FINANCIAL STABILITY REVIEW

Issue 47

Autumn
2024

BANCO DE ESPAÑA
Eurosistema

FINANCIAL STABILITY REVIEW AUTUMN 2024

Issue 47

https://doi.org/10.53479/38940

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 subject to an anonymous refereeing process. Anyone wishing to contact the Editorial Board may do so through this contact form.

Contents

ARTIFICIAL INTELLIGENCE IN THE FINANCIAL SYSTEM: IMPLICATIONS AND PROGRESS FROM A CENTRAL BANK PERSPECTIVE

Iván Balsategui, Sergio Gorjón and José Manuel Marqués

BANCO DE ESPAÑA

https://doi.org/10.53479/38942

The authors belong to the Financial Innovation and Market Infrastructures Department. They are grateful for the feedback from José Manuel Carbó Martínez, Andrés Alonso-Robisco and an anonymous referee. Contact form for comments.

ARTIFICIAL INTELLIGENCE IN THE FINANCIAL SYSTEM: IMPLICATIONS AND PROGRESS FROM A CENTRAL BANK PERSPECTIVE

Abstract

The adoption of the Artificial Intelligence Act by the European Union, together with the emergence of large language models (LLMs) based on foundation models, or, more generally, of generative artificial intelligence (GenAI), has attracted renewed interest, within and beyond the financial sector, in the opportunities and limitations of this technology as a driver of change in society. This article aims to provide the context for recent developments and put them into perspective, identify possible road maps within the financial system and also set out what could hold back or spur progress in the medium and long term.

Keywords: generative artificial intelligence, foundation models.

1 Introduction

Artificial intelligence (AI) essentially consists of developing systems that perform tasks typically requiring human skills. Although it has a long history, AI progress is now driven by the recent advances in computing power and a major shift in approach. Specifically, this technology has moved from rule-based models to probabilistic models. Unlike traditional econometrics, the latter do not impose a specific functional form on the origin of the data. Instead, they directly infer what the underlying patterns are, thus improving the ability to predict or make decisions about a given problem.

These developments, along with a reduction in the cost of processing and storing information and the growing digitalisation of all types of data, have led to an increase in the number of sectors and use cases for which AI now provides solutions. The financial sector has been no exception to this phenomenon having, in recent decades, explored the possibility of implementing them in multiple scenarios (e.g. credit risk assessment and analysis) and internal management processes (e.g. automation) (Alonso-Robisco and Carbó, 2022).

However, users in general, and the financial system in particular, face many challenges. In practice, these solutions involve moving from a controlled scenario, where the gradual and selective implementation of rule-based models predominated, to one in which all business areas find potential applications that they would like to deploy as soon as possible, especially with the advent of proposals for GenAI models. The need thus arises for a framework that considers the risk implications (including possible regulatory requirements), analyses and optimises the management of the necessary resources and, ultimately, considers the strategic implications that the widespread use of this technology entails (Alonso-Robisco and Carbó, 2021).

In applying this technology, authorities and central banks face the same dilemmas as the private sector, with the particularity that understanding the risks and the mechanisms to contain them is paramount given their potential impact on financial stability. In particular, a dichotomy arises between the benefits of AI being adopted speedily and how this could in itself be a source of market imbalances, for example, for credit markets. Specifically, to highlight only some of the most prominent dangers, extensive AI use without proper safeguards could easily lead to cyber concentration risks and risks stemming from herd behaviours, with the consequent increase in market correlations. Therefore, when incorporating AI to comply with their respective obligations, a road map that takes into account and measures these implications must be defined, prioritising the areas where the impact is greater. For instance, there is a clearer need for AI to be adopted in the short term in fields such as the prevention of money laundering and financing of terrorism and the prevention or detection of cyber risks.

In addition, it is in the interest of central banks to be mindful of the impact that the widespread adoption of AI will ultimately have on issues such as the labour market, productivity and the degree of social inequality. To date, the preliminary analyses of this impact vary considerably. Some authors, such as Acemoglu (2024), consider the effect to be very modest, while others have arrived at the opposite conclusion (Cazzaniga, Pizzinelli, Rockal and Mendes, 2024). There is thus a wide range of possible outcomes, as shown in Aldasoro, Gambacorta, Korinek, Shreeti and Stein (2024), who propose analysing the effects using specific scenarios, and conclude that AI regulation must adapt as technological changes take form in the real economy.

This article does not address the latter aspects, but focuses specifically on the direct impact that AI has on the financial sector. After describing the changes that have taken place in the use of algorithms, it identifies the main activities where AI could have a significant impact and goes on to discuss the main risks posed and the responses that are being proposed by both regulators and sectoral authorities in general.

2 The world of AI in a nutshell[1]

Throughout its history, AI has seen periods of intense activity and progress combined with times of stagnation and even neglect (AI winters). As early as 1842, the mathematician and computer science pioneer Ada Lovelace could see that computers would go far beyond mere numerical processing (Carlucci Aiello, 2016). Later, Alan Turing would publish an article[2] in which he considered whether machines would be able to think or imitate the behaviour of the human mind. That was when the famous test of a machine's ability to convince a person that they are interacting with a human being was developed.[3] It was not until 2014 that a computer programme, the chatbot Eugene Goostman, managed to pass this test (Warwick and Shah, 2016).

1 For a more detailed analysis, see Nayak and Walton (2024).

2 "Computing Machinery and Intelligence" (1950).

3 The Turing test.

Notwithstanding the above, the term "artificial intelligence" was first coined at the 1956 Dartmouth Conference to describe the science and engineering of making intelligent machines[4] (Moor, 2006). The concept was thus formally established, launching a new field of scientific study and trailblazing a first golden era that lasted until 1974.[5] The contrast between the inflated expectations about its possibilities and the practical limitations of the technology[6] led to the first winter, which was followed by a new boom (1980-1987).

The latter period was particularly fruitful with, among other things, the arrival of expert systems that, based on the explicit programming of "if-then" statements, were able to capture knowledge in certain subjects in order to be able to make informed decisions.[7] It also represented a new paradigm in the training of neural networks for probabilistic models, where they were able to minimise errors from learning training data, driving the resurgence of deep learning research.

The late 20th century and early 21st century saw significant new developments in AI, largely driven by an increase in computing power, more sophisticated machine learning algorithms and greater data availability to improve the training of models.[8] Lastly, the foundations of generative AI were laid in 2017, with the creation of a new neural network architecture (transformers) based on an "attention" mechanism (Vaswani et al., 2017), which afforded these algorithms renewed potential. This is based on models trained with a large set of heterogeneous data that, as a result, become capable of performing a variety of general tasks (foundation models), for example, the case of GPT (Generative Pre-trained Transformer), which can understand natural language. These models are subsequently used to train the algorithms that autonomously generate text, images or videos in response to questions made by the user through a prompt.[9]

The transition described above shows AI evolving from the use of analytical approaches towards generative models or, in other words, from applying logical rules and more specific programming to mirror human intelligence (symbolic AI) to trying to mimic the way the human brain works at a more structural level (connectionist AI) (see Figure 1). A clear example of this,

---

4 The conference was organised by a group of computer scientists of the day, the original idea for which is attributed to John McCarthy.

5 Notable research in this period includes the Perceptron, one of the first neural networks capable of recognising image and text patterns, developed by the psychologist Frank Rosenblatt in 1957, and ELIZA, the first-ever chatbot, invented by Joseph Weizenbaum between 1964 and 1966.

6 For instance, during the Cold War, it was thought that AI would be able to produce machine translations, but this was not the case. Similarly, the results of the experiments conducted on neural networks fell short of expectations.

7 They were very popular at the time and, as we will see later, they are at the core of what would come to be known as symbolic AI.

8 Some illustrative examples are the creation of IBM's Deepblue chess programme, which beat chess champion Gary Kasparov in 1997; the presentation of IBM's Watson system, which could respond to questions in natural language and outperformed contestants on the popular American quiz show Jeopardy!, or the launch of AlphaGo in 2016, which beat the world's top Go player Lee Seedol using deep neural networks and reinforcement learning techniques, in a historic five-game match.

9 One of the milestones that has undoubtedly contributed to this new GenAI hype dates back to 2022, when the company OpenAI launched ChatGPT, an AI chatbot (far superior to the ELIZA chatbot of 1966) based on the GPT foundation model, which has become the fastest growing web app in history. In just two months it reached more than one hundred million active users, a figure that other types of technologies such as TikTok took nine months to attain (or up to two and a half years, in the case of Instagram).

Figure 1
Types of AI

Depending on the degree of development of the models, the generality of the algorithms developed and the ability of AI to outperform human reasoning in all facets of life, AI can be classified into three different types:

01

Weak or narrow AI

The models are designed to perform **a single task** in the best way possible.

A form of AI specifically designed to focus on a single specific task. For example, in facial and image recognition systems, chatbots and conversational assistants (Google Assistant, Siri, Alexa), autonomous vehicles, predictive models, recommendation engines, game simulators (chess, Go, etc.).

02

Strong or general AI

Still being developed… the AI system could equal or even surpass human intelligence in **many cognitive tasks.**

This type of AI would be able to adapt to and understand new contexts without specific programming, that is, the system would learn from itself. To do this, it would have to embed skills such as reasoning, machine learning, understanding natural language and problem solving in multiple domains.

This is the type of AI that is currently being worked on for the future.

03

Artificial Superintelligence

When AI vastly outperforms human intelligence, it could **evolve** and make decisions **autonomously** without human oversight.

If models achieve general or strong AI, this intelligence could be multiplied exponentially through its own self-directed learning, in a process known as **recursive self-improvement,** which would continuously improve AI at an unattainable speed for humans.

Perhaps we would then have reached the point that scientists call **"the singularity"**, i.e. when AI outperforms human intelligence.

SOURCE: European Commission (2024).

within the financial system, is the use of symbolic AI models by marketing departments to determine aspects such as bank customers' propensity to purchase certain financial assets based on their banking history, or anticipating the loss of bank customers in order to take preventive measures (churning). The financial system is also using connectionist AI systems to employ models that better detect fraud in the areas of compliance and fraud, to develop chatbots as internal support tools for the management of customer portfolios by sales department staff, and to have generative models that boost efficiency in software engineering when writing and documenting code or writing test cases, among other uses.

3 The opportunities of artificial intelligence for the financial system: a snapshot

In recent years (especially following the outbreak of the pandemic and the resulting transition to a new digital scenario), AI has gradually taken hold as an important pillar of the financial sector's value chain.[10] The use of AI varies geographically and across institutions but has always been linked to the specific nature of the banking business, very much centred on data exploitation and analysis.

In the case of the financial system, in addition to the technological factors described in the previous section, certain idiosyncratic elements have played an important role, such as the steady narrowing of profit margins and the consequent need to find new sources of efficiencies and income or the competition from fintechs (Boukherouaa et al., 2021).

Similarly, the emergence of GenAI foundation models has given renewed impetus to the adoption of tools that provide affordable access to pre-trained models with a broader purpose,[11] and also enable user-machine interaction formulas based on natural language rather than on mastering the notions of programming.

As has happened in other sectors, there are many and diverse reasons for the interest that AI has elicited among financial institutions, mainly associated with the promise of productivity gains, lower operating costs and enhancing the quality and safety of products, services and processes. In the same vein, the appetite shown by these players has much to do with the potential for optimising returns on investments, raising customer satisfaction rates and boosting the levels of financial inclusion (Fernández, 2019). Here, AI cannot only help complement credit assessment where other, traditional methods have limitations, but can also be harnessed to increase banking penetration levels, insofar as it can provide assistance to carry out formal procedures or select the most appropriate service providers for each case, aspects that, along with the costs involved, are often the main obstacles to access.

In this setting, banks' use of machine learning tools is particularly notable on the following fronts, to name a few:

— To facilitate compliance with banking regulations (for example, statistical reports, prevention of money laundering or terrorist financing), helping to minimise errors thanks to workflow automation, meet deadlines for submission, and provide better quality, clearer, more granular and precise information.

10 In fact, the European Banking Authority estimated that almost 80% of the region's banks reported using AI tools proactively for different purposes in 2022. This figure was over 98% for institutions that were considering the use of AI or were in the early stages of AI development (European Banking Authority, 2023). However, other sources based on quantitative indicators point to still-low adoption rates.

11 This leads to significant savings in terms of the investment required to develop and adapt the models internally, the costs associated with training them and the estimated time-to-market to successfully complete their effective implementation.

— To optimise, more generally, the internal business processes with a view to cutting costs, either by reducing the number of manual tasks and freeing up resources for other activities, or by improving staff performance through the provision of informed assistance for the processes they manage (e.g. advisory services to customers).

— To contribute to more effective and diligent control of banking risks, both from an operational (e.g. early detection of and response to potential fraud or mistakes) and financial standpoint (e.g. assessment and monitoring of solvency and probability of default or prediction of cash flows)[12] and in terms of cyber security (e.g. reducing false positive rates and identifying non-trivial anomalies or correlations).

— To boost analytical and predictive power in relation to market events in order to maximise investment returns amid uncertain volatility. These tools enable more accurate and robust estimates based on unstructured data from non-traditional sources and incorporate real-time information to generate knowledge that enables dynamic decision-making.[13]

— To enhance user experience, including the marketing and customisation of products and services to attain higher levels of customer satisfaction and retention, and speeding up of pre- and post-sale processes and expanding general access to banking services through the automation of certain interaction channels (chatbots).

Despite the apparent breadth of uses, the initiatives currently in production are mostly centred on back-office and middle-office functions. This is a logical decision is informed by the intention to contain potential risks associated with shortcomings in or disputes over the use of this technology with end-customers (Aldasoro, Gambacorta, Korinek, Shreeti and Stein, 2024), in an environment in which the regulatory framework for using these techniques has not yet been consolidated and fully implemented.

Central banks and sectoral authorities have also shown a clear desire to adopt AI tools with a view to better performing their functions.[14] In addition, they are interested in exploring, through first-hand experience, the inherent opportunities and risks to be better placed to understand and assess the real impact of these tools on the financial sector.

12 Potential gains include reducing potential losses (Khandani, Kim and Lo, 2010), the optimisation of capital (Fraisse and Laporte, 2022), automating decision-making (Owolabi, Uche, Adeniken, Ihejirika, Bin Islam and Chhetri, 2024) and increasing turnover by expanding the base of approved credit applications (Sadok, Sakka and Maknouzi, 2022).

13 By way of example, GenAI is capable of strengthening price discovery mechanisms or lowering the barriers to entry to less liquid markets, such as corporate debt or emerging markets.

14 Both in their traditional roles (microprudential and macroprudential supervision, conduct supervision, oversight of payment systems or economic analysis) and in newly emerging roles, such as financial innovation, financial inclusion and environmental protection (Carstens, 2019).

Against this backdrop, the ongoing access to large amounts of complex and granular information, combined with the increase in the technological resources available to them (Cipollone, 2024), and the attainment of other strategic goals,[15] have all been key drivers in this transformation. Hence, areas such as statistics, macroeconomic analysis, oversight of payment systems and supervision are precisely those that have seen the most significant progress (Araujo, Doerr, Gambacorta and Tissot, 2024).

Starting with the latter, the benefits of AI will materialise insofar as, in a context marked by changing risks and more heterogeneous banking service providers, these tools truly serve to boost the effectiveness of actions aimed at monitoring the soundness, solvency and conduct of financial institutions to serve the objective of safeguarding the stability of the entire system (Beerman, Prenio and Zamil, 2021). Thus, the early detection of latent risks by capturing the hidden anomalies/signals in the reported data or greater accuracy when simulating and identifying the consequences of adverse scenarios (stress testing) are inherent advantages that all these authorities agree should be investigated.

Similarly, this greater analytical capacity benefits modelling activities aimed at determining the nature, scale and potential impact of structural imbalances on the economy, thanks, in particular, to its effectiveness in identifying non-linear relationships (Hellwig, 2021). Specifically, AI helps to more accurately establish the patterns that may underlie the relationships between variables without, however, inferring their causality,[16] and, hence, to construct more sophisticated and representative models of agents' behaviour (Atashbar and Shi, 2023). The exploitation of granular, unstructured[17] and continuously accessible data is essential for the production of useful economic indicators that enable public policies to be deployed when they will be most effective (Doerr, Gambacorta and Serena-Garralda, 2021).

In the same vein, AI creates the conditions for strengthening the monitoring of payment circuits, supporting the search for unexpected patterns in transactions in order to be able to warn of the presence of fraudulent or unlawful activity or to anticipate liquidity or operational problems whether at the level of individual banks or in the system as a whole (Rubio, Barucca, Gage, Arroyo and Morales-Resendiz, 2020). Although their implementation is as yet limited, these models make it easier to identify the channels through which systemic shocks can be transmitted, thus helping to counter their potential effects by accelerating the response measures and targeting the heart of the problem.

---

15 For instance, the Banco de España's Strategic Plan 2020-2024 specifically included as one of its priorities the promotion of technological innovation with a view to modernising the institution, focusing especially on advancing the digital transformation, integrated information management and managing cyber security risk. Developing and rolling out suptech tools was just one of the actions launched for this purpose.

16 Particularly in non-linear cases, as shown in Bahrammirzaee (2010).

17 For instance, the use of web scraping techniques to collect information about prices, the exploitation of satellite data to proxy economic activity or the analysis of non-economic microdata shared daily by firms and individuals on social media (Shabsigh and Boukherouaa, 2023).

Enhancing the quality and functionality of data is another area in which AI's differential value is clear. This has become increasingly important as the volume, detail, complexity and frequency of information has grown, favouring the implementation of automatic validation processes to detect errors, outliers or significant omissions (Araujo, Bruno, Marcucci, Schmidt and Tissot, 2022). In addition to identifying information gaps, these tools can be used to try to remedy the negative effects linked to the information gathering process itself, such as the shortcomings associated with small data samples.[18] By combining different techniques, machine learning enables the cleansing, imputation and modelling of missing data, including their interpolation. This improves the models' robustness and potentially prevents the "overfitting" that may arise in the training phase (Rebuffi, Gowal, Calian, Stimberg, Wiles and Mann, 2021).

Lastly, AI has a great deal of scope for enhancing the effectiveness of central banks' interactions with the general public. This includes, for example, adapting their communication strategies, paying attention to the language and content used (Bholat, Broughton, Parker, Ter Meer and Walczak, 2018), broadening their scope thanks to the machine translation opportunities provided by recent developments (Cipollone, 2024) and simplifying the legislation they are responsible for drafting (Moreno, Gorjón and Hernáez, 2021).

As regards the deployment of solutions based on GenAI models, a different scenario emerges, given that the scope, potential and implementation of GenAI, as we have mentioned earlier, require a strategic approach and a greater degree of coordination, while managing the challenges and risks described in the following section. Current developments are mostly limited to tests or pilots, and their application is confined to internal use cases, aimed at improving business processes. In general, these tools are used in isolated environments for reasons of security and protection of sensitive data, and their role is limited to that of virtual assistants, seeking to enhance human decision-making capacity (Organisation for Economic Co-operation and Development, 2019).

Other examples include the automated generation of programming code, as well as the testing and debugging of existing ones. Similarly, there are, at present, a large number of initiatives in the areas of text summarisation and machine translation.

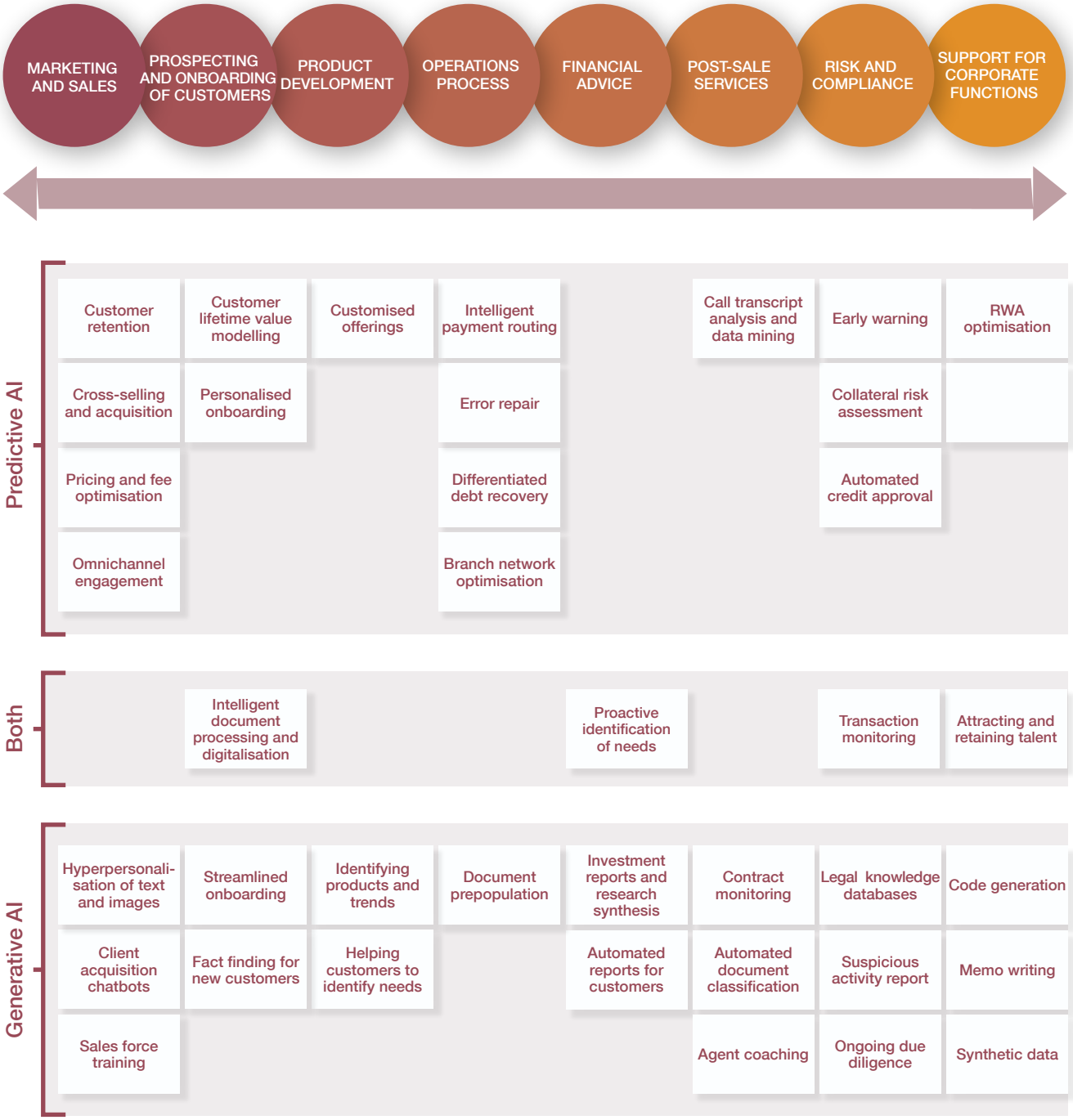
Finally, more and more institutions are capitalising on these tools to transcribe and analyse conversations with customers in real time and assist managers in resolving incidents or marketing more customised products and services. Nonetheless, GenAI's potential goes much further and, once key governance and data management-related issues have been addressed, its influence will in all likelihood increase and spread to other areas rapidly (see Figure 2).

In this connection, initiatives aimed at optimising marketing and sales efforts have already been documented, both at the level of communication and the design of the commercial

18 Bias and noise, among others.

Figure 2

Areas to which IA can be applied in the financial sector



SOURCE: Devised by authors drawing on Riemer et al. (2023).

offering. The idea is to tailor both aspects to individual customer experiences. Likewise, improving the capacity to identify possible fraud or unlawful activity is increasingly accompanied by the automatic completion of the associated reports. That said, in the future, front office is where it could make most difference, provided its interactions become indistinguishable from human ones.

4 Most significant risks and barriers

As already mentioned in Section 2 above, 2022 marked a turning point in the resurgence of GenAI. Since then, a number of LLMs have been launched, including ChatGPT3, ChatGPT4, Claude, Gemini, Llama or Mistral, with advanced capabilities in natural language processing (NLP), text and image generation and, ultimately, creative content.

The impact that this modern technology could have soon became apparent despite it still being in its infancy. The race for companies to offer a competitive edge with this type of solution should be accompanied by management of the inherent risks. In the United States, the National Institute of Standards and Technology published its *AI Risk Management Framework* (AI RMF 1.0) as early as 2023, to help companies efficiently manage such risks.

An article by Gartner, published in 2023, on the requirements for using AI safely and effectively, highlights that: "By 2026, organizations that operationalize AI transparency, trust and security will see their AI models achieve a 50% improvement in terms of adoption, business goals and user acceptance."

Although more traditional AI models may present challenges in this direction (Alonso-Robisco and Carbó, 2022), and given the novelty and potential scope of GenAI, we will focus in this section on the specific risks its use entails. Specifically, the different types of potential problems posed by GenAI notably include:

- *Accuracy of model output:* according to an article published by McKinsey in May 2024, entitled "The state of AI in early 2024: Gen AI adoption spikes and starts to generate value", the main risk that organisations encounter when using GenAI models is their lack of accuracy. What happens when a GenAI system generates text, images and other output that are inaccurate, incorrect, misleading or inappropriate? This may be due to the poor quality of the data used to train the model, or even to the configuration of the system itself or the inherent lack of explainability of some GenAI models, all of which can lead to the wrong decisions, with the implications this could have for an organisation's business process.[19] To mitigate these situations, it is especially important to have sandboxes or frameworks to check that the two most significant components of any GenAI system function correctly: that which provides context information (retriever) and that which processes and generates the response (generator).

