sub-consolidated and consolidated basis;
- take into account the size, nature, organisational structure and complexity of the institution, as well as, where applicable, arrangements with third parties;
- avoid overlapping of roles or gaps in the allocation of duties; where a role is shared, this circumstance must be duly justified;
- clearly identify reporting lines and, where several exist, distinguish appropriately between them; and

- be consistent with the statements of responsibilities and complement the other documentation forming part of the institution's governance framework.

Although neither CRD VI nor the *Guidelines on internal governance* specify which functions should be included in the mapping of duties, it seems clear that the internal control functions – namely risk management, compliance and internal audit – together with all the requirements laid down in Article 76, should be duly reflected in that mapping. This means that:

- control functions must be independent of operational functions;
- internal control functions must have direct access to, and be able to report directly to, the management body in its supervisory function;
- where the nature, scale and complexity of the institution's activities justify allocating the risk management or regulatory compliance functions to a senior manager responsible for another area, that allocation must not give rise to conflicts of interest between the different areas of responsibility combined in that person; and
- the internal audit function must not be combined with any other business line or control function of the institution.

Moreover, neither CRD VI nor the *Guidelines on internal governance* establish a specific level of granularity for the document or provide a standardised template. In line with a principles-based approach, the Guidelines recognise that institutions should have ample scope for flexibility to determine its format and content, given that the mapping largely depends on the specific structure of each institution or group.

In addition to the mapping of duties, the new Article 88(3) also requires institutions to draw up, maintain and update individual statements of responsibilities setting out the roles and duties of all members of the management body in its management function, of senior management and of key function holders.

These statements should be concise and coherent, while sufficiently detailed to provide a proper understanding of the scope of the responsibilities assigned, and how they fit with the person's other functions and with the institution's organisational structure. They should include not only the responsibilities inherent in the position, but also any other responsibility conferred on the individual, such as their participation in relevant cross-cutting projects not strictly related to their business area.

The *Guidelines on internal governance* include an optional template for individual statements which, for each person, includes personal identification details and information about: (i) their role and time commitment; and (ii) the tasks or duties assigned, indicating, where applicable, which of them are shared with other persons.

Under CRD VI, both the individual statements of responsibilities and the mapping of duties must be made available to the competent authorities at all times and communicated to them upon request, including for the purposes of obtaining authorisation as a credit institution. The *Guidelines on internal governance* specify that the individual statement of responsibilities should be submitted to the supervisor for the purposes of the suitability assessment.

Some national frameworks are likely to adopt a more prescriptive approach than CRD VI, which establishes only a minimum level of harmonisation and explicitly affords Member States broad discretion. In Recital 54, it expressly provides that they may adopt or maintain stricter requirements – both in relation to the mapping of duties and the statement of responsibilities – where they consider this necessary.

Thus, in addition to expecting institutions to appropriately allocate the responsibilities inherent in key areas, some national frameworks are likely to specify certain additional responsibilities and require institutions to formally identify the individuals responsible for discharging them. This could be the case for certain functions regulated under other legislation, such as the control function for the management and oversight of information and communication technology (ICT) risk provided for in Regulation (EU) 2022/2554,⁵ or the anti-money laundering compliance function provided for in Directive (EU) 2015/849.⁶

This is the approach taken, for example, by the Central Bank of Ireland, which has defined a set of prescribed responsibilities (see annex) that institutions must allocate to specific individuals. While institutions retain flexibility to assign those responsibilities to the role holders they consider most appropriate in light of their organisational structure and business model, the designated individuals remain subject, in all cases, to the supervisor's suitability assessment. Similarly, the European Central Bank's *Draft guide on governance and risk culture* recommends that institutions explicitly allocate responsibility for the remediation and follow-up of audit weaknesses identified, and of supervisory requirements and recommendations.

2.2 The management body in its management function

As noted above, institutions will be required to prepare individual statements of responsibilities for each member of the management body in its management function. In this context, CRD VI expressly introduces the concept of the “management body in its management function”, as opposed to the ‘management body in its supervisory function’, which was already defined in the original version of the Directive.

5 [Regulation \(EU\) 2022/2554](#) of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011.

6 [Directive \(EU\) 2015/849](#) of the European Parliament and of the Council of 20 de May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC.

The Directive expressly recognises the diversity of corporate governance models existing across Member States — one-tier, two-tier or a combination of both — and defines the management body adopting a functional approach, in order to encompass all these structures without imposing any one of them. From the outset, the Directive has acknowledged that all management bodies, irrespective of their structure, perform both executive and supervisory functions.

However, an examination of how the Directive has evolved since 2013 shows a progressive shift in regulatory focus across the management body's different functions, depending on the risks and priorities identified at each stage. Thus, the original 2013 version of the Directive placed particular emphasis on the management body's supervisory function, probably in response to the shortcomings in that function identified during the financial crisis.⁷

In contrast to this initial approach, CRD VI shifts regulatory attention more clearly towards the management function of the management body, consistent with a more active and individualised understanding of responsibility for managing credit institutions. This shift does not affect the collective responsibilities inherent in membership of the management body, but it does underline the need to identify more precisely the persons who effectively direct the institution and the functions they perform.