- *Model hallucinations:* this phenomenon occurs when a model generates information that appears to be plausible, but which is in fact made-up and not based on the information drawn from the model's training data. Owing to their nature, LLMs will

19 By way of example, worth noting is the case of Hong Kong business tycoon Li Kin-kan, who in 2017 lost up to 20 million dollars a day through a trading bot called K1, due to the decisions that the GenAI model generated based on various sources of information and which it subsequently transferred to market operations. The tycoon sued the London-based investment firm Tyndaris Investment, which marketed this smart trading bot.

Figure 3
Strategies to reduce LLM hallucinations

Three strategies can be applied to reduce the risk of hallucinations in LLM outputs. The most straightforward strategy is prompt engineering ("P"), followed by retrieval augmented generation (RAG) ("R"), and the most complex, fine-tuning ("F") of the model itself.

SOURCE: Devised by authors.

always return a text sequence unless explicitly told otherwise. There are three complementary strategies to avoid these hallucinations: prompt construction engineering techniques to communicate with the model, using techniques such as Retrieval Augmented Generation (RAG) and/or carrying out a process of calibration or fine-tuning of the model itself. All three have their pros and cons (see Figure 3).

— *Data privacy:* Here, the following situations should be addressed:

- GenAI is essentially driven by an ever-expanding amount of available data in an increasingly digitalised world. The problem is that some of the information used to

train the models could contain personally identifiable information (PII). As a result, simply using such data to train models or including them in the output could disclose confidential information about individuals and lead to a breach of privacy and possible misuse. Today, different solutions and techniques to mitigate this risk are available on the market.[20]

- In addition, a technique called "membership inference attack", used to attack LLMs, can reveal the original data used to train the AI models (including personal information) without having information about the architecture of the model or the parameters that have been used within the model itself, which could lead to a breach of data privacy (Shokri et al., 2017).

- Moreover, when a user of these public GenAI models writes or pastes confidential information in a prompt mistakenly, negligently or intentionally, this information automatically becomes available to the creator/manager of these models and, potentially, to other users.[21]

— *Copyright, intellectual property:* as mentioned above, GenAI models are trained using huge volumes of data. These data could potentially include copyright protected material, which would entail complying with the copyright legislation in force in order to use such data. If the owner of the GenAI model fails to do so, they would be infringing intellectual property rights. The creation of new content that very closely resembles existing works could open the door to legal disputes over its originality and ownership in the event of possible plagiarism.[22]

— *Biased results:* most GenAI models are mainly trained on data of more than questionable quality from the internet. It is important to stress that a GenAI model can produce biased results, generally because of bias found in the training data. As a first step towards mitigating this issue, companies should prioritise the use of high-quality reliable data sources when training their GenAI models, avoiding to the extent possible datasets that might include racist[23] or sexist approaches. In addition, the opacity of GenAI models does not exactly help to mitigate this risk. However, fields such as explainable AI (XAI) that address a model's interpretability and explainability have emerged (Arrieta et al., 2019).

---

20 Google, for example, has a data loss prevention solution to ensure that all PII is automatically identified and anonymised before training the models. In addition, techniques such as differential privacy, homomorphic encryption, secure multi-party computation or federated learning can be used to protect privacy when using AI models. Another concept that is currently being used to protect privacy is the data privacy vault, e.g. the Protecto Vault service provided by the firm AI Protecto, which uses tokenisation.

21 In 2023 a Samsung engineer uploaded sensitive internal code to ChatGPT, automatically leading to a disclosure of confidential information to third parties, with the consequent reputational impact on the company.

22 A clear example is the legal action brought by *The New York Daily News, The Denver Post* and *The Chicago Tribune* against OpenAI and Microsoft for copyright infringement.

23 For example, in 2015 Amazon's software developer recruitment model, which was trained on biased data, assigned a greater weight to men's CVs, skewing the model's final results.

— *Model security:* GenAI models can be used for a wide range of security applications. While the first thought that springs to mind is these models being used to buttress organisations' current defences, it is also true that hackers can use them to make their attacks on third-party infrastructure more sophisticated. The most relevant security risks are summarised below:

  - Phishing attacks on users have become exponentially more sophisticated as a result of GenAI being used to improve the quality of the drafting (tone, style, format) and content of the texts of malicious emails sent to third parties. GenAI models more than make up for poor grammar or drafting, meaning that it is increasingly difficult to distinguish between a legitimate and a bogus email. In addition, attackers can use GenAI to write, develop, fine-tune and overhaul malware capable of bypassing traditional security measures.

  - Given that GenAI systems generally comprise a variety of different data sources, application programming interfaces and other systems, and since integration tends to be complex, the attack surface can be larger and create vulnerabilities that attackers can capitalise on to access a company's confidential information. The OWASP Top 10 for Large Language Model Applications, a list of recommendations that organisations can take into account to minimise this attack risk, are especially important (see Figure 4).

  - Deepfakes are another interesting case. Current GenAI models are clearly capable of generating manipulated images and videos, voice cloning and all manner of hyperrealistic content that can be very hard to distinguish from real content, which could cause incorrect information to be shared intentionally and even to influence public opinion.[24] These issues raise ethical concerns that should be considered in all GenAI model risk governance processes.

  - It should be borne in mind that, irrespective of the possible external attacks that these types of models might suffer, care should also be taken with internal security systems to avoid employees using data exfiltration techniques to "extract" information from the organisation for their own gain (e.g. by using prompt injection).

  - Another point to be considered is assessing how and with what data LLMs have been trained, thereby avoiding "backdoors" that could be used to provide an attacker with unrestricted illegal access to systems where LLMs are stored.

— *Third party conformity:* when designing a GenAI model that manages above all confidential information and is deployed in the infrastructure of an external AI service provider, it is key that such provider have compliance certificates to at least provide

24 For example, in 2024 US President Joe Biden's voice was used in fake robocalls to discourage voting in the New Hampshire primaries.

Figure 4
Main vulnerabilities of LLM use

LLM01:
Prompt injection
When an attacker manipulates an LLM through crafted inputs, causing the LLM to unknowingly execute the attacker's intentions.

LLM02:
Insecure output handling
Refers specifically to insufficient validation of the outputs generated by LLMs before they are passed downstream to other components and systems.

LLM03:
Training data poisoning
Manipulation of training data to embed attack vectors (backdoors, etc.) or false information.

LLM04:
Model denial of service
A user manages to cause a decline in the quality of the service or crash it by increasing the resources consumed.

LLM05:
Supply chain vulnerabilities
Vulnerabilities within all model construction, training and deployment processes.

LLM06:
Sensitive information disclosure
Vulnerability resulting in unauthorised access to sensitive data, intellectual property and privacy violations.

LLM07:
Insecure plugin design
Vulnerabilities found when LLMs use insecure third-party plugins.

LLM08:
Excessive agency
Vulnerabilities that exist because the model or the agents the model uses have excessive functionality, excessive permissions or excessive autonomy.

LLM09:
Overreliance
Vulnerabilities that occur when an LLM hallucinates if the LLMs are not cross-checked against reliable sources.

LLM010:
Model theft
Intellectual property vulnerability that occurs when an LLM has been "copied" unlawfully, extracting data from the training parameters to simulate the workings of the original LLM.

SOURCE: OWASP (2023).

assurance that, a priori, they are not in breach of any compliance or data protection rules and that the possible uses of the GenAI models do not serve to retrain them.

— *Cost of experience and computing:* when developing, using and maintaining GenAI models it should be borne in mind that these systems require specialised hardware, typically cloud services, which can be costly. In addition, given that it is a "relatively new" technology, profiles such as data scientists, machine learning engineers and prompt engineers demand higher salaries. If we also factor in that such profiles are quite thin on the ground, there are significant barriers to entry for many organisations.

There is no doubt that there are inherent risks in developing and using any emerging and disruptive technology, as is the case of GenAI. This means that companies must identify, assess and mitigate in advance, in order to be aligned with each of the above-mentioned aspects.

Further, the main technical challenges should also be considered in order to implement AI effectively in organisations.

Prior to the resurgence of GenAI, when organisations were undertaking machine learning projects, they followed the MLOps paradigm to improve processes in which machine learning-based software was developed, implemented and monitored. In this work environment, data scientists, machine learning model engineers, data engineers and experts in development, continuous integration, security and privacy work together, from defining data quality processes to model training, the roll-out in central repositories and the launch of systems.

However, with the arrival of GenAI the MLOps concept itself has evolved, and a new term – LLMOps, focused mainly on the management, implementation and maintenance of LLMs – has been coined. Due to their complexity and resource requirements, LLMs pose unique Ops challenges, such as selecting foundation models, prompting, benchmarking the models' results under a new system of indicators different from those used in machine learning, fine-tuning processes, model governance and observability, among others.

Undoubtedly, all these new paradigms that organisations have to implement do nothing but add to the list of complex tasks to integrate LLMs into their proprietary systems. This is compounded by the new computing needs, not just to train the models, but also to implement them either on-site or through cloud providers, which will certainly be key to the organisation successfully deploying them internally and externally.

5 Public and regulatory policy responses: some considerations

Considering the above-mentioned risks, and AI's potential impact on society, it should come as no surprise that the authorities have started to develop a public policy and regulatory framework geared to mitigating them. Both at national and at international level, many of the

Table 1
Notable aspects of the main regional regulatory initiatives

Europe	United States	Asia
Cross-cutting European regulation applicable both to providers of AI systems susceptible of being used in the EU (irrespective of where they come from) and to their respective users It establishes requirements (or, where appropriate, prohibitions) for AI systems that are proportionate to the risk posed by their intended use (specific technologies are not regulated) Obligations to which providers are subject include quality management systems, the preparation of technical documentation, record-keeping and conformity assessments Obligations to which users are subject include adequate human oversight, reporting serious incidents and malfunctioning and compliance with other legal requirements such as those under the General Data Protection Regulation	The National Artificial Intelligence Initiative Office was established in 2020 There is still no federal law regulating, prohibiting or restricting the development and use of AI Instead different types of legal acts have been enacted in different areas that address specific matters related to the application of AI The White House has launched some measures, with particular focus on matters such as access and fair use of AI systems or the development of foundation models and matters related to security The debate continues over legislative initiatives that address, for example, automated decision-making systems (transparency, right to not participate, non-discrimination), consider the possibility of requiring certain service providers to be licensed or protect intellectual property	Singapore has an AI governance framework that fosters explainability, transparency, fairness and the safeguarding of civil rights It has also issued guidelines on the use of personal data by AI In addition, it is finalising a set of recommendations on GenAI to create a trustworthy ecosystem The Monetary Authority of Singapore is developing a framework to manage GenAI risks in the financial system China has adopted rules aimed at specific technologies that address different types of AI risks There are provisions regulating the use of recommendation algorithms, banning them for minors and giving users the option to opt out Other provisions regulate the providers and users of deep synthesis-capable technologies (labelling content created using such technologies and restricting certain applications) Rules on GenAI have recently been enacted that protect intellectual property rights and require that measures be applied to ensure data quality, accuracy and reliability

SOURCE: Devised by authors.

measures are general in nature, and by extension therefore affect the financial system. However, for the time being, there are not many specific regulations for this sector. While there are differences in both the detail and the level of requirements, all these initiatives reflect common goals and ultimately aim to ensure that this technology is rolled out in as orderly a manner as possible (see Table 1).

One of the first focal points is the ethics of AI or, in other words, providing a framework that enables responsible ecosystems to be built to ensure that AI's outcomes are fair, inclusive, sustainable and non-discriminatory (United Nations Educational, Scientific and Cultural Organization, 2021). To this end, one of the major international benchmarks is the OECD's 2019 Recommendation,[25] which in turn gave rise to the G20 AI Principles. Its aim has been to provide a specific global standard, supplementing other more general standards equally applicable to this field,[26] that could inform the corresponding actions of the national authorities.

25 Since then the Recommendation has undergone several revisions to facilitate its implementation and incorporate the technical and policy changes that have taken place, such as those stemming from the eruption of GenAI, to thereby ensure it remains valid.

26 Mainly privacy and data protection, digital information security and conduct.

The OECD Recommendation is implemented through a set of principles that aim to facilitate the implementation of national policies and foster cross-border cooperation.[27] The G20 AI Principles encourage investment in the research and development of an open science that fosters knowledge and information sharing. They also advocate for the creation of a governance framework and public policies that spur innovation and help the transition to the deployment stage. Governments are also expected to pay special attention to workforce retraining and foster interdisciplinary dialogue, both domestically and across borders, to reach major agreements.

The universality of these premises has meant they have been echoed in numerous initiatives, such as the EU's Ethics guidelines for trustworthy AI or, subsequently, in the EU's Artificial Intelligence Act. Something similar can be said for other countries at the forefront of this field, such as the United States,[28] China,[29] Japan[30] and the United Kingdom,[31] to name a few. Despite their differing approaches, they all acknowledge the importance of holding an open dialogue that fosters cooperation and promotes adjusting the practical requirements to the actual level of risk of each specific application of AI.

Against this backdrop, Singapore has blazed a trail by reinterpreting the Recommendation to facilitate its application to the financial sector, which now has some specific principles.[32] This appears to be the route preferred by financial sector operators demanding specific criteria that provide them with the necessary assurance about the validity of the implementations to be made.

Another of the key components of the emerging public policy framework for AI is the above-mentioned Artificial Intelligence Act. With this initiative, Europe is stealing a march on other countries in terms of regulating potential AI uses in order to strengthen its open strategic autonomy in the development of the digital market and, above all, safeguard social well-being. To do so, it is adopting a human rights-based approach consistent with the region's values (Calderaro and Blumfelde, 2022).

The AI Act is cross-cutting and affects both the providers of AI systems that could be used in the EU (irrespective of where they come from) and their respective users. Its definition of AI is

27 These include dimensions such as those related to AI contributing to improved social well-being, the transparency of AI systems for users and ensuring AI system robustness.

28 Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (2023). Further, starting with the 2022 Algorithmic Accountability Act, the US Congress appears to be outlining a definitive roadmap that could lay the foundations for a joint effort that helps shape a regulatory package on specific AI matters.

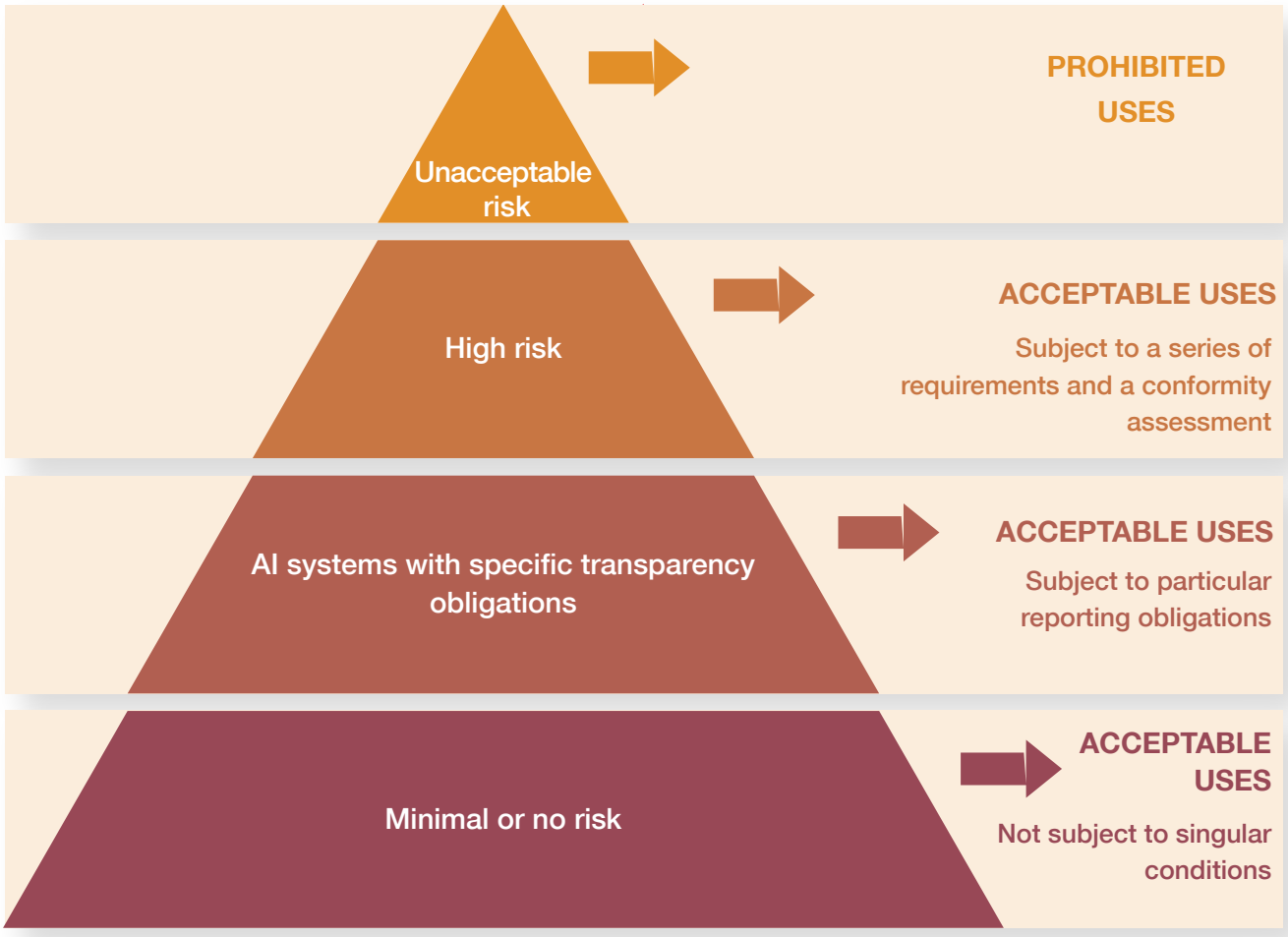
29 Characterised by a gradual roll-out of laws focused on specific aspects of AI use, which, in each area, address ethics-related facets. Of note are the 2021 regulation on recommendation algorithms, the 2023 regulation on deep synthesis – to prevent deepfakes – and the 2023 law on generative AI. This set of regulatory initiatives was based, among others, on the 2019 general governance framework that laid the foundations for the principles applicable to a new generation of responsible AI (Sheehan, 2023).

30 Social Principles of Human-Centric AI (2019).

31 Ethics, Transparency and Accountability Framework for Automated Decision-Making (2023).

32 Principles to Promote Fairness, Ethics, Accountability and Transparency (FEAT) in the Use of Artificial Intelligence and Data Analytics in Singapore's Financial Sector.

Figure 5
Types of AI risks in the AI Act



SOURCE: European Commission (2024).

quite broad to thus accommodate developments such as foundation models.[33] The AI Act also establishes levels of risk based on the intended use of these tools, enabling the identification of a series of categories on which proportionate obligations are placed (see Figure 5).[34]

Turning to the financial system, high-risk AI systems and, in particular, those related to biometric identification[35] and credit scoring,[36] are particularly important. These, like any other in this category, will undergo a conformity assessment and be subject to certain particular requirements.

33 During negotiations over the regulation this was subject to some debate because of the possibility of such a broad definition also including more traditional inference models. However, finally, there seems to be a consensus that this is not the case.

34 Potentially abusive uses of AI, e.g. those that can distort human behaviour or lead to discriminatory outcomes, are prohibited.

35 Without prejudice to the foregoing, biometric identification will remain subject to the General Data Protection Regulation (Regulation (EU) 2016/679) and the Law Enforcement Directive (Directive (EU) 2016/680).

36 Risk assessment and pricing in the insurance sector are other affected areas.

Among other key aspects, the above-mentioned systems must guarantee: i) the deployment of specific risk management policies; ii) the implementation of a training and testing data management and governance model that is robust; iii) the preparation of technical documentation that provides sufficient evidence of compliance with requirements; iv) the transparency and traceability of decisions; and v) their appropriate supervision by ensuring human intervention. Further, the specific transparency risk systems must inform the user that they are interacting with a bot and not a person.

Although the principles underpinning the AI Act establish the general playing field, the secondary legislation will be tasked with clarifying its more practical aspects. This, combined with how effective the established mechanisms for coordinating the different supervisory authorities are, will without doubt be key to ensuring that the AI Act is implemented with the utmost consistency, that it avoids unnecessary frictions with the existing sectoral legislation and that it provides enough flexibility to enable the development of a technology still largely considered to be in its infancy.

The Ministry of Digital Transformation and the Civil Service's regulatory sandbox pilot project, which seeks to provide guidelines and best practices to facilitate the optimal application of the AI Act, is expected to contribute to achieving this same objective. Despite the AI Act's above-mentioned cross-cutting nature, various use cases exist that affect the financial system in particular. In this respect, it should be noted that the European Commission recently launched a public consultation on AI in the financial sector, to provide guidance to the financial sector for the implementation of the AI Act, given its connections with other legislation, such as that related to outsourcing and operational risk control.

Lastly, the varying approaches followed by each international jurisdiction are viewed as a potential source of fragmentation in an industry that, by its very nature, is not bound by borders. Therefore, initiatives seeking to advance coordinated efforts, like the recent agreement between the OECD and the Global Partnership on Artificial Intelligence, are on the rise.

6 Conclusions

Tech firms aside, the financial industry is perhaps the sector that, most broadly and profoundly, is harnessing the huge opportunities offered by AI. As part of the roadmap designed to transform information into knowledge and knowledge into intelligence, institutions are rapidly shifting from more traditional techniques, based on analytical approaches, to others that replicate human behaviour at a more structural level. Consequently, at present, these tools are expected to be able to address increasingly complex problems.

In this regard, AI is currently one of the drivers behind institutions being able to meet their most typical goals (e.g. productivity gains, better efficiency, lower costs and higher quality or safer products and services). In particular, with regard to the latter, deploying these tools to combat fraud or cyber threats is a matter of urgency, as the number of criminals using these

same techniques to make significant ill-gotten gains is on the rise. In addition, a new generation of GenAI-based tools is gradually making its way. These tools are having a significant impact and could modify not only internal processes but also how organisations interact with customers and employees.

This scenario opens the door to the development and exploitation of complementary sources of income and offers new ways of maximising operating profits in a changing environment. However, seeing as institutions are deploying these new tools cautiously, with internal processes and applications largely the focus, it is still hard to gauge how important this contribution will be. As legislative changes take hold and are implemented, the impact is expected to be much more disruptive.

Similarly, financial authorities can also harness the potential of these technologies to perform their responsibilities and thereby help improve social well-being. Hence why many of them already have ambitious strategies and programmes to explore these technologies and eventually pave the way for their implementation.

However, the widespread use of these techniques also poses sizeable risks that need to be managed. In this respect, the main practical challenge facing authorities and users consists of deploying an appropriate and robust governance model that ensures that the technology is transparent and safe. This is the only way to guarantee that the public trusts it enough to smooth its adoption and acceptance en masse.

This is the reason for the proliferation of initiatives aimed at establishing a regulatory and supervisory framework that is conducive to the most orderly deployment possible. In short, the aim is to ensure that wherever it is applied, AI always provides fair, inclusive, sustainable and non-discriminatory results; this is something that affects the financial system in particular. In this respect, perhaps one of the aspects in which more headway needs to be made in the future is for legislative efforts at international level to converge somewhat, so as to prevent a phenomenon that by its very nature is global from being hampered by a multiplicity of fragmentary national rules.