In this context, CRD VI explicitly incorporates the concept of the management body in its management function and includes the persons who effectively direct the institution, even where they are not members of that body.⁸ The new Article 3(1)(8a) of the Directive defines the management body in its management function as “the management body acting in its role of directing an institution and includes the persons who effectively direct the business of the institution.”

The *Guidelines on internal governance* confirm this interpretation, stating that “in Member States, where the management body appoints persons that effectively direct the business of the institutions, those persons belong in accordance with Article 3(1)(8a) of Directive 2013/36/EU to the management function of the management body and are therefore to be assessed for their suitability in line with Article 91 of this Directive” [...] and are also subject to the requirement to draw up an individual statement of responsibilities, under the terms set out in Article 88(3).⁹

7 According to the European Commission's *Green Paper on corporate governance in financial institutions and remuneration policies* (European Commission, 2010) “The financial crisis clearly shows that financial institutions' boards of directors did not fulfil their key role as a principal decision-making body. Consequently, boards of directors were unable to exercise effective control over senior management and to challenge the measures and strategic guidelines that were submitted to them for approval.”

8 It should be noted that the previous version of the Directive already included “the persons who effectively direct the business of the institution” within the definition of “management body”. Accordingly, CRD VI does not introduce this element for the first time, but rather articulates that earlier approach more clearly.

9 This interpretation is consistent with Spanish company law. In particular, Article 236(4) of the Limited Companies Law establishes that “where there is no permanent delegation of powers by the board to one or more chief executive officers, all provisions concerning the duties and responsibility of directors shall apply to the person who, whatever their title, has been entrusted with the company's highest management powers [...]”.

Accordingly, a combined reading of CRD VI and the Guidelines suggests that, where the management body confers powers belonging to the highest level of management on persons who do not formally sit on that body, those persons must be regarded as members of the management body in its management function. Although the Directive does not specify exactly which persons are referred to, it seems reasonable to understand this as including, for example, the general manager of a credit cooperative.

However, CRD VI does not appear to have been intended to strengthen individualised accountability for members of the management body when acting in their supervisory capacity.

This regulatory approach contrasts with that adopted in certain national legal frameworks, including Ireland's, where the legislator has considered it appropriate to expressly bring members of the management body acting in its supervisory function within the scope of the individual accountability regime.

Thus, the references in the Directive to specific responsibilities that should be assigned to the management body in its supervisory function appear to be aimed mainly at minimising the risk that those responsible for strategic oversight and control of the institution may be influenced by those who effectively direct the business. This objective must be achieved irrespective of the structure of the management body, whether one-tier or two-tier, although in one-tier systems achieving it will require specific solutions (see Box 1).

2.3 Senior management and key function holders

CRD VI's emphasis on members of the management body in its management function is accompanied by a broadening of the subjective scope of governance arrangements, by requiring institutions to draw up individual statements of responsibilities and document suitability assessments also for senior management and key function holders (Article 88(3)).

Before CRD VI, the Directive referred mainly, in addition to members of the management body, to senior management as the persons with ultimate responsibility for the day-to-day management of the institution. CRD VI takes a functional approach to also identify those who lead, oversee or control strategic areas, even where they do not formally occupy the position of senior managers.

Accordingly, CRD VI maintains the concept of senior management while introducing the category of key function holders, distinguishing between the two profiles as follows:

- senior management: the natural persons who exercise executive functions within an institution and are directly accountable to the management body but are not members of that body, and who are responsible for the day-to-day management of the institution under the direction of the management body (Article 3(1)(9); and

THE MANAGEMENT BODY IN ITS SUPERVISORY FUNCTION IN A ONE-TIER SYSTEM

Although the distinction between management and supervisory functions may appear easier to articulate in two-tier governance structures, one-tier systems must also establish appropriate mechanisms to ensure independence of judgement and the absence of conflicts of interest when the management body exercises the supervisory function. Since Directive 2013/36/EU requires certain tasks to be performed by the management body in its supervisory function, institutions should adopt specific and proportionate measures, taking into account not only the nature of the specific task to be performed, but also, where necessary, the size, structure and complexity of the institution.

In this context, based on an analysis of various sources and corporate governance practices, a number of organisational arrangements can be identified that may effectively strengthen the supervisory function in one-tier management bodies, without altering their single-body structure, including the following:

Composition of the body

Voluntarily configuring a body with a predominantly supervisory profile through a majority of non-executive directors. This approach is consistent with good governance recommendations applicable in various legal systems. For example, the Good Governance Code of the Spanish National Securities Market Commission recommends that, in listed companies, the board of directors should have a large majority of non-executive directors and that independent directors should generally represent at least half of the total number of directors.

Abstention by executive directors from supervisory decision-making

For certain decisions directly linked to the supervisory function, executive directors may abstain from participating in the deliberation and vote in order to preserve the body's independence of judgement. This approach is set out, for example, in Article 529 septies of the Spanish Limited Companies Law — applicable to listed

companies — for the appointment of the lead independent director.

Establishment of specialised committees composed exclusively of non-executive directors

The Directive encourages the establishment of committees to support the management body in the exercise of specific supervisory functions. In particular, it requires institutions classified as significant under national law to establish certain advisory committees, composed of non-executive directors, namely: (i) the risk committee (Article 76(3)); (ii) the nomination committee (Article 88(2)); and (iii) the remuneration committee (Article 95). In addition to these committees, all public-interest companies — including credit institutions — are required to have an audit committee.