REFERENCES

Acemoglu, Daron. (2024). "The simple macroeconomics of AI". *Economic Policy.* https://doi.org/10.1093/epolic/eiae042

Aldasoro, Iñaki, Leonardo Gambacorta, Anton Korinek, Vatsala Shreeti and Merlin Stein. (2024). "Intelligent financial system: how AI is transforming finance". BIS Working Papers, 1194, Bank for International Settlements. https://www.bis.org/publ/work1194.pdf

Alonso-Robisco, Andrés, and José Manuel Carbó. (2021). "Understanding the Performance of Machine Learning Models to Predict Credit Default: A Novel Approach for Supervisory Evaluation". Documentos Ocasionales, 2105, Banco de España. https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosTrabajo/21/Files/dt2105e.pdf

Alonso-Robisco, Andrés, and José Manuel Carbó. (2022). "Inteligencia artificial y finanzas: una alianza estratégica", Documentos Ocasionales, 2222, Banco de España. https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/22/Fich/do2222.pdf

Araujo, Douglas, Giuseppe Bruno, Juri Marcucci, Rafael Schmidt and Bruno Tissot. (2022). "Machine learning applications in central banking". Irvin Fisher Committee on Central Bank Statistics Bulletin, 58, Bank for International Settlements. https://www.bis.org/ifc/publ/ifcb57_01_rh.pdf

Araujo, Douglas, Sebastian Doerr, Leonardo Gambacorta and Bruno Tissot. (2024). "Artificial intelligence in central banking: Executive Summary". BIS Bulletin, 84, Bank for International Settlements. https://www.bis.org/publ/bisbull84.pdf

Arrieta, Alejandro Barredo, Natalia Díaz-Rodríguez, Javier del Ser, Adrien Bennetot, Siham Tabik, Alberto Barbado, Salvador García, Sergio Gil-López, Daniel Molina, Richard Benjamins, Raja Chatila and Francisco Herrera. (2019). "Explainable artificial intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI". *Information Fusion,* 58. https://doi.org/10.1016/j.inffus.2019.12.012

Atashbar, Tohid, and Rui Aruhan Shi. (2023). "AI and Macroeconomic Modeling: Deep Reinforcement Learning in an RBC Model". IMF Working Paper, 40, International Monetary Fund. https://doi.org/10.5089/9798400235252.001

Bahrammirzaee, Arash. (2010). "A comparative survey of artificial intelligence applications in finance. Artificial neural networks, expert system and hybrid intelligent systems". *Neural Computing & Applications,* 19, pp. 1165-1195. https://doi.org/10.1007/s00521-010-0362-z

Beerman, Kenton, Jermy Prenio and Raihan Zamil. (2021). "Suptech tools for prudential supervision and their use during the pandemic". Financial Stability Institute Insights on Policy Implementation, 37, Bank for International Settlements. https://www.bis.org/fsi/publ/insights37.pdf

Bholat, David, Nida Broughton, Alice Parker, Janna Ter Meer and Eryk Walczak. (2018). "Enhancing central bank communications with behavioural insights". Bank of England Staff Working Paper, 750, Bank of England. https://doi.org/10.2139/ssrn.3233695

Boukherouaa, El Bachir, Ghiath Shabsigh, Khaled AlAjmi, Jose Deodoro, Aquiles Farias, Ebru S. Iskender, Alin T. Mirestean and Rangachary Ravikumar. (2021). "Powering the Digital Economy: Opportunities and Risks of Artificial Intelligence in Finance". IMF Departmental Paper, 2021/024, International Monetary Fund. https://doi.org/10.5089/9781589063952.087

Calderaro, Andrea, and Stella Blumfelde. (2022). "Artificial intelligence and EU security: the false promise of digital sovereignty". *European Security,* 31(3), pp. 415-434. https://doi.org/10.1080/09662839.2022.2101885

Carlucci Aiello, Luigia. (2016). "The multifaceted impact of Ada Lovelace in the digital age". *Artificial Intelligence,* 235, pp. 58-62. https://doi.org/10.1016/j.artint.2016.02.003

Carstens, Agustín. (2019). "The new role of central banks". Financial Stability Institute's 20th Anniversary Conference, Basel, 12 March. https://www.bis.org/speeches/sp190314.pdf

Cazzaniga, Mauro, Carlo Pizzinelli, Emma Rockal and Marina Mendes Tavares. (2024). "Exposure to Artificial Intelligence and Occupational Mobility: A Cross-Country Analysis". IMF Working Paper, 116, International Monetary Fund. https://www.elibrary.imf.org/view/journals/001/2024/116/article-A001-en.xml

Cipollone, Piero. (2024). *Artificial intelligence - a central bank's view.* National Conference of Statistics, Rome, 4 July. https://www.bis.org/review/r240709c.pdf

Congress of the United States of America. (2022). *Algorithmic Accountability Act of 2022.* https://www.congress.gov/bill/117th-congress/senate-bill/3572/text

Doerr, Sebastian, Leonardo Gambacorta and Jose Maria Serena-Garralda. (2021). "Big data and machine learning in central banking". BIS Working Paper, 930, Bank for International Settlements. https://www.bis.org/publ/work930.pdf

European Banking Authority. (2023). *Machine learning for IRB models: Follow-up report from the consultation on the discussion paper on machine learning for IRB models.* https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2023/1061483/Follow-up%20report%20on%20machine%20learning%20for%20IRB%20models.pdf

European Parliament and the Council. (2024). Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act). *Official Journal of the European Union,* 1689. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401689

Fernández Bedoya, Ana. (2019). "Artificial intelligence in financial services". *Economic Bulletin - Banco de España,* 2/2019, Analytical Articles. https://repositorio.bde.es/handle/123456789/9047

Fraisse, Henri, and Matthias Laporte. (2022). "Return on investment on artificial intelligence: The case of bank capital requirement". *Journal of Banking & Finance,* 138(106401). https://doi.org/10.1016/j.jbankfin.2022.106401

High-Level Expert Group on Artificial Intelligence. (2018). *Ethics guidelines for trustworthy AI.* European Commission. https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1

Hellwig, Klaus-Peter. (2021). "Predicting Fiscal Crises: A Machine Learning Approach". IMF Working Paper, 150, International Monetary Fund. https://doi.org/10.2139/ssrn.4026328

Japan Cabinet. (2019). *Social Principles of Human-Centric AI.* https://www.cas.go.jp/jp/seisaku/jinkouchinou/pdf/humancentricai.pdf

Khandani, Amir, Adlar J. Kim and Andrew Lo. (2010). "Consumer Credit Risk Models Via Machine-Learning Algorithms". American Finance Association 2011 Denver Meetings Papers. https://doi.org/10.2139/ssrn.1568864

Lorenz, Philippe, Karine Perset and Jamie Berryhill. (2023). *Initial Policy considerations for Generative Artificial Intelligence.* Organisation for Economic Co-Operation and Development Artificial Intelligence Papers, 1. https://doi.org/10.1787/fae2d1e6-en.

Monetary Authority of Singapore. (2023). *Principles to Promote Fairness, Ethics, Accountability and Transparency (FEAT) in the Use of Artificial Intelligence and Data Analytics in Singapore's Financial Sector.* https://www.mas.gov.sg/-/media/mas/news-and-publications/monographs-and-information-papers/feat-principles-updated-7-feb-19.pdf

Moor, James. (2006). "The Dartmouth College Artificial Intelligence Conference: The Next Fifty Years". *AI Magazine,* 27(4), 87. https://doi.org/10.1609/aimag.v27i4.1911

Moreno, Ángel-Iván, Sergio Gorjón and Joaquín Hernáez. (2021). *Computerized text analysis for assessing legal complexity: the practical example of the Circulars of the Banco de España.* 5th International Conference on Public Policy, Barcelona, 5-9 July. https://www.ippapublicpolicy.org/file/paper/60c0beea33381.pdf

Nayak, B., and Nigel Walton. (2024). *Political Economy of Artificial Intelligence: Critical Reflections on Big Data, Economic Development and Data Society.* Palgrave Macmillan.

Organisation for Economic Co-operation and Development. (2019). *Recommendation of the Council on Artificial Intelligence.* https://legalinstruments.oecd.org/en/instruments/oecd-legal-0449

Owolabi, Omoshola S., Prince C. Uche, Nathaniel T. Adeniken, Christopher Ihejirika, Riyad Bin Islam and Bishal Jung Thapa Chhetri. (2024). "Ethical Implication of Artificial Intelligence (AI) Adoption in Financial Decision Making". *Computer and Information Science,* 17(1), pp. 49-56. https://doi.org/10.5539/cis.v17n1p49

Rebuffi, Sylvestre-Alvise, Sven Gowal, Dan A. Calian, Florian Stimberg, Olivia Wiles and Timothy Mann. (2021). *Fixing Data Augmentation to Improve Adversarial Robustness.* Thirty-fifth Annual Conference on Neural Information Processing Systems, 6-14 December. https://doi.org/10.48550/arXiv.2103.01946

Riemer, Stiene, Michael Strauß, Ella Rabener, Jeanne Kwong Bickford, Pim Hilbers, Nipun Kalra, Aparna Kapoor, Julian King, Silvio Palumbo, Neil Pardasani, Marc Pauly, Kirsten Rulf and Michael Widowitz. (2023). *A Generative AI Roadmap for Financial Institutions.* Boston Consulting Group. https://www.bcg.com/publications/2023/a-genai-roadmap-for-fis

Rubio, Jennifer, Paolo Barucca, Gerardo Gage, John Arroyo and Raúl Morales-Resendiz. (2020). "Classifying payment patterns with artificial neural networks: An autoencoder approach". *Latin American Journal of Central Banking,* 1(1). https://doi.org/10.1016/j.latcb.2020.100013

Sadok, Hicham, Fadi Sakka and Mohammed El Hadi El Maknouzi. (2022). "Artificial intelligence and bank credit analysis: A review". *Cogent Economics & Finance,* 10(1), 2023262. https://doi.org/10.1080/23322039.2021.2023262

Shabsigh, Ghiath, and El Bachir Boukherouaa. (2023). *Generative Artificial Intelligence in Finance: Risk Considerations.* IMF Fintech Notes, 2023/006, International Monetary Fund. https://doi.org/10.5089/9798400251092.063

Sheehan, Matt. (2023). "China's AI Regulations and How They Get Made". *Horizons,* Summer 2023(24), pp. 108-125. https://www.cirsd.org/files/000/000/010/82/21e461a985f43655b1731b3c1b50cdccb631afaf.pdf.

Shokri, Reza, Marco Stronati, Congzheng Song and Vitaly Shmatikov. (2017). "Membership Inference Attacks Against Machine Learning Models". 2017 IEEE Symposium on Security and Privacy (SP), pp. 3-18. https://doi.org/10.1109/SP.2017.41

Turing, Alan. (1950). "Computing Machinery and Intelligence". *Mind,* 59(236), pp. 433-460. https://doi.org/10.1093/mind/LIX.236.433

United Nations Educational, Scientific and Cultural Organization. (2021). *Recommendation on the Ethics of Artificial Intelligence.* https://unesdoc.unesco.org/ark:/48223/pf0000380455

Vaswani, Ashish, Noam Shazeer, Niki Parmar, Jakob Uszkoreit, Llion Jones, Aidan N. Gomez, Lukasz Kaiser and Illia Polosukhin (2017). "Attention Is All You Need". Cornell University. https://arxiv.org/abs/1706.03762

Warwick, K., and Huma Shah. (2015). "Can machines think? A report on Turing test experiments at the Royal Society", *Journal of Experimental & Theoretical Artificial Intelligence,* 28(6), pp. 989–1007. https://doi.org/10.1080/0952813X.2015.1055826

White House, The. (2023). *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence.* https://www.govinfo.gov/content/pkg/FR-2023-11-01/pdf/2023-24283.pdf

How to cite this document

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://doi.org/10.53479/38942

ASSET ENCUMBRANCE IN SECURED FUNDING OPERATIONS IN THE SPANISH BANKING SECTOR

Esther Cáceres and Jorge San Vicente

BANCO DE ESPAÑA

https://doi.org/10.53479/38944

The authors are grateful for the comments received from Carmen Broto, Javier Mencía, Ana Molina, Carlos Pérez Montes and an anonymous referee. This work was carried out during Jorge San Vicente's internship at the Financial Stability and Macroprudential Policy Department between February and June 2024. Email address for comments: esther(dot)caceres(at)bde(dot)es.

ASSET ENCUMBRANCE IN SECURED FUNDING OPERATIONS IN THE SPANISH BANKING SECTOR

Abstract

Credit institutions' access to funding is key to their survival, especially during crises, when market liquidity deteriorates. In such periods, the availability of assets that can be used as collateral could be instrumental in preserving access to finance. This article analyses the Spanish banking sector's ability to access the secured funding market since late 2014, when the European Banking Authority's asset encumbrance disclosure framework entered into force. The analysis shows that in Spain, as in all other European countries, asset encumbrance has been declining since 2022. With more unencumbered assets available, banks find it easier to access funding on the financial markets.

Keywords: liquidity risk, encumbered assets, secured funding, banking system, TLTRO.

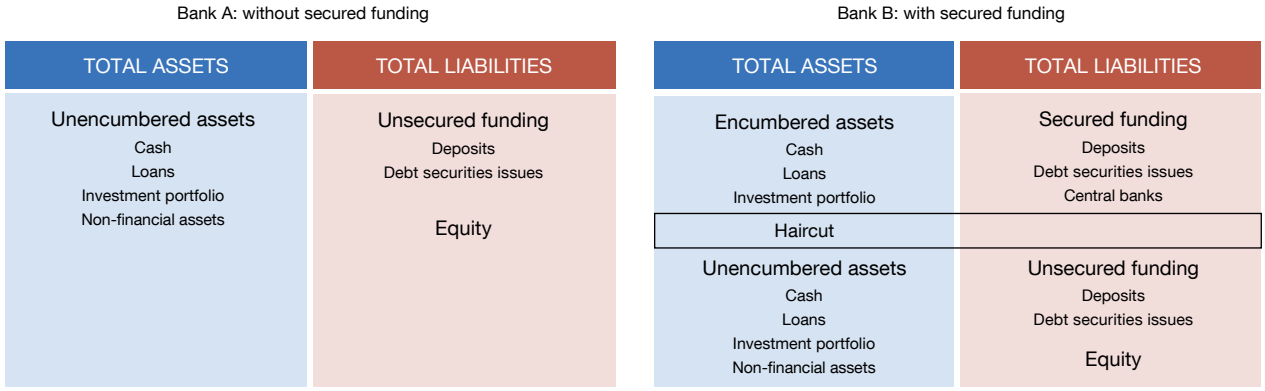
1 Introduction

The global financial crisis that began in the United States in 2008 revealed a number of weaknesses that threatened financial stability. The need to strengthen the regulation, supervision and risk management of credit institutions led the Basel Committee on Banking Supervision (BCBS) to phase in various requirements under the Basel III framework from 2008 onwards, including reforms in market and credit risk management, stronger capital requirements and, for the first time, the introduction of parameters for monitoring funding liquidity.[1] In addition to the two main liquidity risk indicators (the liquidity coverage ratio and the net stable funding ratio), these parameters notably included the ratio of asset encumbrance in secured funding operations. This indicator is defined as the proportion of both assets held on the balance sheet and assets received as collateral that have been used to back secured funding operations and are therefore unavailable to be pledged as collateral in new secured funding.

In addition to its importance from a regulatory standpoint, the asset encumbrance ratio gained significance as a counterparty risk management measure as investors increasingly pressurised banks to boost their secured funding, due to a greater aversion to counterparty risk after the financial crisis of 2008 (Berthonnaud et al., 2021). However, banks face a dilemma when deciding on how much secured funding to hold on their balance sheets, as this may have financial stability implications. On the one hand, given that this type of funding is backed by the assets pledged as collateral, it is safer for investors and it entails lower costs

1 Funding liquidity is that related to banks' ability to obtain market funding, whereas market liquidity is the ease with which financial assets can be sold on the markets with no significant impact on their price. For more information on funding liquidity, see Banco de España (2023).

Figure 1
The effect of secured funding on a bank's balance sheet



SOURCE: Devised by authors.

for banks. However, on the other hand, having a high proportion of secured funding reduces the assets available to banks to either access new secured funding or meet unsecured creditors' claims in the event of default, which may hinder banks' access to new financing and, in extreme financial stress situations, threaten their survival and lead to contagion across the banking system.

It should be noted that available assets are reduced to a greater extent than the secured funding obtained, due to the haircut applied to the assets used as collateral in this type of operations. In other words, these haircuts, which aim to reduce the lender's risk of loss in the event of the borrower's default and of possible fluctuations in the market value of the assets pledged as collateral, result in overcollateralisation[2] of this type of financing. The higher the haircut, the higher the level of overcollateralisation and thus the amount of unavailable assets. Figure 1 illustrates the balance sheet composition of two banks: one with 100% unsecured funding and one that also has secured funding. The value of the latter bank's encumbered assets exceeds the value of the secured funding obtained due to the haircut applied, leading to overcollateralisation of this funding.

This article analyses how the Spanish banking sector's asset encumbrance ratio has changed over time. The level of this ratio provides information on Spanish banks' ability to access secured funding, whether on the market or through operations with central banks (mostly with the Eurosystem). In particular, the higher this ratio, the lower the ability to access new secured financing. First, the article presents the regulatory framework for encumbered assets. It then analyses encumbered assets as a percentage of total assets and as a percentage of assets eligible as collateral for the European Central Bank (ECB) (hereafter, eligible assets), and their

2 Overcollateralisation implies using collateral with a value greater than the financing covered. This provides better protection for lenders against potential defaults.

distribution by asset type. The article also looks at secured funding and its degree of collateralisation.

2 Regulatory framework for asset encumbrance in secured funding operations

The 2008 global financial crisis highlighted the importance of liquidity risk for financial market stability and, consequently, for the banking sector. During this crisis many banks with adequate levels of capital required central bank support due to difficulties in accessing market funding (BCBS, 2010). Indeed, empirical studies conducted after the financial crisis suggest that the nature of this risk warranted the new BCBS liquidity measures.[3]

Following publication of the Basel III framework, in 2012 the European Systemic Risk Board (ESRB) issued a recommendation on funding of credit institutions, which included guidelines on the management and monitoring of assets encumbered in secured funding operations (hereafter, encumbered assets).[4] This recommendation, adopted by Spain, explicitly describes the need for national authorities to monitor encumbered assets. Subsequently, in July 2014, the EBA published the disclosure framework for encumbered assets, which entered into force in December 2014.[5] This framework contains information on assets and collateral received with and without encumbrance (including their sources of encumbrance), from which the asset encumbrance (AE) ratio can be derived. According to the EBA, this ratio is the proportion of assets and collateral received and reused as collateral to total assets and collateral received:

$$\text{AE ratio} = \frac{\text{Encumbered assets} + \text{Encumbered collateral received}}{\text{Total assets} + \text{Total collateral received}}$$

The AE ratio is part of the non-exhaustive list of indicators drawn up by Lamas Rodríguez (2016) to assess systemic liquidity risk in the Spanish banking system. As indicated in that article, according to the EBA, a ratio above 30% could be considered excessive, mainly because of the higher cost of unsecured funding due to the increase in its degree of subordination.

The proportion of ECB-eligible assets can be calculated analogously to determine banks' ability to access secured central bank funding.

$$\text{Eligible AE ratio} = \frac{\text{Encumbered eligible assets} + \text{Encumbered eligible collateral received}}{\text{Eligible assets} + \text{Eligible collateral received}}$$

3 Chen, Chen and Huang (2021) conclude that liquidity shortages are not merely a symptom of solvency problems related to banks' credit risk and that they have detrimental effects during crises.

4 For more information, see Recommendation ESRB/2012/2 of 20 December 2012 on funding of credit institutions.

5 For more information, see the Guidelines on disclosure of encumbered and unencumbered assets.

Since the entry into force of this disclosure framework, the EBA monitors encumbered assets in the European banking sector and publishes its findings in annual reports. The first (EBA, 2015) lists the objectives of these reports: (1) to compare banks' reliance on secured funding; (2) to assess their ability to handle funding stress and to switch from unsecured funding to secured funding; and (3) to assess the amounts of assets available in a resolution situation.

An important driver of secured funding and encumbered asset developments during the period analysed in this article is the ECB's liquidity provision programmes through refinancing operations. In response to the global financial crisis, the ECB launched its longer-term refinancing operations for euro area banks. Their main aim was to support price stability in an environment marked by liquidity shortages. Although they were designed to be temporary, the changing macro-financial context made it necessary to extend their application and to introduce further such operations. These operations have had a significant impact on the composition of credit institutions' funding and, therefore, on how their encumbered assets have changed over time. This is the case of the targeted longer-term refinancing operations (TLTROs), which were used to inject liquidity into the system and thus secure the flow of credit to households and firms. These programmes – TLTRO I launched in 2014, TLTRO II in 2016 and TLTRO III in 2019[6] – consisted of a series of Eurosystem loans to banks on better than market terms, provided that the banks met certain targets related to their lending to the real economy.

The following sections describe the changes in the Spanish banking sector's asset encumbrance ratio since the disclosure framework came into force in December 2014. They analyse factors such as the composition of these encumbered assets, the level of overcollateralisation and the importance of central bank funding in Spanish banks' balance sheets. They also study the heterogeneity of this indicator by type of institution. To this end, two groups of banks are identified and their ability to access secured funding is compared. The first group consists of domestic systemically important institutions, dubbed "other systemically important institutions" (O-SIIs),[7] and the second comprises Spanish institutions other than O-SIIs.

3 Asset encumbrance in secured funding operations

Between 2017 and 2019 the proportion of encumbered assets pledged by the banking sectors of the main European countries held relatively stable, with the EU average standing at around 27% (see Chart 1). This ratio rose after the COVID-19 pandemic, reflecting the greater reliance on Eurosystem refinancing operations as the ECB made the TLTROs more appealing to banks.[8]

6 For more information, see the ECB's decisions on TLTRO I, TLTRO II and TLTRO III.

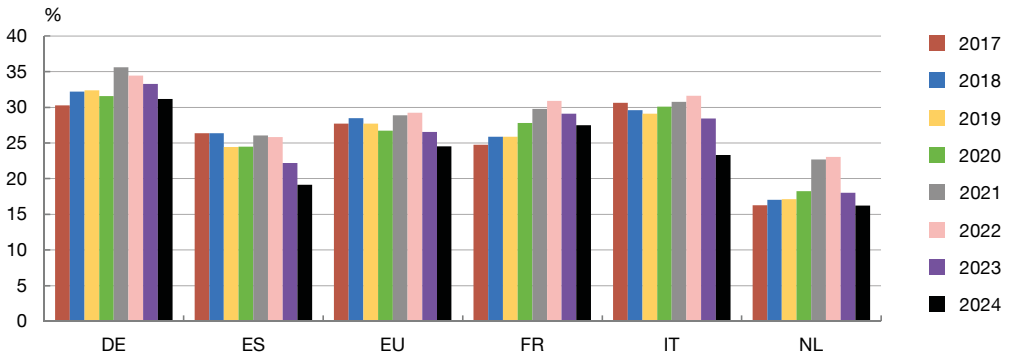
7 Similarly to global systemically important institutions (G-SIIs), these banks, dubbed "other systemically important institutions" (O-SIIs), are subject to additional capital buffers to compensate for the advantage of being "too big to fail". This advantage stems from the fact that the market presumes that, if they were to experience financial difficulties, they would potentially be bailed out to prevent them from failing. The most up-to-date list of O-SIIs in Spain features four institutions, one of which (Banco Santander) is also considered a G-SII (see press release).

8 The interest rate was set at 50 basis points below the deposit facility rate at the time, the maximum principal amount that counterparties were able to borrow was raised and a temporary adjustment was made to the eligible assets framework. Thanks

Chart 1

Asset encumbrance ratio in the European banking sector

1.a Asset encumbrance ratio by country (a)



SOURCE: EBA.

a Assets and collateral received and reused to secure funding as a proportion of total assets and collateral received, in the EU as a whole and in various European countries: Germany (DE), Spain (ES), France (FR), Italy (IT) and the Netherlands (NL). Data at end-March of the years indicated.

As these operations were gradually repaid, beginning in 2022, the asset encumbrance ratio decreased significantly both in the European Union (EU) as a whole and in the main European economies. By 2024 this ratio had fallen below the 30% threshold considered potentially excessive by the EBA, both in the European Union and in most of its largest economies.

In Spain the asset encumbrance ratio followed a similar trend, albeit at a somewhat lower level, with the gap between the EU and Spain widening in recent years.

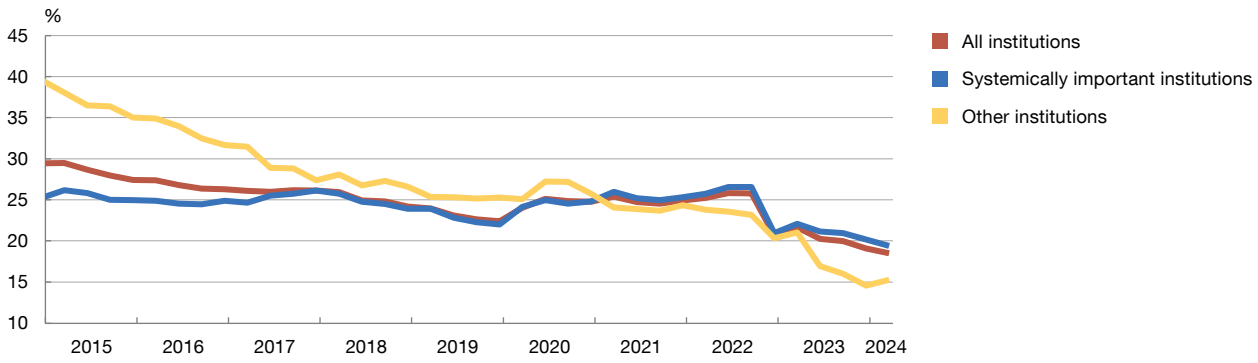
The asset encumbrance ratio of domestic systemically important institutions has historically been lower than that of other institutions (see Chart 2). This can be attributed to the lower cost at which systemically important institutions access the unsecured funding market compared with other institutions, as suggested by the findings of Babihuga and Spaltro (2014). However, this divergence narrowed over time until it was reversed after March 2021 as the TLTROs were repaid and, therefore, the secured funding programmes to which institutions other than O-SIIs had access ended. Since then, the asset encumbrance ratio for domestic systemically important institutions has remained above that of other banks, which make greater use of market funding.

The dispersion of the asset encumbrance ratio is relatively high in Spain (see Chart 3.a), although it began to decrease after 2021. The breakdown by type of institution shows that the dispersion of this indicator is lower at domestic systemically important institutions than at other institutions, as they are fewer in number and have more homogeneous characteristics (see Charts 3.b and 3.c).

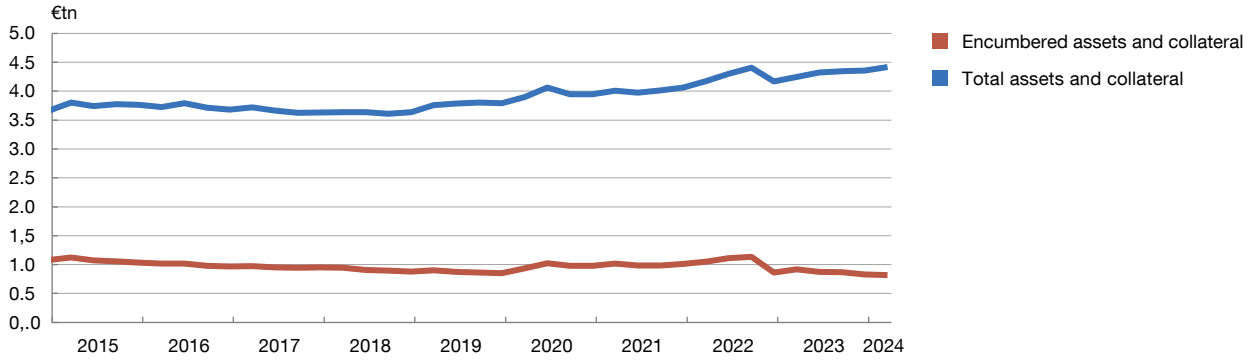
to these changes, there was no decline and even an increase in the level of lending (Castillo Lozoya, Esteban García-Escudero and Pérez Ortiz, 2022).

Chart 2
Asset encumbrance ratio in the Spanish banking sector

2.a Asset encumbrance ratio (a)



2.b Total and encumbered assets and collateral



SOURCES: Banco de España and authors' calculations.

a The asset encumbrance ratio is the assets and collateral received and reused to secure funding as a proportion of total assets and collateral received. It is calculated drawing on returns F32.01 on the assets of the reporting institution and F32.02 on collateral received, using the following formula: ({F32.01;010;010} + {F32.02;130;010}) / ({F32.01;010;010} + {F32.01;010;060} + {F32.02;130;010} + {F32.02;130;040}).

4 Central bank secured funding

As Chart 4.a shows, since the launch of the first TLTRO programme in 2014 the share of secured funding raised on the financial markets has gradually decreased, while that of central bank secured funding has risen. This trend intensified in 2020 after the launch of the third TLTRO series, whose enhanced terms led to record-level participation by banks at June 2020. In November 2022 this pattern reversed, when the share of secured market funding increased following the high early repayments of part of the outstanding TLTRO III operations, largely related to their changed terms.[9] The share of secured market funding rose again in June 2023 when TLTRO III.4 matured, and by March 2024 it amounted to 89.2% of the total.[10] All of which

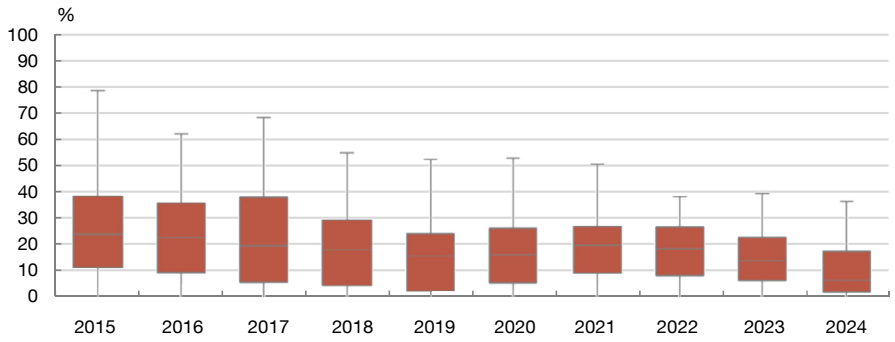
9 Against the backdrop of monetary policy tightening, the ECB altered the terms of TLTRO III, making them less favourable (see ECB decision of 27 October 2022).

10 For a more detailed analysis of the effect of TLTRO repayment, see Castillo Lozoya, Esteban García-Escudero and Pérez Ortiz (2024).

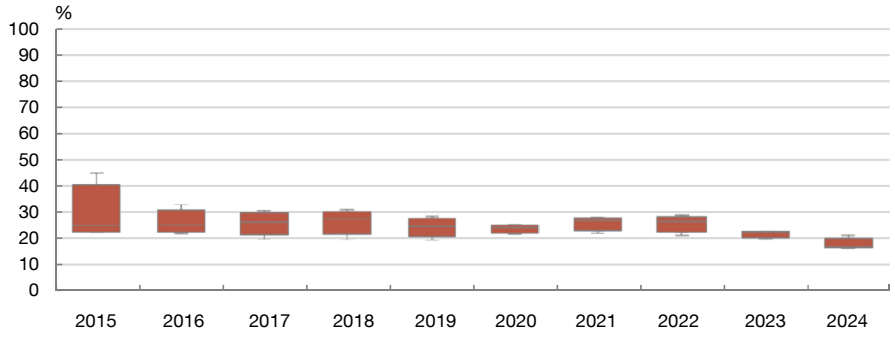
Chart 3

Distribution of asset encumbrance at financial institutions in Spain (a)

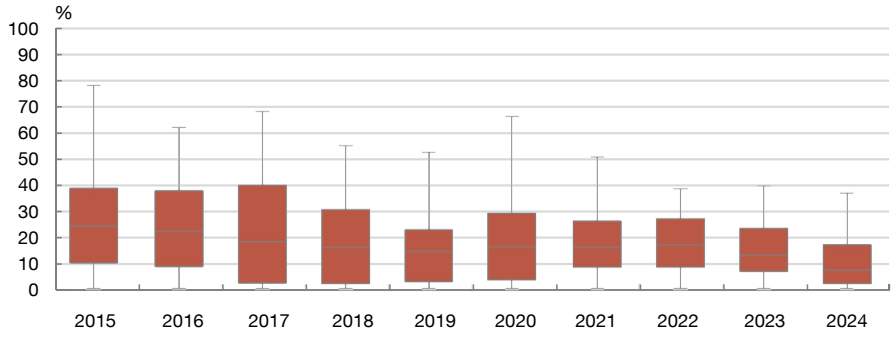
3.a All institutions



3.b Systemically important institutions



3.c Other institutions



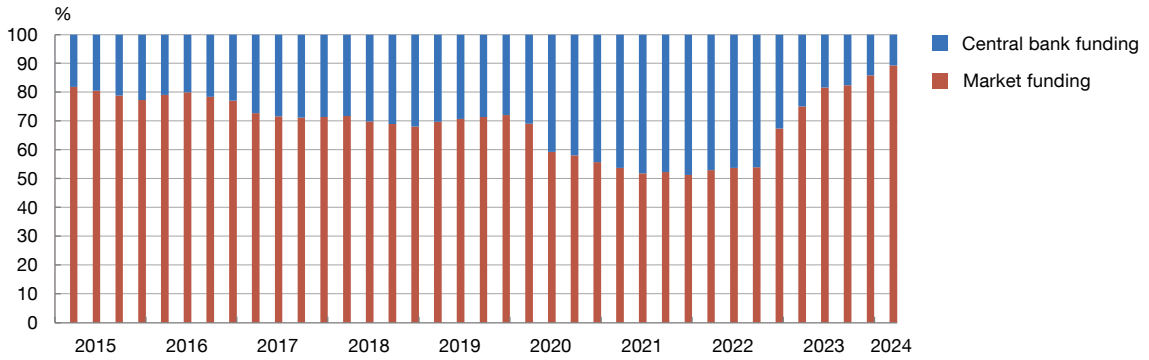
SOURCES: Banco de España and authors' calculations.

a Distribution of the asset encumbrance ratio in March of each of the years depicted, for all institutions (3.a), systemically important institutions (3.b) and non-systemically important institutions (3.c). The brown boxes represent the interquartile range: their upper bound is the third quartile and their lower bound the first quartile. The horizontal line inside the boxes is the median and the vertical lines above and below the boxes show the maximum and minimum level, respectively.

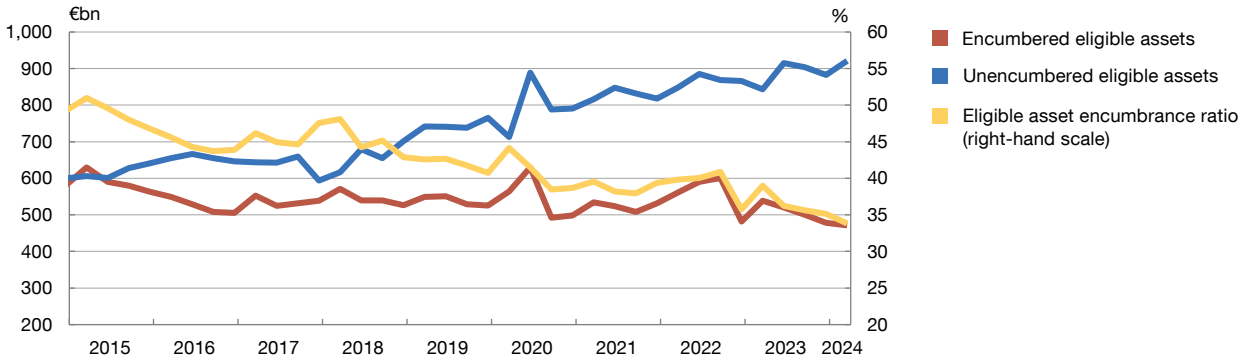
Chart 4

Secured funding raised by Spanish credit institutions

4.a Secured market and central bank funding



4.b Eligible assets (a)



SOURCES: Banco de España and authors' calculations.

a The eligible asset encumbrance ratio shows the proportion of ECB-eligible assets encumbered as collateral. Obtained from returns F32.01, on the assets of the reporting institution, and F32.02, on collateral received, using the following formula: ({F32.01;010;030} + {F32.02;130;030}) / ({F32.01;010;030} + {F32.01;010;080} + {F32.02;130;030} + {F32.02;130;060}).

shows that banks have gradually replaced part of their central bank funding with secured market funding.

Under normal conditions, secured market funding typically exceeds central bank funding, but the latter becomes more important in times of crisis. It is, therefore, appropriate to assess financial institutions' capacity to access this type of funding, which relies on the availability of unencumbered eligible assets. Chart 4.b shows that since 2017 the volume of such assets has risen. There are various reasons for this. First, the increase observed in April 2020 reflects the ECB's decision to temporarily ease the eligibility criteria in response to the COVID-19 pandemic, with the aim of facilitating access to bank funding.[11] Second, the heavy TLTRO III early

11 In its press release of 7 April 2020, the ECB set out the details of the temporary easing of the eligible assets framework, whereby assets guaranteed by governments or public sector entities were accepted, the minimum credit amount of €25,000 was waived, the percentage of unsecured debt instruments issued by a single issuer was increased from 2.5% to 10%, Greek sovereign debt became eligible as collateral and valuation haircuts were reduced.

repayments in November 2022 and the maturity of TLTRO III.4 in June 2023 resulted in a decline in eligible asset encumbrance. As a result of all the above, at March 2024 Spanish financial institutions presented high capacity to obtain central bank funding. It will, therefore, be interesting to monitor these indicators following the complete withdrawal of the collateral easing measures in March 2024 (Bakker et al., 2022).

5 Asset encumbrance in secured funding operations, by instrument

As Chart 5.a shows, loans and advances and debt securities make up the bulk of asset encumbrance. Loans and advances accounted for the largest share between 2017 and late 2022, with an average of 66.4%, compared with 25.2% for debt securities. As the outstanding TLTRO operations gradually matured, the share of loans and advances declined, reflecting the fact that these were the most common type of collateral used in the TLTROs.[12] In consequence, at March 2024 debt securities accounted for 34.1% of asset encumbrance and loans and advances for 58.8%. For their part, debt securities make up almost all the collateral received and reused in secured financing operations (see Chart 5.b).

The breakdown by instrument shows that debt securities have the highest levels of encumbrance, followed by equity instruments and loans and advances other than loans on demand (see Chart 6). The proportion of encumbered debt securities rose after 2020, reaching 54.21% in 2022 Q3. It then declined from 2023 Q2, as did the overall asset encumbrance ratio. Meanwhile, the proportion of encumbered loans and advances other than loans on demand stood at 24.4% on average between 2017 and 2022 and then fell in the following years, reaching 13.1% at March 2024. The proportion of encumbered equity instruments stood at 28.7% on average between 2017 and 2024, with no defined trend over the period.

6 Sources of encumbrance

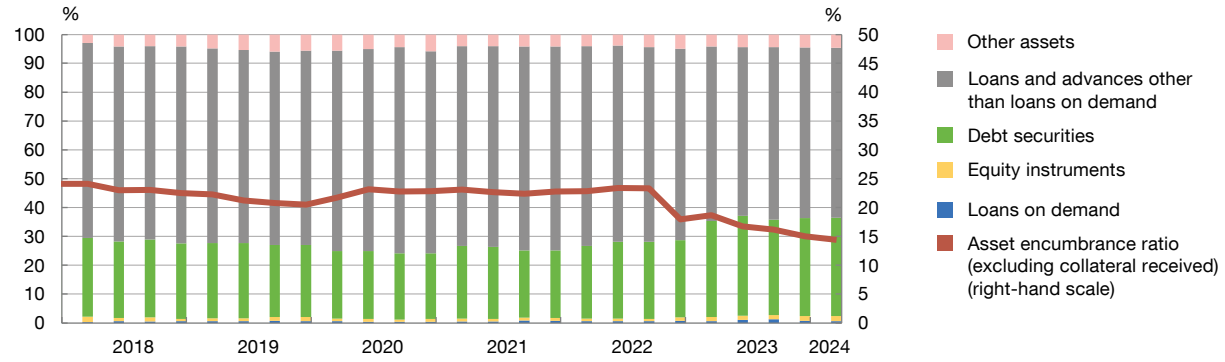
Chart 7.a presents a breakdown by liability type of the secured funding operations made by Spanish financial institutions since 2017. It shows that most funding comes from central banks, repos and covered bonds, which together account on average for around 71% of all sources of secured funding. Between 2017 and mid-2020 the relative share of the different sources of funding was quite stable, but thereafter the share of central bank funding increased, to the detriment of repo market funding. This reflects the fact that TLTROs had become more attractive to banks following the changes to their terms described earlier. These proportions held quite steady until December 2022, when reliance on central bank funding gradually declined as the outstanding amount of TLTROs decreased owing to maturity or early repayments. From 2022 Q3 the share of repo funding grew, reaching 44.85% in 2024 Q1, as

12 TLTRO III funding was mostly backed by term loans. In Spain one of the collateral easing measures taken during the COVID-19 pandemic was to accept loans guaranteed through the State guarantee facility provided by the Official Credit Institute (Escolar and Yribarren, 2021).

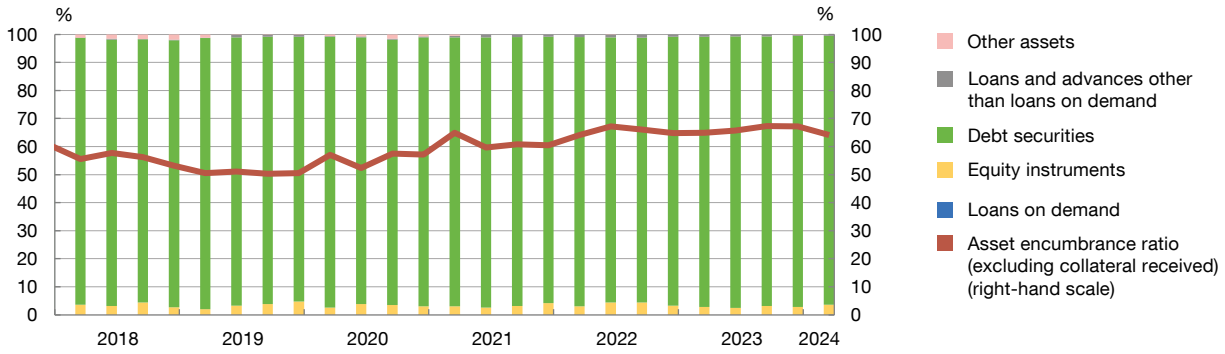
Chart 5

Asset encumbrance by asset type in the Spanish banking system (a)

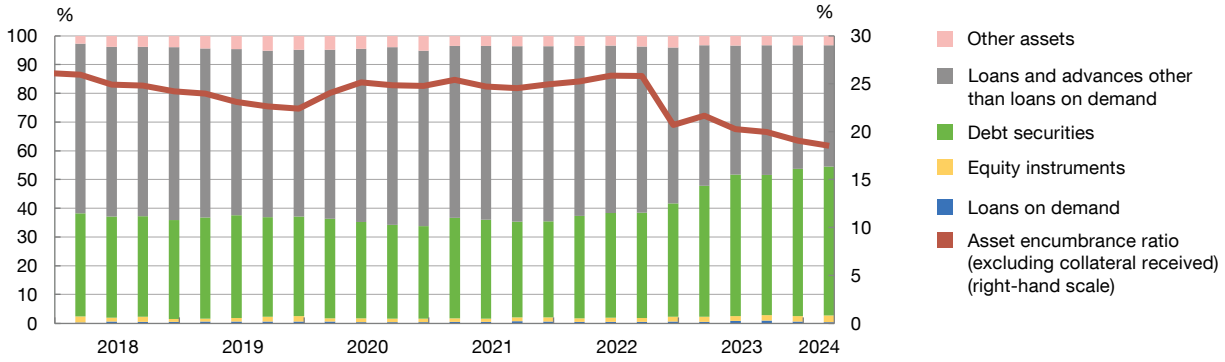
5.a Assets on balance sheet



5.b Collateral



5.c Assets and collateral

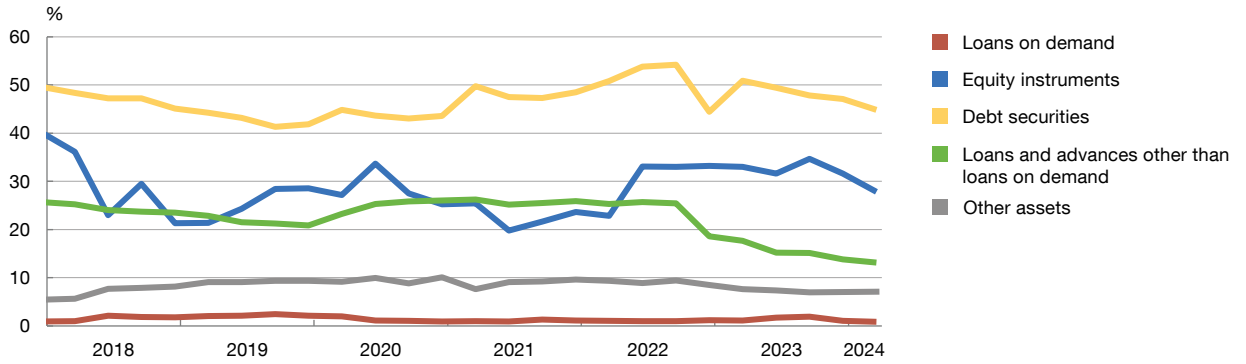


SOURCES: Banco de España and authors' calculations.

a The chart depicts each asset type as a proportion of total asset encumbrance (5.a), total collateral encumbrance (5.b) and total asset and collateral encumbrance (5.c).

Chart 6
Asset encumbrance in the Spanish banking system by asset type

6.a Asset encumbrance ratio by asset type (a)



SOURCES: Banco de España and authors' calculations.

a The chart depicts the proportion of encumbrance by asset type, i.e. the assets and collateral received and reused to secure funding as a proportion of the total assets and collateral received. Obtained from returns F32.01, on the assets of the reporting institution, and F32.02, on collateral received, using the following formula: ({F32.01;row by asset type;010} + {F32.02;row by asset type;010}) / ({F32.01;row by asset type;010} + {F32.01;row by asset type;060} + {F32.02;row by asset type;010} + {F32.02;row by asset type;040}).

financial institutions used it to replace part of their central bank funding, on account of the increased preference for short-term funding in 2022 and the maturity of TLTRO III.4 in June 2023 (Castillo Lozoya, Esteban García-Escudero and Pérez Ortiz, 2024). The breakdown by type of institution shows similar patterns for systemically important institutions and the rest of the banking system (see Charts 7.b and 7.c). The pattern is also similar in the other European countries, as described in the latest EBA report on asset encumbrance (European Banking Authority, 2023).

Chart 8 shows the maturity structure of the secured funding raised by Spanish financial institutions between March 2022 and March 2024. Between March and June 2020 the share of operations maturing between one and two years fell sharply, while the share of those maturing between six months and one year grew. This reflects the heavy early repayments of TLTROs in that period. Since then, the maturity structure has been more stable.

7 Level of collateralisation in secured funding operations

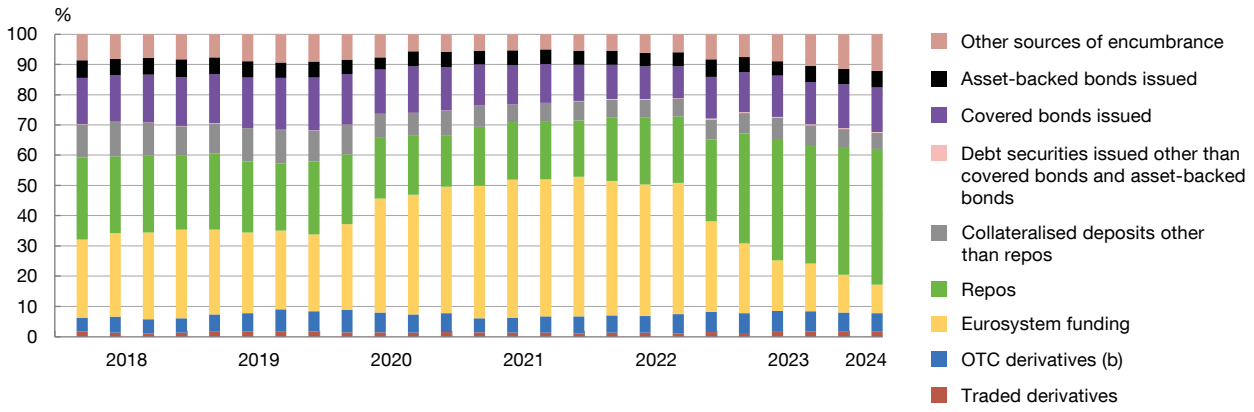
Chart 9 presents the level of collateralisation in secured funding raised by Spanish financial institutions, proxied by the ratio of the amount of encumbered assets and collateral received to the volume of secured funding raised.

Overcollateralisation makes funding more costly as it limits the amount that a bank can access per unit of collateral. The chart shows the level of assets and collateral pledged by financial institutions relative to their matching liabilities. For secured funding overall, this ratio has held quite steady, around 123%, since 2014 Q4. By liability type, debt securities issued (mainly

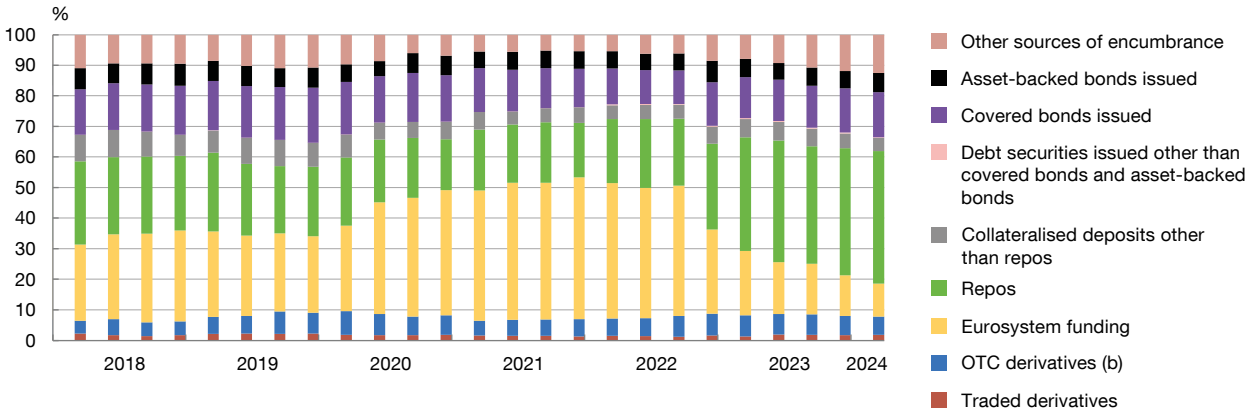
Chart 7

Distribution of sources of asset and collateral encumbrance (a)

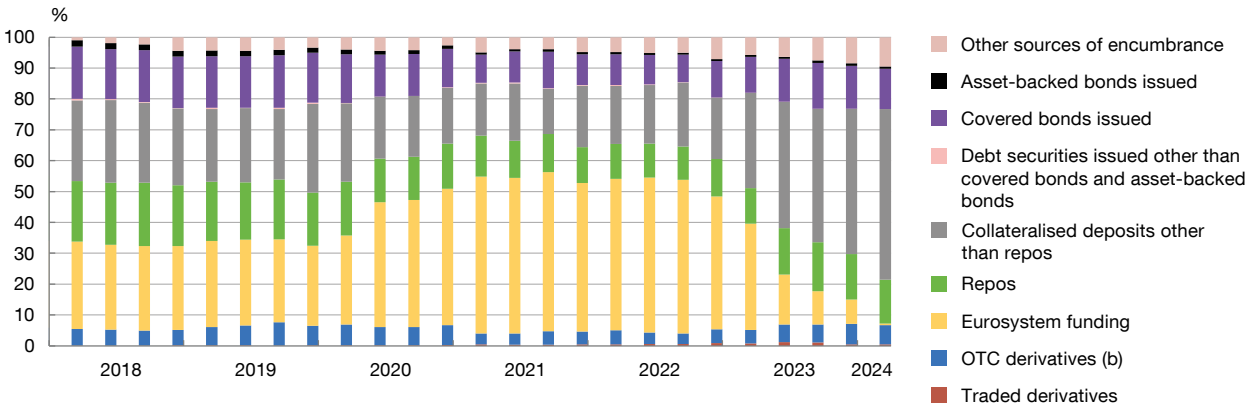
7.a All financial institutions



7.b Systemically important institutions



7.c Other institutions

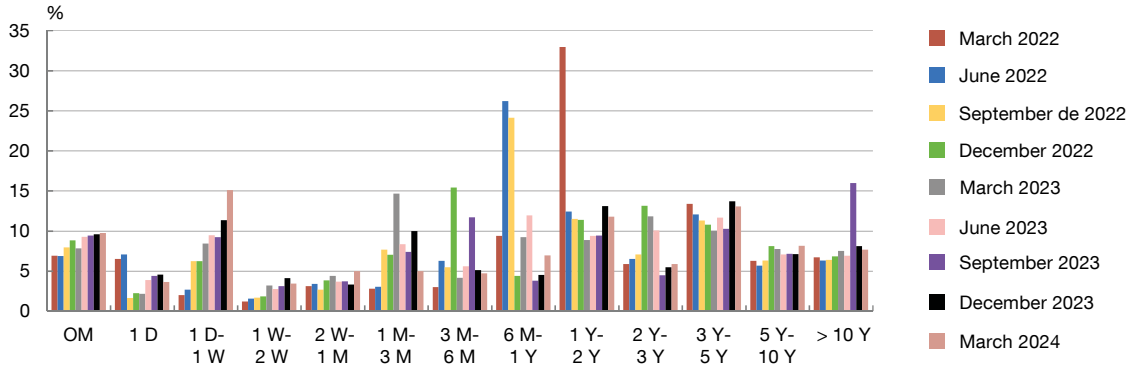


SOURCES: Banco de España and authors' calculations.

a The chart depicts the proportion of each liability type as the source of encumbrance of the assets or collateral received.
b OTC (over-the-counter) derivatives are those traded directly between two counterparties on markets with no intermediation by clearing houses.