Nothing prevents credit institutions from establishing additional committees to support the management body, such as a regulatory compliance committee. However, insofar as their purpose is to strengthen independence of judgement and avoid conflicts of interest in the exercise of the supervisory function by the management body itself, it seems reasonable for such committees to meet certain minimum requirements, including being composed exclusively of non-executive members with appropriate knowledge and experience.

Furthermore, under the principle of proportionality, the Directive allows different responsibilities to be combined within the same committee. Thus, for example, in the case of institutions not classified as significant under national law, audit and risk functions may be combined in a single committee (Article 76(3)). The European Banking Authority's *Guidelines on internal governance* also state that, where risk and nomination committees are established in non-significant institutions, they may be combined.

Similarly, institutions have discretion to assign additional functions to the committees regulated by that Directive. In practice, some institutions assign oversight of regulatory compliance to the audit committee or to the risk committee.

- key function holders: the persons who have significant influence over the direction of an institution but are not members of the management body, including the heads of internal control functions and the chief financial officer, where those heads or that officer are not members of the management body (Article 3(1)(9a)).

The Directive thus defines senior management essentially by reference to reporting lines and executive responsibility, whereas the status of key function holders is determined based on the nature and relevance of the functions performed for the management and control of the institution.

Although every senior manager should be understood, by definition, to be a key function holder,¹⁰ the question remains as to whether the key functions performed by senior management are confined to operational functions or also encompass control functions.

Both the definition of senior management itself – referring to executive functions and day-to-day management – and the first subparagraph of Article 76(6) – requiring internal control functions to be independent of both the management body in its management function and of senior management – seem to suggest that the category of senior management referred to in the Directive is limited to the most senior officers responsible for operational areas.

However, the second subparagraph of Article 76(6) – by providing that the heads of internal control functions shall be “independent senior managers” – allows for a different interpretation: not only those responsible for operational functions, but also those responsible for control functions may, or in some cases must, qualify as senior management.¹¹

In the same vein, some key function holders will be senior managers, while others may belong to middle management. This interpretation also appears to be supported by the *Guidelines on internal governance*, which indicate that, for the purposes of the statement of responsibilities, where a person qualifies both as senior management and as a key function holder, that person should be treated as senior management.

3 Suitability assessment regime

The recognition of key function holders, in addition to members of the management body, as relevant persons within the governance framework established by CRD VI has also entailed a review of the suitability assessment framework.

10 Pursuant to Article 92(2) of the Directive, for the purposes of remuneration policies, for example, all members of the management body and senior management are included in the categories of staff whose professional activities have a material impact on the institution's risk profile.

11 This latter interpretation is reinforced by Article 76(5), which requires that internal control functions “have sufficient authority, stature, resources and access to the management body”, thereby assuming a level of responsibility and organisational positioning typical of senior management.

Prior to the amendments introduced by CRD VI, the Directive had two significant gaps:

- the Directive required both the institution and the supervisor to assess the suitability of members of the management body, but contained no reference to the suitability assessment of key function holders. In some national legal systems, the suitability assessment regime also included certain individuals in addition to members of the management body. In Spain, for instance, the regime was based mainly on hierarchical criteria and applied to “managing directors and similar officers”.¹² Moreover, the European Central Bank’s (ECB) competence to assess this group was limited to cases where the national law of the country in which the credit institution was established provided for supervisory assessment;¹³ and
- the Directive did not specify in detail how and when supervisors should conduct their assessments. Although the previous EBA and ECB guidelines on suitability assessments provided guidance on this matter, significant differences across Member States remained. For example, some national authorities may assess the suitability of members of the management body only after a significant period has elapsed since their appointment (ex post), whereas in other Member States supervisors carry out this assessment before the appointment (ex ante).

To address these shortcomings, CRD VI amended Article 91, on the suitability assessment of members of the management body, and introduced a new Article 91a, on the suitability assessment of key function holders. The aim is to put in place a consistent and predictable suitability framework that fosters supervisory convergence, strengthens trust among competent authorities and gives institutions greater legal certainty.

3.1 Persons subject to assessment

Two levels of review are established:

- all institutions must ensure at all times that members of the management body (Article 91(1)) and key function holders (Article 91(1a)) have the required suitability to perform their duties; and
- applying the principle of proportionality and without prejudice to the supervisor’s ability to request and review the institution’s assessments at any time, the supervisor shall in any event assess:
 - members of the management body in all institutions (Article 91(1f)), and

¹² Defined in Article 6(6) of Law 10/2014 of 26 June 2014 on the regulation, supervision and solvency of credit institutions.

¹³ See *Additional clarification regarding the ECB’s competence to exercise supervisory powers granted under national law* (ECB SSM/2017/0140), 31 March 2017.

- the chief financial officer and the heads of internal control functions in large institutions¹⁴ (Article 91a(5)).

3.2 Suitability assessment procedure

Institutions must assess individuals before they take up their positions and subsequently on a periodic basis (Article 91(1a) and Article 91a(2)).