Chart 8
Maturity of secured funding raised by Spanish banks

8.a Maturity structure (a) (b)

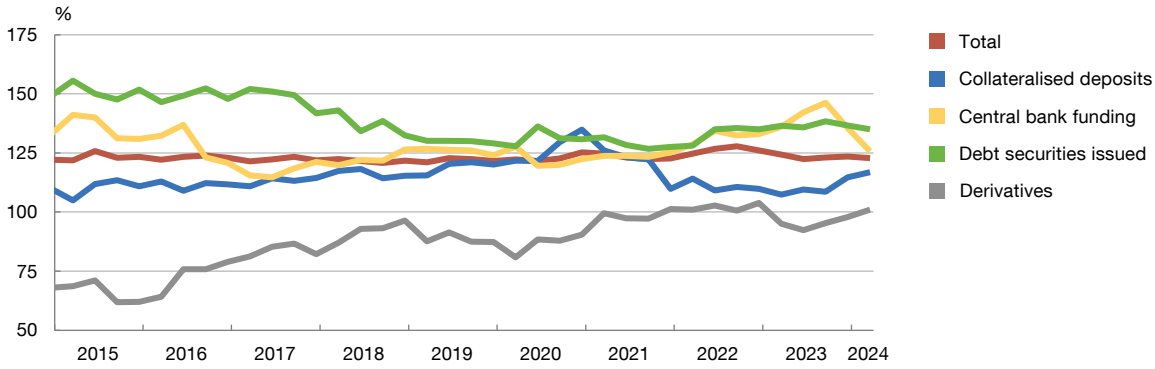


SOURCES: Banco de España and authors' calculations.

a The chart shows the maturity structure of the liabilities that are the source of encumbrance of the assets and collateral received.
b OM denotes open market operations. D, W, M and Y denote days, weeks, months and years, respectively.

Chart 9
Level of collateralisation of secured funding raised by Spanish banks

9.a Level of collateralisation by source of funding (a)



SOURCES: Banco de España and authors' calculations.

a The level of collateralisation is proxied by the ratio of the amount of encumbered assets to the volume of secured funding raised.

asset-backed bonds) have tended to have a higher level of collateralisation (138.6% on average for the period considered), while central bank funding and collateralised deposits have had a lower level (respectively 127.6% and 115.3%, on average, between 2014 and 2024). For derivatives, the level of collateralisation is less than 100% for much of this period.[13] Overcollateralisation has remained broadly constant, but has risen for some liabilities due, among other factors, to the increase in interest rates, which directly affects the market value of the assets used as collateral. In addition, the increase in valuation haircuts as a result of the

13 It is important to note that derivatives positions are reported on a gross basis, while collateral can be reported on a net basis.

gradual withdrawal of the temporary easing of the eligible assets framework drove up overcollateralisation in central bank funding in mid-2023.[14]

8 Conclusions

This article analyses how different indicators related to secured funding raised by Spanish banks evolved between December 2014, when the EBA requirement for disclosure of asset encumbrance came into force, and March 2024.

The main factor affecting these indicators was the support provided by the ECB through its liquidity injection programmes, and more specifically via TLTRO III, which played a hugely important role in the crisis triggered by the COVID-19 pandemic. These programmes were possibly even more important for non-systemic institutions, as the relaxation of the initial requirements enabled them to obtain ECB funding.

In Spain, as in all other European countries, the level of asset encumbrance in secured funding operations has declined since 2022, largely reflecting repayment of the outstanding amount of Eurosystem refinancing operations. The fact that more unencumbered assets are available makes it easier for banks to access funding on the financial markets. This is a positive factor, especially in highly uncertain environments such as the present one where geopolitical tensions continue. However, the gradual withdrawal of the ECB's refinancing operations also entails a reduction in the supply of funding available for banks. In practice, this could limit their ability to obtain secured funding if the collateral released struggles to meet market requirements.

14 The 20% reduction in haircuts was reduced to 10% in July 2022, and then to 0% in June 2023 (Bakker et al., 2022).

REFERENCES

Babihuga, Rita, and Marco Spaltro. (2014). "Bank Funding Costs for International Banks". IMF Working Paper, 14/71, International Monetary Fund. https://www.imf.org/external/pubs/ft/wp/2014/wp1471.pdf

Bakker, Charlotte, Luca Bortolussi, Mark Büssing-Lörcks, Adina-Elena Fudulache, Diana Gomes, Iskra Pavlova and Stephan Sauer. (2022). "Gradual phasing-out of pandemic collateral easing measures". *Economic Bulletin - European Central Bank,* 3/2022. https://www.ecb.europa.eu/press/economic-bulletin/focus/2022/html/ecb.ebbox202203_07~441fce9f64.en.html

Banco de España. (2023). "Chapter 3. Systemic risk and prudential policy". In Banco de España, *Financial Stability Report. Autumn 2023,* pp. 123-139. https://www.bde.es/f/webbe/Secciones/Publicaciones/InformesBoletinesRevistas/InformesEstabilidad Financera/23/FSR_2023_2_Ch3.pdf

Basel Committee on Banking Supervision. (2010). *Basel III: A global regulatory framework for more resilient banks and banking systems.* December 2010 (rev June 2011). Bank for International Settlements. https://www.bis.org/publ/bcbs189.pdf

Berthonnaud, Pierre, Enrico Cesati, Maria Ludovica Drudi, Kirsten Jager, Heinrich Kick, Marcello Lanciani, Ludwig Schneider, Claudia Schwarz, Vasileios Siakoulis and Robert Vroege. (2021). "Asset encumbrance in euro area banks: analysing trends, drivers and prediction properties for individual bank crises". ECB Occasional Paper Series, 261, European Central Bank. https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op261~d967b8f3e1.en.pdf

Castillo Lozoya, M.ª Carmen, Enrique Esteban García-Escudero and M.ª Luisa Pérez Ortiz. (2022). "The effect of TLTRO III on Spanish credit institutions' balance sheets". *Economic Bulletin - Banco de España,* 2/2022, Analytical Articles. https://repositorio.bde.es/handle/123456789/21069

Castillo Lozoya, M.ª Carmen, Enrique Esteban García-Escudero and M.ª Luisa Pérez Ortiz. (2024). "El efecto de la amortización de las TLTRO III en el balance de las entidades de crédito españolas". *Boletín Económico - Banco de España,* 2024/T2, 02. https://doi.org/10.53479/36274

Chen, Wei-Da, Yehning Chen and Shu-Chun Huang. (2021). "Liquidity risk and bank performance during financial crises". *Journal of Financial Stability,* Vol. 56, 100906. https://doi.org/10.1016/j.jfs.2021.100906

Escolar, Jorge, and José Ramón Yribarren. (2021). "European Central Bank and Banco de España measures against the effects of COVID-19 on the monetary policy collateral framework, and their impact on Spanish counterparties". Documentos Ocasionales, 2128, Banco de España. https://repositorio.bde.es/handle/123456789/19235

European Banking Authority. (2015). EBA Report on Asset Encumbrance. September 2015. https://www.eba.europa.eu/sites/default/files/documents/10180/974844/e6e2a6ee-6708-4430-a506-5f68ff70736d/EBA%20Report%20on%20Asset%20Encumbrance-%20September%202015.pdf

European Banking Authority. (2023). Asset Encumbrance Report. July 2023. https://www.eba.europa.eu/sites/default/files/document_library/Risk%20Analysis%20and%20Data/Risk%20Assessment%20Reports/2023/Asset%20encumbrance/1060673/Asset%20Encumbrance%20report%202023.pdf

Lamas Rodríguez, Matías. (2016). "Riesgo de liquidez sistémica. Indicadores para el sistema bancario español". *Revista de Estabilidad Financiera - Banco de España,* 31, pp. 43-62. https://repositorio.bde.es/handle/123456789/11300

How to cite this document

Cáceres, Esther, and Jorge San Vicente. (2024). "Asset encumbrance in secured funding operations in the Spanish banking sector". *Financial Stability Review - Banco de España,* 47, Autumn. https://doi.org/10.53479/38944

THE INTERNATIONAL MONETARY FUND'S FINANCIAL SECTOR ASSESSMENT PROGRAM IN SPAIN: AN OVERVIEW FROM A FINANCIAL STABILITY STANDPOINT

María Díez Alcoba, Fátima Estacio and Luis Gutiérrez de Rozas

BANCO DE ESPAÑA

https://doi.org/10.53479/38943

The authors belong to the Directorate General Financial Stability, Regulation and Resolution and are grateful for the feedback from Ángel Estrada, Sonsoles Gallego, Ignacio Hernando, Joaquín Mochón, Patry Tello and an anonymous referee. Contact form for comments.

THE INTERNATIONAL MONETARY FUND'S FINANCIAL SECTOR ASSESSMENT PROGRAM IN SPAIN: AN OVERVIEW FROM A FINANCIAL STABILITY STANDPOINT

Abstract

This article describes the organisation, implementation and results of the International Monetary Fund's (IMF) 2024 Financial Sector Assessment Program (FSAP) in Spain, with a focus on issues related to systemic risk analysis and macroprudential policy. In particular, it presents the IMF's latest recommendations for strengthening the resilience of Spain's financial system and improving its regulatory and institutional framework. The article closes with an overview of the previous FSAPs in Spain and, by way of comparison, of the most salient points of recent FSAPs in other euro area countries.

Keywords: financial system, assessment, International Monetary Fund.

1 Introduction: origin and purpose of the FSAP

The IMF has conducted regular reviews of national financial systems within the framework of the FSAP since 1999. The purpose of these exercises is to offer the IMF's technical advice to national authorities to improve and strengthen their financial systems and thus help to mitigate the frequency and severity of the financial crises they may face. The aim of the FSAP is twofold: i) to assess the stability and resilience of a country's financial system and ii) to evaluate the financial system's capacity to contribute to economic growth and development. FSAPs in advanced economies are conducted entirely by the IMF, but jointly by the IMF and the World Bank in developing and emerging market economies, with the latter conducting a financial development assessment.

FSAPs are intended to provide a comprehensive assessment of a country's financial system. These assessments are intended to assist IMF member countries identify key sources of vulnerability and systemic risk in the financial sector and report on the possible implementation of financial policy reforms and measures to enhance their resilience to adverse developments.[1] The IMF's FSAP teams: i) review the situation of the financial system and the suitability of its prudential framework; ii) analyse systemic risks (such as cyber risk, interconnectedness between banks and non-banks and the emerging issue of climate change risk); iii) evaluate the quality of the financial institution and market infrastructures supervision; and iv) from an institutional standpoint, assess the public authorities' capability to respond to systemic risk situations using their regulatory, oversight and resolution powers.

1 Certain categories of risk affecting financial stability, such as operational or legal risk and risk related to fraud, are not covered in FSAPs.

The main findings of each FSAP are presented in the Financial System Stability Assessment (FSSA) report. This report – which the IMF publishes on its website – is usually accompanied by a number of public technical notes on specific topics detailing the organisation's analytical approach and its findings. As part of the FSAP, the IMF also prepares confidential reports that are shared only with the authorities being assessed, known as the Aide-Mémoire (general) and the background notes (topic-specific).

The FSAP is a key tool for the IMF's macro-financial oversight function and is relevant for Article IV consultations. The main responsibilities of the IMF, as laid down in its Articles of Agreement, include monitoring and advising on member countries' economic and financial policies. This monitoring process (or surveillance, as the IMF refers to it) is partly based on the FSSAs[2] and typically involves two IMF staff visits to the member countries each year. During these missions, the IMF teams engage in a technical dialogue with a variety of representatives (from government, the central bank and other public bodies, as well as the private sector) on issues relevant to a wide range of public economic and financial policies. This process, which is known as an "Article IV consultation", concludes with a report that is submitted to the IMF Executive Board for analysis and approval and subsequently shared with the national authorities.[3]

The Spanish financial system is subject to an FSAP every five years. The financial stability assessment, carried out under the FSAP framework, has been a mandatory part of Article IV consultations since 2010 for those jurisdictions that are considered by the IMF to have systemically important financial sectors (SIFS).[4] For jurisdictions without SIFS, participation in the FSAP is voluntary (IMF, 2013).[5] For countries with SIFS, the assessments are carried out every five or ten years (see Table 1). In the last five years, this frequency was affected by the COVID-19 pandemic, which disrupted the capacities, resources and priorities of the IMF and the World Bank and delayed the FSAP by around two years for some countries (including Spain).

2 FSAPs in Spain

Since the FSAP assessments began, four exercises have been conducted in Spain, in 2006, 2012, 2017 and 2024. The FSAPs in Spain reflect developments in the IMF exercises themselves (which have focused increasingly on risk) and have been marked by important international and short-term developments for the Spanish financial system (e.g. the global financial crisis that began in 2008) and institutional/structural factors (such as the creation of the banking union in 2014). Another development in recent years, no less relevant, is the

2 The Independent Evaluation Office of the IMF has identified the need for greater integration of financial and macro-financial work across Article IV and FSAP surveillance (IMF, 2023a).

3 With the agreement of the national authorities, the IMF publishes the report on its website.

4 The methodology for determining jurisdictions with SIFS involves analysis of the financial sector's interconnectedness and potential for contagion, and is guided by the principles of relevance, transparency and impartiality. The list of jurisdictions with SIFS has included 47 countries since 2021, 32 of which have relatively more systemically important financial systems and are subject to the FSAP every five years, while the remaining 15 countries are assessed every ten years.

5 This is the case for the euro area, which is not on the list of SIFS jurisdictions and therefore is not legally obliged to submit to a FSAP. Nevertheless, it is assessed on a voluntary basis (ECB, 2020).

Table 1
Jurisdictions subject to an FSAP in the last ten years (2015-2024)

	Countries with SIFS		Countries without SIFS
Year	5-year cycle	10-year cycle	Voluntary frequency
2024	Saudi Arabia, China, **Spain,** Japan, India, Indonesia, Luxembourg and the Netherlands		Bolivia and Kazakhstan
2023	Belgium, Finland, Sweden and Türkiye		Botswana, Ecuador, Iceland, Jordan and Maldives
2022	Germany, Ireland, Mexico and United Kingdom	Colombia and South Africa	West African Economic and Monetary Union
2021	Hong Kong	Chile and the Philippines	Georgia
2020	Austria, Denmark, United States, Italy, South Korea and Norway		Trinidad and Tobago
2019	Australia, Canada, France, Singapore and Switzerland	Poland and Thailand	The Bahamas, Kuwait and Malta
2018	Belgium and Brazil	Peru	Euro area, Jamaica, Namibia and Tanzania
2017	Saudi Arabia, China, **Spain,** Japan, India, Indonesia, Luxembourg, the Netherlands and Türkiye	New Zealand	Bulgaria, Lebanon and Zambia
2016	Finland, Mexico, Sweden, Ireland, Russia, Germany and the United Kingdom	Argentina	Belarus, West African Economic and Monetary Union, Madagascar, Morocco, Moldova, Montenegro and Tajikistan
2015	United States and Norway		Bosnia and Herzegovina and the Turks and Caicos Islands

SOURCES: IMF and Banco de España.

increase in the number of Spanish bodies significant enough to engage in the direct dialogue with the IMF, and which, in turn, receive its recommendations. The expansion of the scope of the IMF assessment is evident in the issues coming under the umbrella of the FSAP, such as resolution or macroprudential surveillance, which have been developed significantly over the past decade. Such progress has given rise to new authorities, such as the Spanish executive resolution authority (FROB, by its Spanish abbreviation) and the Spanish macroprudential authority (AMCESFI, by its Spanish abbreviation). At the same time, existing authorities have been given new powers, as in the case of the Banco de España, which has taken on macroprudential and preventive resolution responsibilities for banks. Table 2 summarises the main areas covered in the FSAPs in Spain based on the technical notes and the main recommendations contained in the FSSA documents.

Since FSAPs began in Spain, the establishment of the banking union has entailed important changes to the design and implementation of national FSAPs, including that in Spain. With the launch of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism in 2014 – the two pillars currently underpinning the European banking union – the focus and scope of national FSAPs has shifted, since there is some overlap with the FSAP for the euro area. In particular, the scope of national FSAPs has shrunk in the areas of banking supervision and resolution, to focus on less significant institutions (LSIs) (which are under the direct responsibility of national authorities).[6] The European Central Bank (ECB) (as

6 With the banking union, the ECB and SRB were tasked with responsibility for prudential supervision and resolution of significant institutions, respectively. For this reason, assessing the supervision and resolution of those institutions falls within the scope of the FSAP for the euro area.

Table 2
Themes assessed by the IMF and key recommendations made in the FSAPs in Spain (a)

General	2024	2017	2012 (b)	2006
Systemic risk analysis and stress testing	2			
Macroprudential policy	4	2		
Financial safety net and crisis management	3	4	2	
Financial market infrastructures	3		2	
Interconnectedness				
Institutional framework, cross-authority coordination and regulations				6
Banking sector				
Prudential oversight	5	7	4	
AML/CFT (c)	1			
Profitability			1	
NPLs			1	
Insolvency and creditor rights		1		
Resilience			1	
Real estate			1	1
Holdings in non-financial companies				1
Regulation of savings banks				4
Non-bank sectors				
Securities markets			3	
Insurance		1	2	
Other				
Cyber risk	2			
Financial innovation/fintech	1			
Number of key recommendations	19	15	17	12
Implemented	—	13	15	9
Partially implemented	—	2	2	2
Not implemented	—	0	0	1

SOURCES: IMF and Banco de España.

a The shaded cells denote the themes on which technical notes have been issued. The figures in the cells indicate the number of key recommendations issued for each theme (i.e. the recommendations in the FSSA report).
b Technical notes were not released for this exercise.
c Anti-money laundering and combating the financing of terrorism.

the microprudential supervisory authority that also has macroprudential responsibilities) and the Single Resolution Board (SRB) (both at the banking union level), as well as the European Systemic Risk Board (ESRB) (at the European Union (EU) level) have become relevant interlocutors for the IMF not only for the euro area FSAPs but also for each of the specific FSAPs in the Member States.

The growing importance of EU regulations has also had an impact on national FSAPs. The increasingly important role of EU financial regulation, some of which is directly applicable in Member States through technical regulations and standards, has gradually reduced the role

of national legislators in developing new domestic regulation. As a result, it follows that the IMF should address certain recommendations of a regulatory nature to the European Commission and the European Supervisory Authorities – rather than to national authorities – and cover them in the FSAPs for the euro area.[7]

The first FSAP for Spain was completed in 2006,[8] at a time when systemic risk was building up in the financial system. The recommendations in the accompanying FSSA included moderating housing credit (warning of price overvaluation) and mitigating credit risk by strengthening prudential requirements for less traditional mortgages. It also suggested strengthening the independence of supervisory authorities and stressed the particular importance of rigorous governance of savings banks and of the need for credit institutions to take more conservative approaches to investments in non-financial corporations to mitigate the associated risks.

The second FSAP for Spain, conducted in 2012, took place in a different environment from that of the first, following the materialisation of systemic risk. A significant reform of the legal framework for savings banks had been undertaken, complemented by the financial support that many banks received from the FROB[9] and other measures that significantly changed the Spanish banking sector's structure. Measures had also been put in place to address the more problematic portion of credit institutions' portfolios, specifically those made up of real estate loans to developers. However, the IMF considered that, in the face of deteriorating economic conditions, further restructuring and recapitalisation of the weaker banks might still be needed. In order to preserve financial stability and lay the groundwork for recovery, the reforms (including independent asset valuation, the creation of credible backstops and the enhancement of the communication strategy and resolution framework) needed to be fully implemented. Immediately following the conclusion of this FSAP in June 2012, the Spanish Government made a request under the provisions of the European Financial Stability Facility (EFSF) assistance programme for the recapitalisation of financial institutions.[10]

In its next FSAP for Spain, in 2017, the IMF delivered a positive opinion regarding the Spanish financial system's progress. The economic recovery and reforms carried out by the various authorities helped stabilise and shore up the solvency of the banking sector and reduce non-performing loans. However, the IMF deemed it essential that the reform process be kept moving, that the bank balance sheet restructuring be completed and that closer attention be paid to monitoring interest rate and liquidity risks, along with potential sources of systemic risk, such as the insurance sector, the capital market or the governance of cooperative banks. The IMF also warned of the increasing risk of contagion from Spanish banks' cross-border exposures, the strong interconnections between financial sectors and the volume of less traditional banking activities driven by financial digitalisation.

---

7 On this issue, see the FSSA resulting from the 2018 FSAP for the euro area (IMF, 2018).

8 For a contemporary commentary on Spain's first FSAP, see Garrido Sánchez (2005) and Baliño et al. (2006).

9 The FROB was created in 2009, in the midst of financial crisis, to restructure and clean up the Spanish banking sector.

10 This request would be reflected a few weeks later in a Memorandum of Understanding entered into with the European Commission on financial-sector policy conditionality and a Framework Agreement for Financial Assistance with the EFSF.

In retrospect, the Spanish authorities have generally complied closely with IMF recommendations. This is partly down to the aforementioned strengthening of the European regulatory framework, as well as to specific domestic regulatory developments and other macro-financial policy decisions stemming from the Spanish authorities' readiness to adopt the IMF's proposals. This is evidenced by the recommendations to strengthen the prudential framework of the banking system, which have appeared in every FSAP since the first. The EU Capital Requirements Directive and Regulation (CRD and CRR), together with the related national regulations implementing the CRD, have seen the Spanish regulations brought into line with the IMF's requirements. However, in other areas, some recommendations have not been addressed. For example, the 2006 FSAP advised separating insurance supervision from the Ministry of Economy.

The IMF has made a range of recommendations relating to macroprudential policy. Some of the IMF's concerns have remained over time, such as its recommendation to establish an institutional mechanism for coordination between financial stability authorities. This recommendation, which appeared as early as the 2006 FSAP, resurfaced again in the 2017 FSAP in the form of a proposal to establish a Systemic Risk Council in Spain with a mandate and tasks similar to those of the ESRB (for the EU). In line with this recommendation, AMCESFI[11] was created in 2019 to identify, prevent and mitigate the build-up of systemic risk and to ensure that the financial system contributes sustainably to economic growth. AMCESFI's predecessor was the Financial Stability Committee (CESFI, by its Spanish abbreviation),[12] established following the 2006 FSAP for Spain. Another example is the recommendation in the 2017 FSAP regarding the expansion of the macroprudential toolkit to include borrower-based tools (by means of limits and conditions on the granting of bank lending). This recommendation was addressed in Royal Decree-Law 22/2018 and later implemented in Banco de España Circular 5/2021.

3 The 2024 FSAP for Spain

3.1 Design, organisation and implementation of the exercise

The IMF concluded its fourth assessment of the Spanish financial system in June 2024. This year the IMF once again conducted an evaluation of the state of the financial system, its institutional framework and the performance of the relevant authorities, paying particular attention to developments since the previous exercise. The outbreak of the COVID-19 pandemic at the beginning of 2020 prevented the 2022 edition from going forward in line with the pre-

11 AMCESFI is a collegiate body attached to the Minister of Economy, Trade and Business (MINECO). Its members are high-level representatives from this ministry and from the three authorities with sectoral responsibilities for the regulation and prudential supervision of the Spanish financial system: the Banco de España, the National Securities Market Commission (CNMV, by its Spanish abbreviation) and the Directorate General of Insurance and Pension Funds (DGSFP, by its Spanish abbreviation) of the Ministry of Economy, Trade and Business

12 The CESFI was set up by means of a voluntary cooperation agreement between the then Ministry of Economic Affairs and Finance, the Banco de España, the CNMV and the DGSFP.

established five-year frequency for those jurisdictions, like Spain, that the IMF deems as having SIFS.