For newly appointed individuals, the timing of the supervisory assessment shall be as follows:

- As regards members of the management body, the Directive does not amend the regimes in Member States where an ex ante supervisory assessment was already required;¹⁵ these will continue to apply. In such cases, institutions must always notify the supervisor of any new appointments before the individuals concerned take up their positions.

By contrast, in Member States where the supervisor is notified and conducts its assessment ex post, that is, after the member has taken up the position, the general rule, according to the *Guidelines on suitability*, will be to notify the supervisor no later than 15 days after the appointment. However, CRD VI introduces an exception for large institutions located in Member States with an ex post assessment regime. In those cases, large institutions must submit to the supervisor the suitability application for the chair of the management body in its supervisory function and for the members of the management body in its management function at least 30 days before they take up their positions (Article 91(1d)).

As Recital 49 of CRD VI states, the ex ante suitability application is useful because it allows supervisors to begin their analysis and take measures before the member takes up the position. Although CRD VI does not require the supervisor to issue its decision before the appointment – which may give rise to the need to remove a member who is not suitable, or to a situation in which the management body as a whole fails to meet the collective suitability requirements – the early submission of the application enables the supervisor to take preventive action. Such measures may include preventing the prospective member from taking up the position until sufficient information is available, or engaging in close dialogue where there are doubts as to

14 Article 91a(5) defines large institutions as: a) EU parent institutions that qualify as large institutions; b) parent institutions in a Member State that qualify as large institutions; except where they are affiliated to a central body; c) central bodies that qualify as large institutions or that supervise large institutions affiliated to them; d) stand-alone institutions in the Union that qualify as large institutions; e) large subsidiaries, as defined in Article 4(1) point (147) of Regulation (EU) 575/2013; f) parent financial holding companies in a Member State, etc.

15 As indicated in Recital 49 of CRD VI: "Due to the risks posed by large institutions resulting in particular from potential contagion effects, the competent authorities of Member States in which the supervisor's suitability assessment is carried out after the member has taken up the position in the management body, in accordance with national law, should be notified without undue delay as soon as there is a clear intention to appoint a member of the management body in its management function or the chair of the management body in its supervisory function".

their suitability, in order to ensure that the person is – or becomes – suitable by the time they take up the position.

- As regards the supervisory assessment of the chief financial officer and the heads of internal control functions in large institutions, the applicable regime will be that of the legal system of the Member State concerned (ex ante or ex post). For these assessments, in accordance with the *Guidelines on suitability*, the notification must be submitted before the individual takes up the position (ex ante) or no later than 15 days after the appointment (ex post).

In any event, the supervisor must consider setting a maximum period for concluding the assessment¹⁶ (Article 91(1j) and Article 91a(6)). According to the *Guidelines on suitability*, this period should not exceed four months or, if the period has been suspended, a maximum of six months after receipt of the notification. The same guidelines also state that, in the case of large institutions, such an extension should occur only in exceptional circumstances.

Furthermore, as regards the reassessment of suitability, CRD VI broadens the scope previously provided for in the Directive, which was limited to cases where there were reasonable grounds to suspect money laundering or terrorist financing. Specifically, CRD VI provides that institutions must reassess the suitability of members of the management body – and, in the case of large institutions, of the chief financial officer and the heads of internal control functions – where they become aware of any new facts or circumstances that could affect their suitability, informing the supervisor without undue delay. Similarly, where the supervisor becomes aware of significant changes to the information concerning the suitability of the members of the management body, they shall reassess their suitability (Article 91(1h) and Article 91a(6)). In these cases, CRD VI does not provide for the supervisor to consider setting a maximum period for the supervisory assessment.

3.3 Assessment criteria

The suitability criteria are set out in Table 1.

In addition to the suitability criteria themselves, certain aspects of corporate governance closely linked to the selection process must also be taken into account. For example, diversity and gender balance in the management body must be considered, in accordance with the obligation to have a specific policy in this area (Article 91(8)). Likewise, as regards the heads of the compliance function or the risk management function, where they simultaneously perform other functions within the institution, it must be assessed whether they have sufficient time to perform all those functions properly (Article 76(6)). Similarly, it must be verified that the chair

¹⁶ In Spain, Article 29(2) of Royal Decree 84/2015 of 13 February 2015 implementing Law 10/2014 of 26 June 2014 on the regulation, supervision and solvency of credit institutions states that the suitability assessment shall be conducted by the Banco de España or, where applicable, the ECB, within three months as of the date of notification of a new appointment.

Table 1
Suitability criteria

Criterion	Management body	Key function holders	Additional observations
Sufficient knowledge, skills and experience	✓	✓	In addition, the management body as a whole shall possess adequate collective knowledge, skills and experience to be able to understand the entity's activities and the associated risks.
Good repute and integrity	✓	✓	The supervisor, on a risk-sensitive basis, may consult the supervision authority responsible for the supervision of anti-money laundering and counter terrorist financing.
Independence of mind	✓		Not to be confused with the principle of "being independent".
Sufficient time	✓		There is a limit on the number of directorships a member of the management body of an entity regarded as significant within a Member State, in light of its size, internal organisation, and the nature, scale and complexity of its activities, may hold simultaneously.

SOURCE: Devised by authors.

of the management body in its supervisory function does not exercise simultaneously the functions of a chief executive officer within the institution (Article 88(1)(e)).