The preparatory work for the 2024 FSAP for Spain started two years prior. In 2022 the IMF opened the relevant dialogues with the Office of its Executive Director for Spain and with the Spanish authorities to determine the work schedule, missions and arrange the various thematic areas to be covered during the exercise. In this initial phase, the IMF selected experts to undertake the FSAP for Spain. Under the leadership of Jay Surti, Chief of the Financial Supervision and Regulation Division at the IMF, ten experts (staff members of the multilateral body) and two external consultants constituted the IMF's multinational FSAP team.[13]

On behalf of the Spanish authorities, the Ministry of Economic Affairs and Digital Transformation[14] spearheaded coordination with the IMF for the FSAP and acted as the principal liaison. Through the General Secretariat of the Treasury and International Financing, attached to the aforementioned Ministry, the necessary preparations were made to involve all the relevant Spanish authorities (depending on their area of competence) and enable them to effectively participate in the exercise. To this end, points of contact were established with the authorities to facilitate information sharing and channel communications with the IMF's FSAP team.

Undertaking the FSAP required close institutional collaboration at various levels. The Banco de España played a prominent role in the FSAP. In addition to the Ministry of the Economy, Trade and Business, the Banco de España, the CNMV, the DGSFP,[15] the FROB, the Deposit Guarantee Scheme for Credit Institutions (FGD, by its Spanish abbreviation) and the Executive Service of the Commission for the Prevention of Money Laundering and Monetary Offences (SEPBLAC) actively liaised with the IMF team during the FSAP. Collectively, AMCESFI also made an important contribution to the exercise. It should be noted that other Spanish bodies and agencies were also involved in the exercise, albeit in a more ad hoc and limited manner. The IMF mission also had the opportunity to meet and gather the views of private sector organisations (representatives of banking associations and various financial institutions based in Spain) and academic experts.

The 2024 FSAP also involved European bodies with responsibilities for the Spanish financial system. In particular, the IMF held dialogues with the ECB and the ESRB. Since the launch of the SSM, the ECB (in addition to being the competent authority for the supervision of significant credit institutions in Spain) has been responsible for the indirect supervision of less significant institutions in order to ensure the consistent application of high standards by national competent authorities and thereby ensure consistency in supervisory outcomes across countries participating in the banking union. The ECB also performs functions relating

13 The IMF team for the FSAP for Spain comprised: Jay Surti (Mission Chief), Luc Riedweg (Deputy Mission Chief), Sneha Agrawal, Rachid Awad, Yaiza Cabedo, Tamas Gaidosch, Elisa Letizia, Yu Shi, Puja Singh, Hamid Reza Tabarraei and Adrian Wardzynski (all IMF); Nigel Jenkinson and Eamonn White (external experts). See IMF (2024a).

14 As it was in 2022, now the Ministry of the Economy, Trade and Business (2024).

15 Attached to the Ministry of the Economy, Trade and Business.

to the monitoring of financial stability risks and the assessment of national macroprudential policies for the banking sector (in permanent contact with the Banco de España in the case of Spain), including potentially tightening the macroprudential measures adopted by the Banco de España as the designated authority. In addition, the ESRB monitors systemic risk developments across the EU and its Member States, promoting common practices in the conduct of macroprudential policies across all sectors of the financial system. The Banco de España, the CNMV and the DGSFP are all members of the ESRB.

The 2024 Spain FSAP was structured around three IMF staff missions to the evaluated authorities. In mid-2023 the IMF conducted a scoping mission to agree on the assessment perimeter for the FSAP themes. This first mission was conducted remotely. By contrast, the next two missions were conducted on-site and involved visits by the IMF team to Madrid for meetings with staff designated by the authorities.[16] These visits, each lasting around two weeks, took place in October 2023 and January-February 2024, during which the IMF team held roughly 200 technical work meetings.

In preparation for each of these visits, the IMF team sent the Spanish authorities several requests for information. These took the form of thematic questionnaires to complete, requests for access to internal documentation and the preparation of confidential data files and statistics for stress testing purposes. These requests were duly addressed in accordance with the safeguards for sharing confidential information between the IMF and national authorities. In the particular case of the Banco de España, the requests were also addressed in coordination with the ECB and subject to the provisions on the transfer of information to international organisations laid down in the EU Capital Requirements Directive.[17] To this end, the Banco de España provided secure environments for the IMF team at its premises, provided English translations of the necessary documentation and ensured the secure electronic transfer of data with the IMF and the other institutions involved. The Spanish authorities also advised the IMF on its meetings with financial institutions.

The Banco de España played a prominent role in the FSAP. Given its important roles in various capacities (as central bank, as the competent supervisory authority and as the designated macroprudential authority), the Banco de España was involved in most of the FSAP workstreams, contributing expertise and information, along with logistical assistance for the IMF's on-site missions in Madrid. At the Banco de España alone, more than 80 staff members (with varying levels of responsibility) were directly involved in the FSAP. This is an indication of the level of resources required to conduct the FSAP effectively, as well as the cross-cutting nature of such exercises for an authority such as the Banco de España. The IMF team held meetings with staff from the Directorate General Financial Stability, Regulation and Resolution; the Directorate General Banking Supervision; the Associate Directorate General Economics and Research; the Directorate General Operations, Markets and Payment

16 The IMF team also travelled to Frankfurt, where the ECB has its headquarters.

17 Article 58a of 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 and investment firms (transposed into Spanish law by Article 82a of Law 10/2014 of 26 June 2014 on the regulation, supervision and solvency of credit institutions).

Systems; the Directorate General Financial Conduct and Banknotes; the General Secretariat; and, in the case of end-of-mission meetings, with members of the Banco de España's senior management.

The IMF focused the 2024 Spain FSAP on seven thematic areas. In line with previous FSAPs for Spain and for other European countries, the IMF conducted a segmented analysis of the key areas for action or reform in the financial system over recent years. The IMF has published technical notes for each of these areas (or modules), detailing the IMF's analytical approach and presenting its assessment and findings on the situation in Spain:

- Systemic risk analysis.
- Macroprudential policy framework and tools.
- Regulation and supervision of less significant institutions.
- Regulation, supervision, oversight and crisis management for financial market infrastructures.
- Cyber risk.
- Fintech developments and oversight.
- Crisis management and financial safety net.

Following final IMF approval, the documentation for Spain's FSAP was published between June and August 2024. Coinciding with the conclusion of the Article IV Consultation for Spain, at its meeting on 5 June 2024 the IMF Executive Board approved the publication of the documentation for Spain's FSAP (IMF, 2024b). Along with the aforementioned technical notes, the IMF published its FSSA report, summarising its analysis and the key recommendations for the Spanish authorities in this FSAP. All of the FSAP materials, totalling more than 400 pages, are available to download from the IMF website (see Table A.1 in the annex, listing the documentation for all of Spain's FSAPs).

3.2 Assessment and recommendations of the 2024 Spain FSAP

The IMF took a favourable view of the overall resilience of the Spanish financial system, and of the banking sector in particular. The IMF underscored the deleveraging by households and firms and found that the risks posed by the non-bank financial intermediation sector were moderate, since it comprises a small share of the overall financial system. The main risks to financial stability in Spain are associated with an abrupt slowdown in economic growth and a tightening of financial conditions prompted by higher interest rates or by downward pressure on real estate prices. All told, the IMF stress tests on the ten Spanish

significant credit institutions[18] demonstrated the banking sector's overall resilience to potential adverse macro-financial scenarios up to 2026. On average, these institutions perform well under the baseline scenario. In terms of solvency, they maintain Common Equity Tier 1 (CET1) ratios above the regulatory minimums under the adverse scenario, although partly at the cost of a significant adjustment in their lending to the real economy.

Notwithstanding the encouraging analytical findings, the 2024 FSAP led the IMF to issue an ambitious set of recommendations to the Spanish authorities for the years ahead. These recommendations (see Table 3 and, for greater detail, Table A.2 in the annex) vary in their institutional scope (the addressee authorities), priority (high, medium, low), the expected timeframe for implementation (immediate or within one year; near term or within 1-3 years; and medium term or within 3-5 years) and, of course, their complexity, given that some require, for example, legislative change (which is not in the hands of financial supervisors) or coordinated action by several authorities with different mandates, priorities and governance processes. Each of these recommendations is subject to individual review to decide, where applicable, on the most suitable form and timing for their implementation.

The 2024 Spain FSAP, consisting of seven technical notes, contains a total of 78 recommendations for Spanish authorities, based on which the IMF presented 20 key recommendations[19] in its accompanying FSSA report. These recommendations cover the entire thematic spectrum of the exercise, with about half of them directly pertaining to the Banco de España's sphere of competence. In the IMF team's view, roughly half of the recommendations could be implemented immediately and the other half in the near term (within three years), although there are a few exceptions. For those recommendations where the IMF provided a priority classification, the priority is mostly high or medium/high (see Chart 1 for more details).

In the realm of systemic risk analysis and macroprudential policy, the IMF addressed four key recommendations to the Banco de España. The IMF urges the sectoral authorities to enhance data collection on foreign investment in the Spanish real estate sector to better understand the price dynamics of new housing and commercial premises (offices). The IMF also encourages the Banco de España to strengthen its bank liquidity analysis using cash flow data (as a sort of reverse stress test) and to develop a template for reporting the results of these exercises. Moreover, the IMF recommends that the Banco de España introduce macroprudential measures such as the countercyclical capital buffer (CCyB) to increase banks' loss-absorbing capacity in the face of adverse risk events. In the IMF's view, the current strong bank profits make it an opportune time to require the build-up of the CCyB, in line with other European countries. The IMF also urged several authorities to continue efforts to close statistical information gaps. The IMF spotlights borrower income and cross-border exposures of investment funds domiciled in other countries and authorised to operate in Spain (although

18 Significant institutions are directly supervised by the ECB. In Spain, they account for around 95% of the banking sector by asset volume.

19 Each recommendation in the FSSA report corresponds to one or more recommendation included in the technical notes.

Table 3
Key recommendations included in the FSSA forthe 2024 Spain FSAP

No	Areas and description of the recommendation	Addressee	Priority	Timing
	Systemic risk analysis and monitoring			
1	Enhance data collection and monitoring of foreign investments in the real estate market	Banco de España, CNMV, DGSFP	—	Near term
2	Create the infrastructure for a more granular cash-flow analysis and report regular stress testing results	Banco de España	—	Near term
	Financial sector oversight			
3	Ensure alignment of resources of supervisory authorities to current and expected future workload.	Government, Banco de España, CNMV, DGSFP	—	Immediate
4	Grant full autonomy to CNMV over its recruitment and retention processes and streamline related procedures	Government, CNMV	High	Immediate
	Macroprudential policy framework and tools			
5	Deploy policies, including but not necessarily limited to, the introduction of a positive neutral countercyclical buffer, to ensure that banks raise capital buffers to be better positioned against downside tail risks	Banco de España, AMCESFI	—	Immediate
6	Increase the minimum frequency of AMCESFI Council meetings and raise the profile and transparency of AMCESFI by publishing meeting minutes/ summaries and timely annual reports	AMCESFI	—	Immediate
7	Review the case for appointing two or three external members to AMCESFI to strengthen the diversity of perspectives and expertise	MINECO, AMCESFI	—	Immediate
8	Further develop and deepen the macroprudential framework by addressing remaining data and information gaps, as well as by strengthening reporting requirements	Banco de España, CNMV, DGSFP, AMCESFI	—	Near term
	Supervision and regulation of banking LSIs			
9	Enhance the Banco de España's independence by removing MINECO appeal powers against Banco de España supervisory decisions and sanctions and limiting the role of government's representatives in the Banco de España's Governing Council	MINECO	High	Near term
10	Streamline the offsite monitoring system and apply proportionality in conducting SREPs while performing more frequent and targeted onsite inspections and thematic activities.	Banco de España	High	Immediate
11	Strengthen the Banco de España's onsite inspection activities on LSIs' governance and risk management, particularly management of liquidity risk and interest rate risk in the banking book	Banco de España	High	Immediate
	Regulation, supervision and oversight of financial market infrastructures			
12	Ensure that international supervisory coordination arrangements with other supervisors reflect scope and degree of interconnectedness of BME Clearing, Iberclear and their foreign parent company	CNMV	Medium/High	Medium term
13	Ensure timely implementation of CNMV's recommendations	CNMV	Medium/High	Near term

SOURCES: IMF and Banco de España.

it recognises that the latter should ideally be coordinated with other authorities as part of an international initiative).

Some of the FSAP recommendations are already being implemented, but others will require in-depth prior analysis and coordination between the addressee authorities. In the area of macroprudential policy, one notable example is the recommendation that the Banco

Table 3
Key recommendations included in the FSSA forthe 2024 Spain FSAP (cont'd)

No	Areas and description of the recommendation	Addressee	Priority	Timing
	Cyber security risk supervision and oversight			
14	Conduct onsite examinations as part of financial market infrastructure supervision; Conduct more thematic reviews while maintaining short onsite visits to a sample of LSIs; Develop a lighter threat intelligence based red-teaming framework based on TIBER-ES principles	CNMV, Banco de España, MINECO	—	Near term
15	Involve the Banco de España and CNMV in critical infrastructure related matters, such as designation and compliance assessments	Government	—	Near term
	Fintech			
16	Delegate powers to the Coordination Commission and the regulators to make changes to sandbox operation, streamline administrative processes, and provide greater flexibility to supervisory authorities to use preferred mix of tools	Government, Banco de España, CNMV, DGSFP	High	Near term
	Financial Integrity			
17	Complement the National Risk Assessment, ensure accuracy of data stored in centralised beneficial ownership register, and extend AML-CFT risk-based supervisory activities to professional enablers and virtual asset providers	SEPBLAC, MINECO, Banco de España, the Registrars' AML Centre, Ministry of the Prime Minister's Office, Justice and Relations with Parliament	—	Near term
	Crisis management and financial safety nets			
18	Integrate preventative resolution authority functions (i.e. the Banco de España's resolution planning department) and FROB's executive resolution functions for banks	MINECO	High	Immediate
19	Improve the statutory resolution regime so FROB has resolution power to override shareholders rights, update the statutory insolvency creditor hierarchy, and enable liquidators to transfer deposit accounts	MINECO	Medium	Near term
20	Establish and operationalise an approach to address liquidity needs in resolution	Banco de España	High	Immediate

SOURCES: IMF and Banco de España.

de España require a positive CCyB rate from banks for their credit exposures located in Spain. The Banco de España complied with that recommendation as a result of the CCyB measure announced on 1 October 2024.[20] However, the situation is quite different for the recommendations relating to AMCESFI, where the IMF suggests certain changes to its functioning, the appointment of external members with an academic background and increasing the minimum frequency of AMCESFI Council meetings (from six-monthly to quarterly). For these changes to take place, the Government, should it see fit, would have to amend Royal Decree 102/2019 (establishing AMCESFI).[21] There are also recommendations for which implementation is ongoing, such as

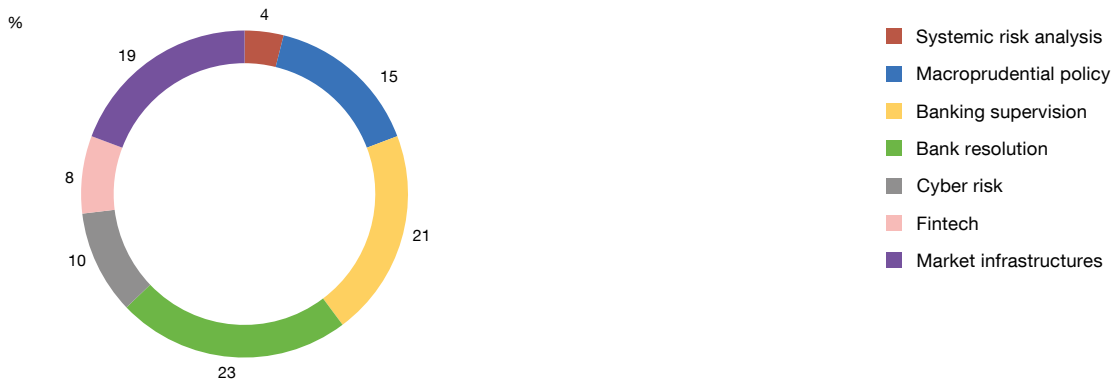
20 Press release of 1 October 2024,"The Banco de España approves the new framework for setting the countercyclical capital buffer and sets the buffer rate for 2024 Q4 at 0.5%". This IMF recommendation was issued shortly before the Banco de España announced, on 16 May 2024, its plan to introduce a positive CCyB rate. The Executive Board of the IMF acknowledged this recent development in its press release "IMF Executive Board Concludes 2024 Article IV Consultation with Spain" of 6 June 2024.

21 It must first comply with the third additional provision of Royal Decree 102/2019, which requires the (current) Ministry of Economy, Trade and Business to prepare three-yearly reports on AMCESFI's fulfilment of its objectives, as well as on the suitability of its organisational structure, the tools available and the cooperation arrangements with other authorities to achieve these objectives.

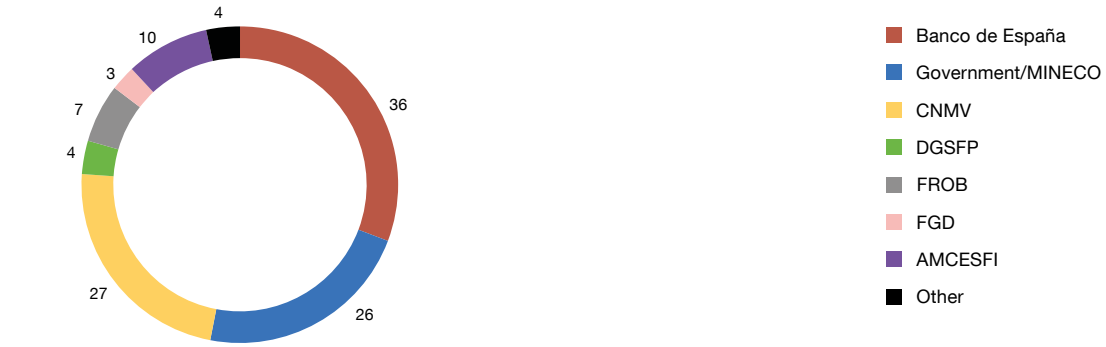
Chart 1

2024 Spain FSAP recommendations by topic, addressee, timing and priority (a)

1.a Recommendations by topic



1.b Number of recommendations by addressee (b)



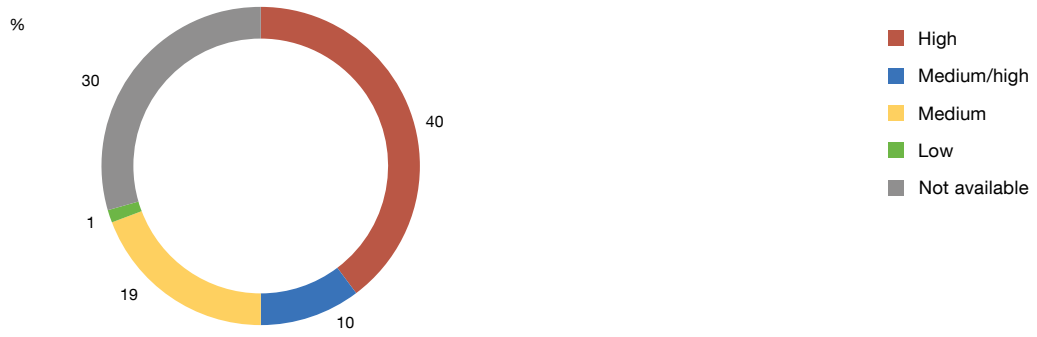
1.c Recommendations timing

SOURCES: IMF and Banco de España.

a All four panels draw on the data available for the 78 FSAP recommendations.
b Panel 1.b takes into account that some recommendations are addressed to more than one authority.

Chart 1
2024 Spain FSAP recommendations by topic, addressee, timing and priority (cont'd)

1.d Priority of the recommendations



SOURCES: IMF and Banco de España.

enhancing data collection for monitoring foreign investment in the real estate sector. The rationale for and objectives of this recommendation align with those of various ESRB recommendations[22] to which the Banco de España has adhered.

4 Comparison with recent FSAPs in other euro area countries

The changing risk environment and severity of the risks shape the context in which each FSAP is conducted. For each FSAP, the IMF's assessment takes as a starting point a list of the risks to financial stability that the IMF delegation deems relevant (albeit with different levels of severity) for each country assessed. As summarised in Table 4, the more persistent risks over the last three years for a sample of European countries are associated with geo-economic fragmentation and the escalation of various regional conflicts (Russia's invasion of Ukraine, the crisis in the Middle East and armed conflicts in Africa). In addition, the countries' risk matrices illustrate growing concerns about the adverse consequences of a possible disorderly energy transition, along with cyber risks.

The 2024 Spain FSAP followed others conducted for euro area countries such as Belgium, Finland, Germany, Ireland, Luxembourg and the Netherlands. The FSAPs for these countries were similar in thematic design and scope to that conducted in Spain, partly due to the IMF's recognition of common structural factors, such as the banking sector's dominance in the domestic financial system and regulatory and institutional frameworks aligned with the EU and the banking union. Table 5 provides an overview of the euro area countries subject to FSAPs since the COVID-19 pandemic, detailing the topics covered in the associated technical notes.

22 Such as Recommendations ESRB/2016/14 and ESRB/2019/3 on closing real estate data gaps and Recommendation ESRB/2022/9 on vulnerabilities in the commercial real estate sector in the European Economic Area.

Table 4

Risks assessment - relative likelihood of occurence over a three-year horizon

	2024			2023		2022	
	Spain	Luxembourg	Netherlands	Belgium	Finland	Germany	Ireland
Risks exogenous to the financial system							
Intensification of regional conflicts	High		High	High	High	High	High
Geo-economic fragmentation	High		High	High	High	High	High
Disorderly energy transition	Medium		Medium	Medium			Medium
Cyber threats	Medium	Medium			Medium		
COVID-19 outbreaks					Medium	Medium	Medium
Political uncertainty and fragmentation			Medium	High			
Non-financial economic risks							
Abrupt global slowdown or recession / Weaker than expected growth	Medium	Medium	Medium	Medium			
Commodity price volatility	High	Medium			High		
De-anchoring of inflation expectations and stagflation					Medium	Medium	Medium
Trade frictions and uncertainty related to the implementation of post-Brexit arrangements							Medium
Real estate market corrections		Low	Medium				
Possible changes in international corporate and personal taxation		Medium					
Financial risks							
Miscalibration of monetary policy	Medium	Medium	Medium	Medium			
Sovereign risk	Medium			Medium			
Systemic financial instability		Medium	Medium				

SOURCES: IMF and Banco de España.

Supervision and macroprudential policy play a vital role in the banking sector, and therefore are core analytical modules in FSAPs. Other topics related to the financial system, such as insurance, investment funds or stock markets, receive varying levels of attention from the IMF based on their relevance in each country. In addition, there are certain topics that have gained increasing importance in recent years, particularly those relating to financial innovation, cyber risk and the risks posed by climate change. When determining the scope of each FSAP, the IMF also considers whether it has extensively addressed the issue in an earlier exercise. For instance, the insurance sector, a frequent subject of FSAP technical notes in other European countries recently, was not assessed in the 2024 Spain FSAP because it was comprehensively analysed in 2017.

The number of IMF recommendations pertaining to macroprudential policy and systemic risk analysis varies significantly from one country to another. However, the number of recommendations is not directly comparable across countries due to the specificities of each country's institutional architecture, in addition to factors as significant as normative

Table 5
Themes assessed by the IMF and key FSAP recommendations issued for euro area countries in 2022-2024 (a)

	2024			2023		2022	
	Spain	Luxembourg	Netherlands	Belgium	Finland	Germany	Ireland
General							
Systemic risk analysis, interconnections and stress testing	2	5	3	3	2	3	
Macroprudential policy	4	6	4	3	3	5	3
Crisis management and financial safety net	3	3	3	4	3	2	2
Financial market infrastructures	3			3		2	
Other			5		3		5
Banking sector							
Prudential supervision	5	6	1	3	2	4	1
AML/CFT (b)	1	1	3	2	1		1
Bank profitability							
Insolvency and creditor rights							
Non-bank financial sector							
Securities markets and investment funds			2		1		4
Insurance			1	4		1	1
Pension funds			1		1		
Other							
Cyber risk	2						
Financial innovation/fintech	1						2
Climate risks			4			1	

SOURCES: IMF and Banco de España.

a The shaded cells denote the themes on which technical notes have been issued. The figures in the cells indicate the number of key recommendations issued for each theme (i.e. the recommendations included in the FSSA report).
b Anti-money laundering and combating the financing of terrorism.

and regulatory development in aspects not covered by EU legislation.[23] Ultimately, FSAP recommendations are highly qualitative in nature, and therefore the number of recommendations should not be viewed as an indicator of a country's progress in the five-year FSAP cycle.