If, as a result of its internal assessment, the institution concludes that a person does not meet the established criteria, it shall ensure that this person does not take up the position – or is removed from it – or shall take the necessary measures to ensure that they become suitable (Article 91(1c) and Article 91a(3)).

Likewise, if the supervisor considers that a person does not meet the established requirements, it must have the necessary powers to prevent that person from taking up the position, to order his or her removal or to require institutions to take the appropriate remedial measures (Article 91(1i) and Article 91a(6)). These measures may take the form of conditions, obligations or recommendations.

All the changes in this section effectively help simplify the European regulatory framework by incorporating into binding legislation criteria and practices that had previously been developed mainly in EBA supervisory guidelines. This regulatory clarification is particularly relevant for banking groups operating in several Member States, as it reduces interpretative fragmentation.

Furthermore, from the perspective of the Single Supervisory Mechanism, raising these criteria and practices to the level of binding legislation allows for a more predictable, more homogeneous and shorter assessment procedure, reducing the need for ad hoc developments.

However, differences will still remain between supervisors that conduct ex ante assessments and those that conduct ex post assessments, since, as explained above, neither CRD VI nor the *Guidelines on suitability* harmonise the timing of the supervisory assessment. The only requirement is that large institutions located in Member States with an existing ex post regime

submit to the supervisor the application for the suitability assessment of the chair of the management body in its supervisory function and of the members of the management body in its management function before their appointment, although the supervisor may complete the assessment after the appointment.

The people subject to assessment may also vary, as some supervisors may require assessing the chief financial officer and the heads of internal control functions in institutions that are not classified as large, or may require certain responsibilities to be assigned to specific individuals (prescribed responsibilities) and may consider it necessary to assess those individuals at the time of their appointment.

4 Other instruments: duty of responsibility and compliance with standards of behaviour

In addition to the organisational instruments and suitability requirements discussed above, the Directive includes other mechanisms that help foster a culture of responsibility and transparency. These include, on the one hand, whistleblowing systems, which allow staff to report misconduct or breaches internally or externally without fear of retaliation and, on the other, remuneration policy requirements aimed at aligning the incentives of managers and employees with prudent and sustainable risk management.

Without prejudice to the foregoing, individual accountability regimes also include a set of obligations that have a direct bearing on individual conduct. These instruments – which exist in some national legal systems and are partially reflected in European supervisory guidelines – seek to ensure that those exercising management, supervisory or control functions act with the diligence, integrity and professional standards expected of them, and that they take the necessary measures to prevent, detect and remedy deficiencies within their area of responsibility.

The first such instrument is the duty of responsibility. In Ireland, for example, a specific legal duty of responsibility applies to persons subject to ex ante fitness and probity assessment by the supervisor.¹⁷ Within the scope of the responsibilities assigned to them, those persons must take all reasonable steps which, having regard to the specific circumstances of the case, may be expected of them to prevent the institution from breaching its legal and regulatory obligations.

When determining whether an individual has failed to comply with this duty of responsibility, the Central Bank of Ireland assesses:

17 The provision applies to members of the management body, without distinguishing between executive, non-executive and independent directors. However, it is recognised that non-executive and independent directors do not participate in the management and control of the institution in the same way as executive directors. Their responsibilities are more limited and linked to corporate governance, supervisory and control functions. They are therefore not expected to assume executive responsibilities, and the reasonable steps required of them are assessed in that context.

- the responsibilities assigned to the person, by reviewing both the mapping of duties and the statement of responsibilities. It may also consider other sources of information, such as organisational charts, minutes of meetings, emails or interviews with the supervisor;
- the reasonable steps taken by the individual to comply with their obligations in that role and at that time. For these purposes, the law takes into account, among others, the following circumstances:
 - the nature, scale and complexity of the institution’s business;
 - the functions assigned to the person and the level of knowledge and experience that could reasonably be expected of a person performing those functions; and
 - the actual level of knowledge and experience of the person concerned.

The second instrument used to strengthen the individual accountability culture is the obligation for members of the management body and senior management – and even all staff – to adhere to a code of conduct. In general, these standards include: (i) acting honestly and with integrity; (ii) acting with due diligence; (iii) cooperating in good faith and without delay with supervisors; and (iv) acting in the best interests of customers and treating them fairly and professionally.

In some Member States, such as Ireland and the Netherlands, there is a legal obligation to adhere to a code of conduct.

The Central Bank of Ireland requires every person performing a key function to comply with standards of behaviour. This also entails that institutions are required to train the staff subject to those standards and to document how compliance with them is ensured. The Central Bank of Ireland may reassess a person’s fitness and probity if it considers that he or she has failed to comply with those standards, or may even impose a sanction on that person. This is an obligation distinct from the duty of responsibility and applies to a broader group of individuals.

Meanwhile, in the Netherlands¹⁸ a professional oath is required. This is an oral and written declaration by which the person taking the oath undertakes to follow a set of moral and ethical principles in the exercise of their profession. The supervisor reviews its application in practice. The oath must be taken by all managers and employees in the banking sector.

CRD VI does not incorporate either of these two instruments, although the *Guidelines on internal governance* partially reflect them:

- As regards the duty of responsibility, the Guidelines strengthen the supervisory expectation that every person with responsibilities should take reasonable steps to prevent or remedy issues within their remit. The Guidelines establish that “an individual is found to not be

¹⁸ For further information, see De Nederlandsche Bank. (2024). [How to bring the professional oath to life in daily practice](#), and Dutch Authority for the Financial Markets (n.d.). [Oath or affirmation](#).

fulfilling their duties listed in their individual statement if an issue is detected in one of their duties or areas for which they are responsible, and the individual has not taken the actions that could reasonably be expected from them to prevent the issue from occurring or continuing to occur once brought to their attention. The institution should take appropriate measures to ensure that all individuals appropriately fulfil their duties, and the individuals should be able to demonstrate to the supervisor upon request that they have taken all actions in their position that could reasonably be expected from them.”

During the public consultation on the Guidelines, several credit institution associations criticised this approach, arguing that it de facto placed the burden of proof on individuals, going beyond the mandate of the Directive and creating legal uncertainty owing to the use of imprecise and potentially subjective concepts. They also warned that it could be interpreted as a basis for sanctioning breaches not provided for in the Directive and requested its deletion.

- As regards the code of conduct, the Guidelines recommend that institutions’ management bodies draw up and adopt codes of conduct or similar instruments, and ensure and monitor staff compliance with those standards.

Without prejudice to the implications this may have in other areas, it appears that obligations expressly laid down in legislation and those contained only in supervisory guidelines are not perceived in the same way by the persons concerned. In the former case, individuals internalise them as formal duties that form an integral part of their personal accountability framework. By contrast, obligations arising solely from EBA guidelines are more likely to be perceived as supervisory expectations whose scope depends to a greater extent on the supervisor’s interpretation.

5 Sanctioning powers

Having analysed the preventive instruments established by the Directive to strengthen accountability, it is also necessary to consider the sanctioning powers applicable to natural persons, which complement the individual accountability framework.

As regards natural persons, Article 65 of the Directive already recognised broad investigatory powers for supervisors and the right to request information from a wide range of individuals, including any person belonging to a credit institution. It also provided for the possibility of imposing penalties both on members of the management body of credit institutions and on other natural persons, provided they are responsible for the breach under national law.¹⁹

¹⁹ In the case of Member States participating in the Single Supervisory Mechanism, and without prejudice to the power of any competent authority belonging to it to initiate proceedings on its own initiative under national law in respect of functions not conferred on the European Central Bank (ECB), the ECB may require those authorities to open sanctioning proceedings against a natural person performing functions in a significant credit institution. The ECB may also make such a request in respect of less significant institutions where there are breaches of ECB regulations or decisions imposing obligations on those institutions vis-à-vis the ECB.

In line with the changes described in the preceding sections, CRD VI has introduced clarifications to the sanctions regime applicable to natural persons. In particular, senior management and key function holders are expressly included among the persons who may be subject to sanctions for infringements of the national provisions transposing the Directive and of Regulation (EU) No 575/2013 or of decisions taken by a competent authority on the basis of those provisions or that Regulation. They may be sanctioned with administrative pecuniary penalties of up to €5 million or up to twice the amount of the profits gained or losses avoided. The supervisor may also adopt other measures, such as removal from office or a public statement identifying the person concerned.

In addition, CRD VI empowers supervisors to impose periodic penalty payments not only on institutions but also on individuals, of up to €50,000. These penalty payments consist of an obligation to pay per day of breach until compliance with the relevant obligation is restored, for a maximum period of six months. They are not punitive in nature and are therefore compatible with other possible sanctions. Periodic penalty payments thus reinforce the principle of individual accountability by acting as a mechanism to compel individuals to comply with the order issued.

However, as noted above, the Directive does not specifically include the duty of responsibility or the obligation to adhere to a code of conduct and therefore does not provide for a specific sanctions regime linked to these instruments, unlike in Ireland.

Indeed, the Central Bank of Ireland may impose sanctions, including fines, on persons who breach both the conduct standards and the duty of responsibility. It may therefore take action against individuals who have breached these statutory obligations, rather than only for their participation in breaches committed by the regulated entity.

Although CRD VI has not expressly incorporated the duty of responsibility or, consequently, a sanctions regime applicable to breaches of that duty, this does not prevent supervisors from adopting other types of measures against the individuals concerned. In this respect, the reassessment of suitability is a relevant tool: if the supervisor concludes that a person no longer meets the requirements needed to properly perform their functions and responsibilities, it may ultimately order that person's removal from office. This is a strictly supervisory – not punitive – power, which serves as an effective individual accountability mechanism.

Similarly, even though the Directive does not establish adherence to a code of conduct as an obligation that is independently subject to sanctions, any serious indication that a person has failed to act in accordance with high standards of conduct should be taken into account by the supervisor as a relevant factor for the assessment of that individual's good repute, as established in the *Guide to fit and proper assessments*.

6 Conclusions

The reforms introduced by CRD VI represent a significant step forward in building a stricter and more harmonised regulatory framework for governance and individual accountability in the

European Union (EU). The obligation to document the allocation of responsibilities, draw up statements of responsibilities and periodically assess the suitability of key function holders strengthens transparency and provides supervisors with more effective tools to prevent and remedy deficiencies in management. Most of these measures are preventive in nature: they seek to ensure that individuals are aware of their specific responsibilities and can be held accountable for their decisions.