Some of the IMF's recommendations are made on a recurring basis in different countries' FSAPs. The 2024 Spain FSAP includes a number of recommendations that also feature in other recent assessments, such as (i) introducing a positive neutral CCyB rate in the banking sector (also recommended in Belgium (IMF, 2023c) and Finland (IMF, 2023e)); and (ii) raising the transparency of the national macroprudential authority by publishing meeting minutes (Germany (IMF, 2022b)) and appointing external advisory members of these authorities (Ireland (IMF, 2022d)). Other common recommendations concerning risks to financial stability and macroprudential policy relate to: enhancing the coverage of the available statistical

23 For instance, in Italy's latest FSAP the IMF recommended that the country improve its institutional framework by setting up a macroprudential authority for its financial system (IMF, 2020). The IMF had issued a very similar recommendation to Spain in the 2017 FSAP. Once the authority had been set up (in 2019), the IMF then made seven recommendations in the 2024 FSAP to strengthen the structure, mandate and duties of the new Spanish macroprudential authority (AMCESFI).

information for analytical purposes (closing data gaps), improving stress test methodologies and enacting regulations to allow designated authorities to implement limits and conditions on bank lending based on borrowers' debt capacity.

5 Conclusion

The FSAP is the main external evaluation exercise available for domestic financial systems. Given their broad thematic coverage, the scope of the recommendations and the substantial resources needed to conduct them, the IMF FSAPs serve as a benchmark exercise for assessing each jurisdiction in terms of financial, regulatory and supervisory stability, and the suitability of its institutional framework. The recommendations in each FSAP stem from a thorough diagnosis of the areas for improvement that have been identified and the reforms required to strengthen the resilience of the system and to minimise the occurrence and impact of financial crises.

Over the coming years, the Banco de España should act on the recommendations formulated in the latest FSAP. At the date of writing this article, the Banco de España is developing a detailed roadmap for implementing each of the recommendations addressed to it. Indeed, the IMF will conduct ongoing monitoring of compliance with the main recommendations as part of its next annual IMF Article IV reports (on national macroeconomic policies). Should it fail to comply with any of the recommendations, the IMF may consider formulating them again in its next FSAP for Spain, foreseeably in 2029. In a more immediate time frame, the forthcoming FSAP for the euro area will give the IMF a fresh opportunity to collectively assess Spain and the other member countries, and to make recommendations to strengthen and further the integration of the European financial system.

REFERENCES

Baliño, Tomás J. T., Ignacio Garrido, Antonio Pancorbo de Rato, Andrés García de la Riva, Carlos Conesa, Roberto Blanco, Adolfo Rodríguez, Juan M. Ruiz, Carlos Trucharte, Alfredo Martín, Jesús Saurina and José Viñals. (2006). "El Banco de España y la evaluación del sistema financiero". *Nota de Estabilidad Financiera,* 5 (December), Banco de España. https://repositorio.bde.es/handle/123456789/11121

European Central Bank. (2020). "The IMF's financial surveillance in Europe – Experiences with FSAPs and their links with Article IV consultations. IRC Task Force on IMF and Global Financial Governance Issues". ECB Occasional Paper No 246, July. https://data.europa.eu/doi/10.2866/654824

Garrido Sánchez, Ignacio. (2005). "El FSAP: un instrumento para la estabilidad y el desarrollo". *Revista de Estabilidad Financiera,* 9 (November), Banco de España. https://repositorio.bde.es/handle/123456789/23054

International Monetary Fund. (2006). "Spain: Financial System Stability Assessment". Country Report No 2006/212, June 14. https://doi.org/10.5089/9781451812152.002

International Monetary Fund. (2007). "Spain: 2007 Article IV Consultation; Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion". Country Report No 2007/175, May 18. https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Spain-2007-Article-IV-Consultation-Staff-Report-Staff-Statement-and-Public-Information-20982

International Monetary Fund. (2009). "Spain: 2008 Article IV Consultation; Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion". Country Report No 2099/128, April 22. https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Spain-2008-Article-IV-Consultation-Staff-Report-Staff-Supplement-Public-Information-Notice-22891

International Monetary Fund. (2012). "Spain: Financial System Stability Assessment". Country Report No 2012/137, June 8. https://www.imf.org/en/Publications/CR/Issues/2016/12/31/Spain-Financial-System-Stability-Assessment-25977

International Monetary Fund. (2013). *Mandatory Financial Stability Assessments under the Financial Sector Assessment Program: Update,* November 15. https://www.imf.org/external/np/pp/eng/2013/111513.pdf

International Monetary Fund. (2017). "Spain: Financial System Stability Assessment". Country Report No 2017/321, October 6. https://www.imf.org/en/Publications/CR/Issues/2017/10/06/Spain-Financial-System-Stability-Assessment-45321

International Monetary Fund. (2018). "Euro Area Policies: Financial Sector Stability Assessment". Country Report No 2018/226, July 19. https://www.imf.org/en/Publications/CR/Issues/2018/07/19/Euro-Area-Policies-Financial-System-Stability-Assessment-46100

International Monetary Fund. (2020). "Italy: Financial System Stability Assessment". Country Report No 2020/181, March 20. https://www.imf.org/en/Publications/CR/Issues/2020/03/19/Italy-Financial-System-Stability-Assessment-49280

International Monetary Fund. (2022a). "Germany: Financial System Stability Assessment". Country Report No 2022/231, July 20. https://www.imf.org/en/Publications/CR/Issues/2022/07/19/Germany-Financial-System-Stability-Assessment-521034

International Monetary Fund. (2022b). "Germany: Technical Note—Macroprudential Policy Framework And Tools". Country Report No 2022/263, August 3. https://www.imf.org/en/Publications/CR/Issues/2022/08/02/Germany-Financial-Sector-Assessment-Program-Technical-Note-Macroprudential-Policy-Framework-521671

International Monetary Fund. (2022c). "Ireland: Financial System Stability Assessment". Country Report No 2022/215, July 7. https://www.imf.org/en/Publications/CR/Issues/2022/07/07/Ireland-Financial-System-Stability-Assessment-520469

International Monetary Fund. (2022d). "Ireland: Technical Note on Macroprudential Policy Framework and Tools". Country Report No 2022/2933, September 9. https://www.imf.org/en/Publications/CR/Issues/2022/09/07/Ireland-Financial-Sector-Assessment-Program-Technical-Note-on-Macroprudential-Policy-523204

International Monetary Fund. (2023a). *Independent Evaluation at the IMF: The Second Decade.* Independent Evaluation Office of the International Monetary Fund, April 4. https://ieo.imf.org/en/Publications/Books/Books/independent-evaluation-at-the-imf-the-second-decade

International Monetary Fund. (2023b). "Belgium: Financial System Stability Assessment". Country Report No 2023/388, December 8. https://www.imf.org/en/Publications/CR/Issues/2023/12/07/Belgium-Financial-Sector-Assessment-Program-Financial-System-Stability-Assessment-542059

International Monetary Fund. (2023c). "Belgium: Technical Note on Macroprudential Policy Framework and Tools". Country Report No 2023/392, December 8. https://www.imf.org/en/Publications/CR/Issues/2023/12/07/Belgium-Financial-Sector-Assessment-Program-Technical-Note-on-Macroprudential-Policy-542169

International Monetary Fund. (2023d). "Finland: Financial System Stability Assessment". Country Report No 2023/039, January 23. https://www.imf.org/en/Publications/CR/Issues/2023/01/20/Finland-Financial-System-Stability-Assessment-528426

International Monetary Fund. (2023e). "Finland: Technical Note on Macroprudential Policy Framework and Tools". Country Report No 2023/063, February 1. https://www.imf.org/en/Publications/CR/Issues/2023/01/31/Finland-Financial-Sector-Assessment-Program-Technical-Note-on-Macroprudential-Policy-528773

International Monetary Fund. (2024a). "Spain: Financial System Stability Assessment". Country Report No 2024/154, June 6. https://doi.org/10.5089/9798400277887.002

International Monetary Fund. (2024b). "Spain: 2024 Article IV Consultation-Press Release; and Staff Report". Country Report No 2024/152, June 6. https://doi.org/10.5089/9798400277832.002

International Monetary Fund. (2024c). "Spain: Technical Note on Systemic Risk Analysis". Country Report No 2024/259, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Systemic-Risk-Analysis-552808

International Monetary Fund. (2024d). "Spain: Technical Note on Macroprudential Policy Framework and Tools". Country Report No 2024/260, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Macroprudential-Policy-552813

International Monetary Fund. (2024e). "Spain: Technical Note on Regulation and Supervision of Less Significant Institutions". Country Report No 2024/261, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Regulation-and-Supervision-of-552818

International Monetary Fund. (2024f). "Spain: Technical Note on Regulation, Supervision, Oversight, and Crisis Management of Financial Market Infrastructures". Country Report No 2024/262, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Regulation-Supervision-552823

International Monetary Fund. (2024g). "Spain: Technical Note on Cyber Risk and Financial Stability". Country Report No 2024/263, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Cyber-Risk-and-Financial-552828

International Monetary Fund. (2024h). "Spain: Technical Note on Fintech Developments and Oversight". Country Report No 2024/264, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Fintech-Developments-and-552833

International Monetary Fund. (2024i). "Spain: Technical Note on Financial Safety Net and Crisis Management". Country Report No 2024/265, August 1. https://www.imf.org/en/Publications/CR/Issues/2024/08/01/Spain-Financial-Sector-Assessment-Program-Technical-Note-on-Financial-Safety-Net-and-Crisis-552838

International Monetary Fund. (2024j). "Luxembourg: Financial System Stability Assessment". Country Report No 2024/157, June 7. https://doi.org/10.5089/9798400278204.002

International Monetary Fund. (2024k). "The Netherlands: Financial System Stability Assessment". Country Report No 2024/087, April 8. https://www.imf.org/en/Publications/CR/Issues/2024/04/05/Kingdom-of-the-NetherlandsThe-Netherlands-Financial-System-Stability-Assessment-547346

Annex

Table A1
IMF publications on FSAPs for Spain

Date	Code (IMF Country Report)	Name of publication
06/06/2024	24/154	Spain: Financial System Stability Assessment (FSSA)
01/08/2024	24/259	Spain: FSAP - Technical Note on Systemic Risk Analysis
	24/260	Spain: FSAP - Technical Note on Macroprudential Policy Framework and Tools
	24/261	Spain: FSAP - Technical Note on Regulation and Supervision of Less Significant Institutions
	24/262	Spain: FSAP - Technical Note on Regulation, Supervision, Oversight, and Crisis Management of Financial Market Infrastructures
	24/263	Spain: FSAP - Technical Note on Cyber Risk and Financial Stability
	24/264	Spain: FSAP - Technical Note on Fintech Developments and Oversight
	24/265	Spain: FSAP - Technical Note on Financial Safety Net and Crisis Management
06/10/2017	17/321	Spain: Financial System Stability Assessment (FSSA)
13/11/2017	24/336	Spain: FSAP- Technical Note-Systemic Risk Oversight Framework and Macroprudential Policy
	17/337	Spain: FSAP- Technical Note-Institutional Arrangements for Financial Sector Oversight
	17/338	Spain: FSAP- Technical Note-Insurance Sector Supervision and Regulation
	17/339	Spain: FSAP- Technical Note-Determinants of Bank Profitability
	17/340	Spain: FSAP- Technical Note-Insolvency and Creditor Rights
	17/341	Spain: FSAP- Technical Note-Bank Resolution and Crisis Management Frameworks
	17/342	Spain: FSAP- Technical Note-Stress Testing Banking System Resilience
	17/343	Spain: FSAP- Technical Note-Impaired Assets and Nonperforming Loans
	17/344	Spain: FSAP- Technical Note-Interconnectedness and Spillover Analysis in Spain's Financial System
	17/345	Spain: FSAP- Technical Note-Supervision of Spanish Banks
08/06/2012	12/137	Spain: Financial System Stability Assessment (FSSA)
14/06/2006	06/212	Spain: Financial System Stability Assessment, including Reports on the Observance of Standards and Codes on the following topics: Banking Supervision, Insurance Supervision, Securities Supervision, Payment Systems, Securities Settlement Systems, and Financial Policy Transparency
	06/217	Spain: FSAP: Technical Note: Supervision of Insurance: Alternative Models for an Independent Agency
	06/210	Spain: FSAP: Technical Note: Housing Prices, Household Debt, and Financial Stability
	06/214	Spain: FSAP: Technical Note: Nonfinancial Equity Investments of Spanish Credit Institutions
	06/215	Spain: FSAP - Technical Note: Regulation, Supervision, and Governance of the Spanish Cajas
	06/216	Spain: FSAP: Technical Note: Stress Testing Methodology and Results
	06/218	Spain: FSAP: Detailed Assessment of Compliance with the Basel Core Principles for Effective Banking Supervision
	06/219	Spain: FSAP: Detailed Assessment of Observance of the IAIS Insurance Core Principles
	06/220	Spain: FSAP: Detailed Assessment of Implementation of the IOSCO Objectives and Principles of Securities
	06/221	Spain: FSAP: Detailed Assessment of the CPSS Core Principles for Systemically Important Payment Systems
	06/222	Spain: FSAP: Detailed Assessment of the CPSS-IOSCO Recommendations for the Securities Settlement Systems
	06/223	Spain: FSAP -Detailed Assessment of the IMF Code of Good Practices on Transparency in Monetary and Financial Policies: Financial Policies

SOURCE: IMF.

Table A.2

Other recommendations included in the 2024 FSAP for Spain

Areas and description of the recommendation	Addressee	Priority	Timing
Systemic risk analysis and monitoring			
Integrate the interconnectedness and contagion analysis more systematically into the toolkit of the Banco de España's financial stability framework	Banco de España	–	Medium term
Macroprudential policy framework and tools			
Strengthen the communication of AMCESFI's assessment of the major systemic risks and vulnerabilities, building on the expertise of the member authorities and detailed analysis of interconnections, interrelationships and spillover risks across the domestic financial system, as well as across borders	AMCESFI	–	Near term
Consider the case for AMCESFI to take on a broader high-level coordination role on financial stability topics and cross cutting risk issues (such as cyber risk and crisis management planning) as warranted, inviting other key public sector stakeholders to participate on relevant topics as appropriate	AMCESFI	–	Near term
Complete the first internal performance review of AMCESFI as mandated in the Royal Decree establishing the macroprudential authority	MINECO	–	Immediate
Increase the complement of CNMV staff with technical skills on big data analysis to support enhanced systemic risk identification and analysis of market trends and risks	CNMV	–	Near term
Review possible options for simplifying and streamlining the domestic consultation and administrative processes entailed in the deployment of certain key macroprudential policy instruments, in order to shorten the lengthy implementation lag	AMCESFI	–	Near term
Review and strengthen notification (and in some cases, permissioning) requirements on funds, and, where warranted, other non-bank financial institution (NBFI) providers, to inform the supervisor of the activation of all policy instruments and tools	CNMV, AMCESFI	–	Immediate
Continue to engage actively in European and global fora on the further deepening and development of the framework and policy toolkit for addressing system-wide risks from NBFI and implement the main conclusions and recommendations when available	MINECO, Banco de España, CNMV, DGSFP, AMCESFI	–	Near term
Regulation and supervision of less signifcant institutions			
Grant the Banco de España legal powers to issue prudential regulations in areas not harmonised at EU level and explore options to allow the Banco de España the flexibility to timely issue prudential requirements for other areas that could emerge in the future	MINECO	High	Near term
Ensure that prudential considerations are not subordinated to other factors in deciding on mergers and acquisitions	MINECO	Medium	Immediate
Engage periodically with banks' independent board members and heads of control functions, especially for high priority LSIs	Banco de España	High	Immediate
Utilise the full panoply of enforcement tools, including sanctions, where appropriate	Banco de España	Medium	Immediate

SOURCES: IMF and Banco de España.

Table A.2
Other recommendations included in the 2024 FSAP for Spain (cont'd)

Areas and description of the recommendation	Addressee	Priority	Timing
Regulation and supervision of less significant institutions			
Align the framework on related party transactions with the BCPs in relation to definition of related parties, arms' length and conflict of interest rules, and a limit on aggregate exposures to related parties	Banco de España	High	Near term
Remove the requirement for the Banco de España to authorise banks' loans to their directors and senior management	MINECO	Medium	Near term
Take into account excessive concentration risk for a broader range of exposure types, including sovereign risk concentration, when setting P2R	Banco de España	Medium	Near term
Continue monitoring and assessing climate risk through targeted and thematic work, ensure climate risk oversight becomes gradually integrated in routine supervisory processes, and increase related resources	Banco de España	Medium	Near term
Implement the AML/CFT matrix and integrate it in supervisory planning activities; Increase AML/CFT risk-based targeted inspection activities; and grant the Banco de España powers to issue requirements and sanctions related to ML/TF risks	SEPBLAC, MINECO, Banco de España, the Registrars' AML Centre, Ministry of the Prime Minister's Office, Justice and Relations with Parliament	High	Near term
Regulation, supervision and oversight of financial market infrastructures			
Formalise a cooperation agreement between the CNMV and Banco de España	CNMV, Banco de España	Medium/High	Near term
The CNMV should ensure that, where necessary, steps are taken by market participants to adjust their IT systems and find relevant alternative sources of data once the Post-trade Interface (PTI) is removed	CNMV	High	Near term
Enhance preparedness for implementation of new regulatory initiatives	CNMV, Banco de España	Medium	Near term
Further document internal procedures for supervising Iberclear	CNMV	Medium/High	Near term
Continue working towards improving settlement efficiency rates	CNMV	Medium/High	Near term
Require BME Clearing to implement additional necessary and identified measures to complete the migration to the new Historical Value-at-Risk model	CNMV, College of Supervisors	Medium/High	Medium term
BME Clearing should be required to disclose to clearing members (CMs) the results from the sensitivity analysis	CNMV	Medium/High	Near term
Require all relevant procedures related to BME Clearing's risk management to be adequately documented	CNMV	High	Near term
Ensure that practices and enhancements to BME Clearing's margin model to be adopted from SIX group are aligned with CNMV and BME Clearing requirements and objectives respectively	CNMV	Medium/High	Near term
Ensure that all tools identified in the recovery plan can be deployed in a timely fashion and consider a wide range of scenarios in the resolution plan, including through assessing whether it would be necessary to consider the transfer of functions to another financial market infrastructure to ensure the continuity of critical services in resolution	CNMV	Medium/High	Medium term
Encourage Iberclear to improve the narrative of recovery plan	CNMV	High	Near term

SOURCES: IMF and Banco de España.

Table A.2
Other recommendations included in the 2024 FSAP for Spain (cont'd)

Areas and description of the recommendation	Addressee	Priority	Timing
Cyber risk and financial stability			
Prioritise filling open positions and assess the need for increasing the cyber risk specialist headcount considering current and projected workloads over a three-to-five year period	Banco de España	–	Immediate
Establish and staff a small cyber risk competence centre with a horizontal (cross-cutting) mandate to provide specialist support of all activities that have a cyber risk supervisory component	CNMV	–	Near term
Consider using sector-specific threat intelligence to be tailored to specific institutions in each test in TIBER-ES to reduce costs, while maintaining compatibility with TIBER	Banco de España	–	Immediate
Fintech developments and oversight			
Intensify data collection on nonbank fintechs, including on nonbank digital lending and crypto asset lending, and undertake horizontal assessments and thematic reviews while analysing the various channels of contagion between the nonbank fintechs and banks	MINECO, Banco de España, CNMV	Medium	Near term
Assess the current and projected workloads over a 3-to-5 year period in the area of fintech monitoring, regulation and supervision and ensure alignment of resources to these	Banco de España	Medium	Immediate
Estimate current and projected future workload, ensure alignment of resources to these, and grant full autonomy over the recruitment and retention process	CNMV	High	Immediate
Conduct deeper assessment of the impact of digitalisation on LSIs' business models, governance, and risk management strategies	Banco de España	Medium	Near term
Financial safety net and crisis management			
Provide backstop temporary public ownership resolution tool for the Government as a last resort option where all other resolution actions have failed	MINECO	Medium	Near term
Develop a failing or likely to fail ("condition 1") assessment framework with clear prudential regulatory capital and liquidity ratio triggers for when the assessment should be conducted	Banco de España	High	Immediate
Develop an agreed assessment methodology for firms' recovery actions based on which the FROB should request advice on condition 2	FROB	High	Immediate
Continue to monitor LSIs' progress to becoming fully resolvable, further develop the approach to identifying and removing impediments to resolution, and develop and publish a resolvability scoring framework for reviewing Spanish LSIs' self-assessment reports	Banco de España	High	Near term
Design a policy framework that describes the range of actions to be taken by each authority when a firm no longer meets the MREL requirements	FROB, Banco de España	High	Immediate
Enhance the transparency of the Spanish resolution framework by publishing policy documents and encourage firms to publicly disclose non-confidential parts of their resolvability self-assessments	Banco de España	High	Immediate

SOURCES: IMF and Banco de España.

Table A.2
Other recommendations included in the 2024 FSAP for Spain (cont'd)

Areas and description of the recommendation	Addressee(s)	Priority	Timing
Financial safety net and crisis management			
Authorise DGSFP to set binding recovery planning requirements for insurers	MINECO	Low	Immediate
Engage actively with industry to develop a shared approach to overcoming challenges associated with bail-in mechanics and with the relevant foreign authorities as part of a process led by the SRB to facilitate transfer strategies for internationally active banks	FROB	High	Immediate
Use the flexibility afforded within the EU legal framework to facilitate FGD'S ability to finance resolution	MINECO, FGD	High	Near term
Establish a national crisis management framework for bank failure and ensure a coordinated approach to a firm's crisis preparedness across prudential, resolution and market operations	FROB, Banco de España, FGD	Medium	Near term
Formalise existing crisis management practices and prioritise, by agreeing a cross-authority (Banco de España, FROB, FGD) crisis simulation exercise strategy	FROB, Banco de España, FGD	Medium	Near term
Ensure resources are sufficient to conduct firm resolvability testing and bail-in implementation work that has not been a major focus to date	FROB, Banco de España	High	Immediate
Provide maximum flexibility where possible under national procurement legislation to allow FROB to depart from procurement rules in a crisis to appoint external advisors including independent valuers at speed in a crisis	MINECO	High	Near term

SOURCES: IMF and Banco de España.

How to cite this document

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://doi.org/10.53479/38943

BANK RESOLUTION AND INSOLVENCY LAW: INTERACTIONS AND FRICTIONS

Juana Pulgar

UNIVERSIDAD COMPLUTENSE DE MADRID

https://doi.org/10.53479/38941

The author is a corporate law professor at Universidad Complutense de Madrid. She is grateful to an anonymous referee for their feedback. This article is an extended and updated version of a paper presented by the author at the second SRB Legal Conference, held on 27 April 2023. This article has been prepared as part of the research project on the topic of "Corporate governance in the vicinity of insolvency", funded by the Spanish Ministry of Science, Innovation and Universities (PID2019-107487GB-100). Contact form for comments.

Abstract

The aim of this article is to make a first pass at highlighting and summarising the main interactions between bank resolution and insolvency law, which sometimes result in frictions. The roots of these frictions lie in the different objectives of the two legal frameworks and the different interests that they aim to protect. Paradoxically, despite these frictions, resolution authorities in the European Union must apply the national insolvency law, which is still not harmonised at European level. And they must do so not only in the event of resolution, but also counterfactually, in ex post and ex ante situations, with respect to key issues (grounds for resolution, creditor protection and creditor hierarchy) that are either incompletely or too broadly regulated under the Bank Recovery and Resolution Directive. In the absence of specific rules, this article aims to shed light on the main interpretative tensions between the rules that are applicable in resolution and their insolvency counterparts.

Keywords: resolution, insolvency law, harmonisation of European insolvency law, bail-in, loss-absorption, creditor hierarchy, best-interest-of-creditors test, no creditor worse off, preventive non-financial restructuring.

1 Introduction

There is an area where bank resolution and insolvency law interact. From an institutional standpoint, one of the main questions that this framework raises is whether such interactions lead to frictions or to synergies between the two regimes.

As a starting point, the fundamentals seem clear at first glance. Namely, national insolvency law is the default legal option to be applied to a bank that is failing or likely to fail (FOLTF), except where the application of resolution powers is in the public interest because the national insolvency framework would not be as effective at meeting the resolution objectives.

However, if we take a closer look at the aforementioned legal model, things are not as clear as they first seem. Because it is a complex topic the in-depth assessment of which would exceed the limits of this article, this article serves as an initial analysis of the general relationship between insolvency and bank resolution frameworks, highlighting the main interactions and potential frictions between them.

In my view, the roots of such frictions can be traced back to the different objectives and interests protected by each regulatory framework, which, in turn, lead to different interpretative principles (Ramos Muñoz and Solana, 2020), as I will explain in this article.

Paradoxically, despite these material tensions, resolution authorities in the European Union (EU) must apply national insolvency laws in their counterfactual assessments. And they must do so not only in resolution, but also in ex ante situations (in the public interest assessment for resolution) and ex post situations (in the context of subsequent litigation, linked above all to creditor safeguards, when they need to compare the position and hierarchy of creditors in hypothetical winding-up proceedings and in the context of bank resolution) and with respect to key issues where these tensions arise and are regulated incompletely or broadly by Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms[1] (the Bank Recovery and Resolution Directive or BRRD).

These key issues include:

— The triggers for taking resolution action and those for opening insolvency proceedings (public interest).

— Creditor safeguards (the no creditor worse off (NCWO) principle).

— Creditor hierarchy, determining the order in which creditors are repaid when tools such as bail-in are applied.