Although many of the elements that make up the individual accountability framework were already included in the European Banking Authority guidelines, their express incorporation into the Directive marks a qualitative change: they move from supervisory soft law criteria to becoming binding rules. This reflects European lawmakers' intention to reinforce their binding and homogeneous nature and to consolidate individual accountability as a structural pillar of the corporate governance framework.

At the same time, CRD VI is aligned with the EU objective of moving towards a simpler and more predictable regulatory framework that reduces unnecessary administrative burdens – particularly for smaller institutions – and facilitates supervisory work, thereby contributing to a more efficient application of the rules. In this respect, CRD VI incorporates into positive law criteria that had previously appeared only in supervisory guidelines, harmonises the suitability regime (thereby reducing fragmentation across Member States) and more clearly defines the group of persons subject to assessment. It also allows for a proportionate approach by not requiring a specific level of granularity either in the document setting out the allocation of responsibilities or in the statements of responsibilities,²⁰ and by limiting the supervisory suitability assessment to holders of certain key functions in large institutions. This is complemented by the clarification of the sanctions regime applicable to natural persons, which strengthens the predictability of supervisory action by expressly identifying senior management and key function holders as persons who may be subject to sanctions, as well as by introducing periodic penalty payments as an additional pressure mechanism.

However, because CRD VI establishes only minimum requirements and allows a degree of flexibility, differences in the interpretation and application of these provisions will persist across Member States. Some of these divergences reflect pre-existing situations that CRD VI has not fully harmonised, such as the possibility of maintaining ex post supervisory suitability assessments. A substantial part, however, will depend on the decisions adopted at national level in relation to aspects such as:

- the level of detail required in the document setting out the allocation of responsibilities and in individual statements of responsibilities, including the possible specification of additional responsibilities;
- the extension of the supervisory assessment to the chief financial officer and the heads of internal control functions of institutions not classified as large;

²⁰ It should be borne in mind that, although the *Guidelines on internal governance* provide a template statement, that template is not mandatory.

- the expansion of the perimeter of key function holders subject to supervisory assessment beyond the chief financial officer and the heads of internal control functions; and
- the establishment of a duty of responsibility or an obligation to adhere to a code of conduct.

In short, although CRD VI incorporates many of the elements characteristic of individual accountability regimes, the flexibility it leaves for national implementation means that its practical deployment will progress at different speeds within the EU, resulting in accountability models that may be more or less demanding. Although a greater degree of harmonisation would have been desirable, this appears difficult to achieve given the fragmentation of existing national frameworks. Thus, the reform recognises the desirability of moving towards greater harmonisation, but in practice gives priority to national flexibility as a necessary condition for integrating the rules into legal and supervisory systems that remain diverse.

REFERENCES

- Central Bank of Ireland. (2023a). *Individual accountability framework*. <https://www.centralbank.ie/regulation/how-we-regulate/individual-accountability-framework>
- Central Bank of Ireland. (2023b). *Annex 1 to the Consultation Paper 153. Draft Regulations*. https://www.centralbank.ie/docs/default-source/publications/consultation-papers/cp153/annex-1-to-the-consultation-paper-153-draft-regulations.pdf?sfvrsn=502a991d_4
- De Nederlandsche Bank. (2024). *How to bring the professional oath to life in daily practice*. <https://www.dnb.nl/media/ohbbh4qs/beroepseed-brochure-eng.pdf>
- Dutch Authority for the Financial Markets. (n.d.). *Oath or affirmation*. <https://www.afm.nl/en/sector/themas/verplichtingen-voor-ondernemingen/eed-of-belofte>
- EBA. (2025). *Draft revised Guidelines on internal governance under Directive 2013/36/EU*. Consultation Paper, 20, European Banking Authority. <https://www.eba.europa.eu/sites/default/files/2025-08/654f1ca6-0cad-4a2a-b85c-dd2abfae5fe6/Consultation%20Paper%20on%20draft%20amended%20Guidelines%20on%20internal%20governance.pdf>
- ECB. (2021). *Guide to fit and proper assessments*. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.fit_and_proper_guide_update202112~d66f230eca.en.pdf
- ECB. (2024). *Draft guide on governance and risk culture*. https://www.bankingsupervision.europa.eu/framework/legal-framework/public-consultations/pdf/ssm.pubcon202407_draftguide.en.pdf?4532f41855e11e6a317fcb07e5532b56&4532f41855e11e6a317fcb07e5532b56
- European Commission. (2021). *Impact assessment report Accompanying the documents Proposal for a Regulation of the European Parliament and the Council amending Regulation (EU) No 575/2013 on prudential requirements for credit institutions as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor Proposal for a Directive of the European Parliament and the Council amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks, and amending Directive 2014/59/EU*. Commission Staff Working Document, 320, 27 October. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52021SC0320>
- European Securities and Markets Authority and EBA. (2026). *Draft Joint ESMA and EBA Guidelines on the assessment of the suitability of members of the management body and key function holders under Directive 2013/36/EU and Directive 2014/65/EU*. ESMA35-243228190-8034. Consultation Paper, 03, European Banking Authority. <https://www.eba.europa.eu/sites/default/files/2026-02/cd383d03-0d19-49a6-81f0-3b5a554886fc/CP%20on%20Joint%20GLs%20on%20suitability.pdf>
- Financial Conduct Authority. (2019). *FG19/2 Senior Managers and Certification Regime: Guidance on statements of responsibilities and Responsibilities Maps for FCA firms*. <https://www.fca.org.uk/publication/finalised-guidance/fg19-02.pdf>
- Oliveira, Rita, Ruth Walters and Raihan Zamil. (2023). "When the music stops – holding bank executives accountable for misconduct". *FSI Insights on policy implementation*, 48, Financial Stability Institute - Bank for International Settlements. <https://www.bis.org/fsi/publ/insights48.pdf>

Table A.1
Prescribed responsibilities (Central Bank of Ireland)

General prescribed responsibilities

Responsibility for the firm's performance of its obligations under the Senior Executive Accountability Regime.
Responsibility for the firm's performance of its obligations under the Fitness and Probity Regime (including certification).
Responsibility for embedding the conduct standards throughout the firm.
Responsibility for leading the development of the firm's culture (including conduct, by the Board as a whole), including the implementation of effective conflicts of interest policies and procedures in relation to consumer protection risk.
Responsibility for adopting the firm's culture in the day-to-day operation of the firm.
Responsibility for overseeing the development of, and embedding positive culture, consumer protection and conduct risk into, the firm's remuneration policies and practices.
Responsibility for ensuring that action is taken to prevent further harm or detriment to customers where the firm becomes aware that a decision or action taken or failure to act has caused harm or detriment to customers.
Responsibility to adequately consider the impact of key business initiatives and strategic decisions and to ensure that any necessary changes are made to such initiatives/decisions prior to their implementation to avoid any harm to customers.
Responsibility for safeguarding the independence of the internal audit function and for oversight of the function and the Head of Internal Audit.
Responsibility for safeguarding the independence of the compliance function and for oversight of the function and the Head of Compliance.
Responsibility for safeguarding the independence of the risk function and for oversight of the function and the Chief Risk Officer.
Responsibility for leading the development and monitoring implementation of effective policies and procedures for succession planning, induction, training and professional development of all members of the Board.
Responsibility for ensuring the independence, autonomy and effectiveness of the firm's policies and procedures on whistleblowing.
Responsibility for monitoring implementation of effective policies and procedures for succession planning, induction, training and professional development of staff.
Responsibility for developing and maintaining the firm's recovery plan, the accurate and timely reporting of all information required for recovery and resolution purposes, the implementation of measures necessary to achieve the operationalisation of recovery and resolution strategies, and for overseeing the internal processes regarding their governance, including the coordination of the entity's compliance in those respects.
Responsibility for managing the firm's internal stress-tests and ensuring the accuracy and timeliness of information provided to the Central Bank of Ireland for the purposes of stress-testing.
Responsibility for the Board's development and maintenance of the business model.
Responsibility for managing the calculation and maintenance of the firm's capital, funding and liquidity.
Responsibility for managing the firm's treasury management functions and associated risks.
Responsibility for ensuring accuracy, completeness and timely production and submission of the firm's financial reports and regulatory returns.
Responsibility for developing structures and mechanisms to oversee, monitor, and assess the appropriateness and performance of the firm's outsourcing framework including outsourcing arrangements and associated outsourcing risks.
Responsibility for managing the anti-money laundering/countering the financing of terrorism ('AML/CFT') function, including the development, implementation and oversight of a robust AML/CFT framework including effective systems and controls.
Responsibility for the firm's compliance with client asset requirements.
Responsibility for oversight and governance of the development, design and distribution of products, review of products and sale and post-sale arrangements to ensure fair customer outcomes.
Responsibility for the development and implementation of Information and Communication Technology (ICT) strategy; ensuring the efficient and secure operation of ICT systems; oversight of delivery of ICT projects; and management and development of ICT resources.
Responsibility for leading the development of a framework for and monitoring the implementation of the conduct requirements including ensuring accuracy, completeness and timely production and submission of the firm's conduct information.
Responsibility for developing an internal audit charter, developing a risk based audit plan with appropriate and timely actions and reporting taken in relation to audit findings.
Responsibility for managing the firm's approach to identifying, assessing and managing climate-related and environmental risks.
Responsibility for overseeing the adoption of the firm's policy on diversity and inclusion.

SOURCE: Central Bank of Ireland (2023b).

Table A.2

Sector or circumstance-specific responsibilities**Credit institutions**

Responsibility for overseeing the credit granting process for new, renewal and refinancing of existing credits, providing challenge in relation to all aspects of current and proposed credit risk exposures, providing comprehensive and timely information to senior management and credit committee on the firm's adherence to policies, guidelines, procedures and limits.

Circumstance-specific responsibilities

Where the firm carries out proprietary trading, responsibility for the firm's proprietary trading activities.

Where the firm does not have a CRO, responsibility for the compliance of the firm's risk management systems, policies and procedures.

Where the firm outsources its internal audit function, responsibility for taking reasonable steps to ensure that every person involved in the performance of that function is independent from the persons who perform external audit.

Where the firm has established a specific steering committee to address regulatory matters, responsibility for managing the operation of the committee and for providing comprehensive and timely reporting to senior management and to the Board.

SOURCE: Central Bank of Ireland (2023b).

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