Moreover, insolvency law is not fully harmonised across the EU. To date, the only harmonisation achieved is provided for in (i) Regulation (EU) 2015/848[2] on insolvency proceedings, which addresses relevant issues of jurisdiction, recognition, enforcement, conflicts of laws and cooperation in cross-border insolvency proceedings, and (ii) from a substantive point of view, in the area of preventive corporate restructuring, Directive (EU) 2019/1023.[3]

However, it should be noted that the EU is also currently proposing to harmonise certain aspects of insolvency law across Member States (the draft "Second Insolvency Directive"). In any event, banks fall outside the scope of all these drafts and proposals.

Consequently, there are as many national insolvency laws as there are countries in the EU. This means that resolution authorities must apply and consider the national specificities of their insolvency law when making their resolution assessments, most notably in the above-mentioned areas.

At the same time, banks that are not subject to resolution (because they do not meet the public interest assessment) must be liquidated in accordance with the proceedings set out in their national insolvency law. The lack of harmonisation in this field results in an undesirable

1 Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms.

2 Regulation (EU) 2015/848 of the European Parliament and of the Council of 20 May 2015 on insolvency proceedings.

3 Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt, and amending Directive (EU) 2017/1132 (Directive on restructuring and insolvency).

lack of legal certainty and in a different level of protection for creditors, shareholders and depositors across the EU.

With this in mind, I will now briefly outline the main interactions and interpretive frictions between the specific resolution rules and their insolvency counterparts. Considering the absence of specific rules to coordinate their interaction on key issues, I will also try to answer some of the relevant questions that could be posed, such as:

— Should national insolvency law simply default to a resolution regime where resolution tools or powers are unavailable?

— Or could it also be a supplementary regime for issues that the BRRD does not regulate or only partially regulates?

2 Bank resolution and the lack of insolvency law harmonisation

As mentioned above, except for the harmonisation introduced by Regulation (EU) 2015/848 and Directive (EU) 2019/1023, insolvency law is not harmonised across the EU. Such lack of harmonisation is one of the most important pending matters in the construction of the EU and of a single market for capital, and largely distorts the functioning of the bank resolution model, which is now ten years old.

The lack of harmonisation means that there are significant differences and varying degrees of efficiency across the Member States' insolvency regimes. This is particularly true with regard to the mechanisms that allow debtors to overcome, or at least minimise, the effects of their inability to meet their payment obligations.

In the context of an economic crisis, this may lead to forum shopping, i.e. cases where debtors, in particular legal persons, move to jurisdictions that are more favourable for their interests. Forum shopping increases regulatory competition between Member States, but also entails costs.

For instance, in pre-bankruptcy restructuring, there has been a tendency to adopt the UK model of "schemes of arrangement" or, subsequently, "restructuring plans", which involve, inter alia, high legal fees. As a result of Brexit, such schemes now face problems with the recognition of court decisions handed down in these proceedings (Galazoula, West and Harvey, 2023).

However, the lack of insolvency law harmonisation across the EU started to change following the transposition of Directive (EU) 2019/1023, which was preceded by the Commission Recommendation of 12 March 2014 on a new approach to insolvency and business failure[4]

4 Commission Recommendation (2014/135/EU) of 12 March 2014 on a new approach to business failure and insolvency.

and which represented a decisive step towards harmonisation across the EU of the pre-insolvency framework for the treatment of non-financial corporations in financial distress.

In this respect, Directive (EU) 2019/1023 harmonises substantive aspects of insolvency law and not just procedural ones, as was the case with Regulation (EU) 2015/848, establishing minimum harmonising principles but focused only on certain areas and aspects (i.e. targeted harmonisation). Specifically, Directive (EU) 2019/1023 focused on early warnings, preventive procedures and liability exemption mechanisms. In other words, it focused on second chance mechanisms that promote a fresh start for failed entrepreneurs.

I will now briefly analyse Directive (EU) 2019/1023, with the aim of highlighting its importance as a first milestone in the process of harmonising insolvency law across the EU. This harmonisation is extremely necessary, not only to avoid the adverse consequences of having as many insolvency laws as Member States, but also, as mentioned above, to avoid the subsequent negative impact on bank resolution.

It should be noted that this Directive does not apply to financial or credit institutions (Article 1(2)(b)) and, therefore, does not play any role in bank restructuring and resolution. Consequently, there is no friction in this area between insolvency law and bank resolution, which is the subject of this article. However, I will touch on this Directive because one of the new aspects it introduces is the idea of restructuring, also with respect to non-financial corporations experiencing financial distress. Moreover, the Directive provides for restructuring not only by consensual means, but also, where applicable, by forced restructuring within each class ("cram-down") and across classes of creditors ("cross-class cram-down"), in a way that resembles the forced restructuring of banks that occurs through mechanisms such as bail-in.

In this respect, Directive (EU) 2019/1023 urges Member States to regulate preventive pre-insolvency restructuring procedures. Article 2(1)(1) adopts a very broad definition of restructuring, which covers not only the debtor's liabilities, but also their assets. It also includes the possibility of adopting measures such as changing the terms and conditions of the debtor's liabilities: write-offs, debt-equity conversion, capitalisation of loans and other measures to modify existing liabilities or restructure their assets through the sale of certain assets or of the company (Garcimartín Alférez, 2021).

Nevertheless, Directive (EU) 2019/1023 is not only important for the harmonisation of European insolvency law in the aforementioned area, but also because it is based on a new paradigm of business insolvency linked to corporate governance. This new paradigm aims to promote business creation and business continuity, as well as job preservation. It is based on two core premises: (i) the prevalence of pre-bankruptcy restructuring solutions and (ii) the second chance mechanisms for sole proprietors, which are reminiscent of the US system. In fact, Directive (EU) 2019/1023 is closely linked to the US approach to restructuring and in particular to Chapter 11 of the US Bankruptcy Code, which since 1978 has promoted both the restructuring and reorganisation of companies in crisis and discharge mechanisms for individuals.

However, it should be noted that while Directive (EU) 2019/1023 promotes a US-style approach to restructuring distressed companies, it is adopted differently from the approach taken in Chapter 11 of the Bankruptcy Code. Directive (EU) 2019/1023 favours pre-bankruptcy restructuring with minimal judicial intervention, similarly to the UK schemes of arrangement model, given the economic, time and reputational costs of judicial insolvency restructuring proceedings. By contrast, the rationale behind the US model is to encourage judicial restructuring of distressed companies in accordance with a "second chance" philosophy. It achieves this not only through an agreement in a judicial insolvency proceeding, but also through settlements that provide for the transfer of productive units in operation. This solution is consistent with two features of the US bankruptcy system. First, in that system directors of distressed companies are not obliged to file for a bankruptcy proceeding if the company is insolvent. Second, the US bankruptcy system is not characterised by the "stigmatisation" of bankrupt debtors, something that is (still) observable in other legal systems.

As mentioned above, Directive (EU) 2019/1023 is important because it adopts a new corporate governance approach to regulate the insolvency or potential insolvency of a non-financial corporation. This approach is typical of Anglo-Saxon models, as opposed to some continental European models that only take into account the corporate governance of solvent companies. It is precisely this approach that has proved essential to addressing business recovery in the EU in a post-COVID-19 and post-Brexit economic environment.

The aforementioned resemblance to the Anglo-Saxon models is reflected in Directive (EU) 2019/1023 in at least three areas. First, in the necessary involvement of equity in the restructuring process, including possible changes of control and non-consensual restructurings, not only for creditors but also for the debtor and shareholders. Second, in the need for administrators to take into account the interests of not only the shareholders, but also other stakeholders, such as creditors, employees, etc. Lastly, in the possibility (provided for in the Directive itself) of introducing an early warning in cases of economic difficulties, at least with respect to small and medium-sized enterprises.

The objective pursued by Directive (EU) 2019/1023, as per recitals (2) and (3), is very ambitious, since in principle it aims to restructure viable companies close to insolvency (i.e. companies whose going concern value is higher than their liquidation value), without excluding, however, those firms that are already failing.

The goal is to maximise the value of corporate assets in a balanced manner to the benefit of creditors, shareholders (as owners of the company) and the economy as a whole, thereby preserving jobs. At the same time, it prevents the build-up of non-performing loans for banks, which may, through the pre-insolvency procedures regulated in the Directive, identify borrowers' economic difficulties at an early stage to ensure that action is taken before companies default on their loans. They will thus be able to take measures to avoid the declaration of a judicial insolvency procedure and the liquidation of viable companies. Liquidation can have an indirect, punitive effect on financial institutions in terms of their income statements and recognition of provisions.

Directive (EU) 2019/1023 promotes the liquidation of companies that are not economically viable. Member States must introduce measures in their insolvency laws to improve efficiency and to prevent the proliferation of "zombie companies", as recommended by the Organization for Economic Co-operation and Development.

Directive (EU) 2019/1023 takes as its starting point the general rule of consensual restructurings. Yet it also provides for scenarios of non-consensual restructuring (cram-down and cross-class cram-down), not only for creditors, in an attempt to overcome hold-out and free-rider problems, but also for shareholders, who may sometimes be willing to block the adoption of the corporate resolutions needed to restructure the company on the basis of the traditional paradigms of corporate and contract law (the principle of relativity of contracts, the role of shareholders as owners of the company, etc.).

The possibility of forced restructurings entails the need for regulated safeguards for dissenting creditors and shareholders that are nonetheless going to be affected by the restructuring. In this context, Directive (EU) 2019/1023 introduces new paradigms with respect to the traditional restructuring approaches, in which the influence of the US model is felt once again.

One of these safeguards is the best-interest-of-creditors test (BIT) in the context of the cram-down within each creditor class (Article 10(2)(d)). This test compares the value under a restructuring scenario against the value attributable to creditors in the event of liquidation or, at the Member States' discretion, the best alternative scenario if the restructuring were unsuccessful. Furthermore, Directive (EU) 2019/1023 nuances the absolute priority rule, which protects creditors where other classes of creditors are crammed down. Member States may opt for a relative priority rule as a means of protecting entire classes of creditors (Article 11(1)(b)).

Non-consensual restructurings for non-financial corporations under Directive (EU) 2019/1023 have been tested through the restructuring of financial institutions under the BRRD. In this context, the NCWO principle, which would be the equivalent of the BIT for non-financial corporations, has served in practice to test the problems that the non-consensual restructuring of non-financial corporations may entail. Since financial restructuring preceded non-financial restructuring, this experience helps us to identify the problems and see that they are ultimately the same.

At the same time, inversely, the question arises as to whether this parallel between the BIT and the NCWO principle could be used to interpret some of the doubts raised in practice by the application of the NCWO principle given its scant regulation in the BRRD.

On 7 December 2022 the European Commission published[5] a proposal for a Second Insolvency Directive harmonising certain aspects of insolvency law, which in principle is consistent with and complementary to the targeted harmonisation introduced by Directive (EU) 2019/1023.

5 COM 22/0408 (COD).

At this juncture, I deem it necessary to touch on this proposal, specifically in relation to the choice of the areas harmonised in it.

The proposal focuses on avoidance actions (Title II); asset tracing (Title III); pre-pack proceedings (Title IV), which could be seen as analogous to the sale of business tool in bank resolution; directors' duty to request the opening of insolvency proceedings (Title V); the winding-up of insolvent microenterprises (Title VI); creditors' committee (Title VII); and measures enhancing transparency of national insolvency laws (Title VIII).

However, other issues with potentially important implications for bank liquidation or resolution (such as the grounds for the opening of insolvency or restructuring proceedings, the hierarchy of creditors, or the particular issue of financial distress within a group of companies) are outside of the scope of the harmonisation sought by the European Commission with its proposal.

Their exclusion, particularly in relation to creditor hierarchy, is questionable, among other reasons, because this absence, as mentioned above, has considerable consequences for putting bank resolution into practice. In this respect, even if it is true that the proposed Second Insolvency Directive does not apply to financial institutions, it is no less true that in the context of bank resolution, creditor safeguards (such as the NCWO principle) are built on the basis of a counterfactual analysis of the position that creditors would occupy in a potential judicial insolvency proceeding (insolvency hierarchy). Such position would in turn determine the order in which claims are written down when tools such as bail-in are applied. Consequently, the lack of harmonisation at European level of this insolvency creditor hierarchy, which should have been deemed a priority over the harmonisation of other areas (e.g. creditors' committees), may determine, and indeed is determining in practice, a different treatment and assessment of the burden-sharing among creditors in bank resolution across the different Member States.

3 The root of the frictions: different goals and protected interests

The BRRD linked the bank resolution framework to the lessons learned from the 2008 financial crisis.[6] In this respect, the financial crisis showed that there was a significant lack of adequate tools at European level to deal with the situation triggered by failing or likely to fail credit institutions and investment firms.[7] In particular, as stated in the recitals of the BRRD, such tools were necessary to prevent insolvency or to minimise its adverse effects by preserving the systemically important functions of the institutions concerned.

At the time, the solution to financial crises was to use the Member States' taxpayers' money (bail-out), which carried the risk of moral hazard and the false notion that taxpayers should

6 See recital (1) of the BRRD and the report on the adoption of the aforementioned directive.

7 See recital (2) of the BRRD.

pay for banks' mistakes.[8] Thus, the goal of a credible recovery and resolution framework for banks and investment firms was to avoid, to the extent possible, the need for such actions, since the primary objective of resolution is to protect financial stability, in particular, to prevent contagion and to protect depositors.

Accordingly, the BRRD and Article 14(2) of the Single Resolution Mechanism Regulation (SRMR) set out five objectives for the bank resolution regime:

— To ensure the continuity of critical functions.

— To avoid significant adverse effects on financial stability, above all by preventing contagion, including to market infrastructures, and by maintaining market discipline.

— To protect public funds by minimising reliance on extraordinary public financial support.

— To protect depositors covered by Directive 2014/49/EU on deposit guarantee schemes (DGSs) and investors covered by Directive 97/9/EC on investor-compensation schemes.

— To protect customer funds and assets.

However, by contrast, the main goal of corporate insolvency law has to date been to maximise the value of the distressed companies in the interest of private creditors.

At this point, the key question should be: how can the resolution authority apply insolvency law rules, which focus on protecting private interests, in the context of bank resolution, which is primarily about protecting the public interest?

It is true that the concept of insolvency law has been broadened by virtue of Directive (EU) 2019/1023, since the tools for dealing with insolvency are now broader and their objectives have been extended beyond the satisfaction of creditors to the restructuring of viable companies that are experiencing financial difficulties, through procedures that avoid the declaration of a traditional insolvency proceeding. This could suggest an approximation, to some extent and with nuances, of the goals entrusted to the pre-insolvency restructuring procedures to the objectives pursued through the resolution of financial institutions.

In this respect, based on Directive (EU) 2019/1023, it should be possible to distinguish, via the preventive restructuring procedures, between viable companies – i.e. companies whose value as a going concern is higher than their liquidation value – and non-viable companies, which should be liquidated immediately.

8 Wojick (2016) pointed out that at that time (i.e. the financial crisis) there were no alternatives to ordinary insolvency proceedings or to bail-out, and in most cases neither at national nor at EU level did a special framework for the recovery and resolution of banks exist that would have avoided the disadvantages for banks of ordinary insolvency proceedings.

Preventive restructuring procedures ensure that appropriate measures are taken before companies default on their loans. The underlying idea is that as soon as the financial difficulties arise, the debtor, as long as it is a viable company, should be able to reach a consensual solution with its creditors in order to avoid the declaration of traditional insolvency proceedings.

One could therefore say that the new preventive restructuring proceedings share with the bank resolution regime the objective of avoiding a traditional judicial insolvency proceeding and liquidation, given that the latter would be the best way to destroy the economic value of the company.

Nevertheless, the main difference lies in the interests taken into account, since the interests protected in bank resolution are mainly public and general interests (financial stability, protection of covered depositors, etc.), whereas it is the creditors' interests that are taken into account in the restructuring of non-financial corporations. These creditors decide by majority vote and with an economic criterion whether they wish to reach an agreement with their debtor in order to avoid a judicial declaration of insolvency.

Moreover, Directive (EU) 2019/1023 not only provides for consensual restructurings, i.e. agreements with a large majority of creditors, but also for non-consensual restructurings for dissident creditors, debtors and shareholders. It thereby seeks to deal with traditional hold-out scenarios by attempting to overcome the well-known principle of the relative effects of contracts, on the basis of the premise that corporate law should not hinder the restructuring of viable companies. Accordingly, several measures may be imposed on shareholders to "encourage" them to cooperate in the restructuring of their company. Particularly relevant in this respect is the possibility of converting debt into equity, which would allow creditors to become shareholders, even with the potential risk of diluting the current shareholders' position.

As mentioned above, non-consensual restructurings have, for some time now, been tested through the restructuring of financial institutions under the BRRD. This experience has been useful to become aware of the main issues that may arise in practice after the introduction of non-consensual restructurings in the non-financial corporate realm.

However, the basis for a non-consensual restructuring is different for financial institutions and non-financial corporations. In the case of the former, it is a regulatory issue, where the public interest is at stake. In the case of the latter, it is a purely economic issue, where what is under analysis is who the actual owners of the company are when it is in financial distress and where the class in which "the value collapses" is able to drag in others.

In other words, under the framework for non-financial corporations, the economic approach to corporate distress is based on the idea that if the company has no residual value for its shareholders, then the company belongs to the creditors, and they cannot jeopardise the restructuring of viable companies. By contrast, under the resolution framework, the rationale for non-consensual restructuring is not only economic but is also based on the public interest and the protection of financial stability and depositors.

In light of all the above, I consider that the comparison for the purposes of the counterfactual analysis conducted under the bank resolution framework (public interest assessment, creditor safeguards, etc.) should continue by express legal provision in respect of a liquidation in a traditional judicial insolvency proceeding (Articles 34(1) and 73(b) of the BRRD and Article 15 of the SRMR) and not in respect of the new pre-insolvency restructuring procedures, whose guiding principles, as analysed above, are different, without Directive (EU) 2019/1023 also being applicable to financial institutions.

In any case, it will be useful to analyse how the aim of restructuring viable companies through the new procedures designed in Directive (EU) 2019/1023 is incorporated into the insolvency law of the Member States. This will allow us to better identify the differences between the restructuring of non-financial corporations and the resolution of financial institutions, which in some ways bank restructuring also pursues where possible.

4 The grounds for opening proceedings: failing or likely to fail versus insolvency

In terms of the grounds for opening the proceedings, there are major differences and, in my opinion, even greater frictions between bank resolution and both traditional judicial insolvency proceedings and the new preventive restructuring proceedings.

Under Articles 18(1) and 18(6) and recital (57) of the SRMR and Article 32 of the BRRD, a resolution scheme shall be adopted where three cumulative conditions are met:

- The institution is FOLTF.

- The absence of a reasonable prospect of effective alternative private sector solutions or supervisory measures to prevent the failure within a reasonable timeframe.

- The resolution action is in the public interest. A resolution action is deemed to be in the public interest if two conditions are cumulatively met (Articles 18(1)(c) and 18(5) of the SRMR).[9] First, that such action is necessary and proportionate to achieve at least one of the resolution objectives set out in Article 31 of the BRRD and Article 14(2) of the SRMR.[10] Second, the liquidation of the institution under normal insolvency proceedings, as defined in Article 2(1)(47) of the BRRD, would not achieve these resolution objectives "to the same extent".[11] Hence, the EU resolution authorities

9 Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010.

10 Single Resolution Board (2019).

11 See the proposed new wording of Article 32(5) of the BRRD in the proposal for the Directive of the European Parliament and the Council of 18 April 2023, which includes the requirement that the winding-up under a national insolvency law enable the resolution objectives to be achieved not only "to the same extent" as under the resolution, as it is currently worded, but also "more effectively". See, in this respect, Colino Mediavilla (2023) and Gómez de Tojeiro and Piazza Dobarganes (2024).

(including the Single Resolution Board (SRB)) need to make a comparison with a hypothetical national insolvency scenario, which requires a thorough knowledge of the bank insolvency and liquidation regime in the relevant Member State.[12]

Focusing on determining whether an institution is FOLTF, the starting point should be the first sentence of recital (57) of the SRMR, which states: "The decision to place an entity under resolution should be taken before a financial entity is balance sheet insolvent and before all equity has been fully wiped out".[13]

A credit institution shall be deemed in such a situation if it faces one or more of the following circumstances (Article 32(4) of the BRRD):

— Its assets are or there are objective elements to support that they will, in the near future, be less than its liabilities (Article 32(1)(a) of the BRRD and Article 18(1) of the SRMR).

— Extraordinary public financial support is required, unless that support takes any of the three forms mentioned in Article 18(4) of the SRMR to remedy a "serious disruption" to the national economy and preserve financial stability.

— It has infringed or there are objective elements to support a determination that it will, in the near future, infringe the requirements of its authorisation to operate, in a way that would justify its withdrawal by the competent authority.

While the last two conditions are not strictly related to the institution being balance sheet insolvent, they are related to possible situations of illiquidity, which would also be relevant to determining whether the institution is failing. Therefore, they would also include situations of insolvency, understood as a balance sheet insolvency test and situations of mere illiquidity.

These triggers for opening the resolution procedure are referred to as "objective elements" in the 2015 European Banking Authority (EBA) Guidelines, and even in the case of specific economic ones, are not defined in either the BRRD or in the SRMR.

Therefore, the term FOLTF is very specific to banking regulation and cannot be identified with the economic concept of insolvency provided for in insolvency law. In this vein, the concept of FOLTF is not always linked to the financial situation of the bank (i.e. whether the bank is over-

12 The European Parliament (see *Annual Report 2021)* clearly expressed its support for a review and clarification of the PIA. Furthermore, the Eurogroup, in its 2022 Statement on the future of the Banking Union, expressed its agreement with the clarification and harmonisation of the PIA, as well the broadening of the application of resolution tools in crisis management at EU and national level, including for smaller and medium-sized banks where the funding required for effective use of resolution tools is provided by the MREL. See also the recent (April 2023) legislative proposals of the European Commission for the review of the existing EU bank crisis management and deposit insurance framework. See Gortos (2023), a study requested by the European Parliament Committee on Economic and Monetary Affairs.

13 See also the EBA Guidelines of 6 August 2015 (EBA/GL/2015/07), adopted based on Article 32(6) of the BRRD and in accordance with Article 16 of its founding regulation, on the interpretation of the different circumstances when an institution shall be considered as failing or likely to fail.

indebted, illiquid or insolvent). By contrast, it may sometimes be linked to the conditions for withdrawal of the authorisation to operate. For example, the supervisor may withdraw the authorisation in money laundering scenarios where the financial institution is not experiencing any economic difficulties. However, it should be noted that, according to the SRMR,[14] the fact that a credit institution does not meet the requirements for authorisation should not (per se) justify its entry into resolution, in particular if it is still viable.

Thus, the FOLTF determination by the European Central Bank (ECB) or the national competent authority[15] does not necessarily imply that the bank is insolvent. There are also possible scenarios in which the bank may be facing a liquidity crisis or no economic difficulties at all (money laundering).

At the same time, the FOLTF determination could occur in situations where the bank is insolvent, although recital (57) of the SRMR establishes that the decision to place an entity under resolution should be taken before it is balance sheet insolvent and before all equity has been fully wiped out.

In these cases, resolution encompasses all measures that need to be taken to avoid the opening of liquidation proceedings in respect of institutions whose failure may pose a systemic threat, thereby avoiding indirect spillover effects on the economy or the need to resort to bail-out measures through public financial support. Therefore, in practice, the BRRD appears to have extended the scope of resolution beyond insolvency to create what can be described as a specialised regime for bank failures.[16]

In my view, the real dividing line between liquidation and resolution is the public interest criterion.[17] In this assessment, the resolution authority must weigh up whether the resolution is necessary in the public interest or, on the contrary, whether the institution can be liquidated according to the national insolvency law. Thus, under the "umbrella" of the public interest criterion, an insolvent bank may be subject to resolution proceedings instead of insolvency liquidation.

There is still no harmonisation in the EU of the grounds for opening traditional judicial insolvency proceedings, or the new restructuring proceedings introduced by Directive (EU) 2019/1023. The core principle of this Directive is that debtors should be able to address their financial difficulties at an early stage, when it appears likely that insolvency can be avoided and the viability of the business can be ensured. This means that preventive restructuring frameworks should be available before the debtor fulfils the conditions for being considered insolvent under insolvency law.

---

14 See recital (57) of the SRMR.

15 See Joosen, Pulgar Ezquerra and Tröger (2024) for more details on the design of the institutional framework around the resolution mechanism and on the ECB's powers, which must in any event conduct an initial FOLTF assessment (deciding independently whether the institution is failing in accordance with Article 32(1)(a) of the BRRD and on the judicial protection of this decision), and the powers of the SRB to assess the ECB's decision, conferring on the SRB the power to decide on the implementation of resolution tools.

16 Haentjens (2017), Ramos Muñoz (2017) and Hadjiemmanuil (2014).

17 Grünewald (2017) and Lastra, Russo and Bodellini (2019).

To this end, Article 2(2) of Directive (EU) 2019/1023 introduces the concepts of insolvency and likelihood of insolvency, but it does not define them, leaving their definitions to each national insolvency law. The grounds for opening insolvency proceedings are not, as mentioned above, a topic whose harmonisation has been addressed in the European Commission's proposal for a Second Insolvency Directive, which focuses on avoidance actions, the directors' duty to request the opening of judicial insolvency proceedings, the special proceeding to wind up microenterprises, asset tracing, creditors' committees and pre-pack proceedings.[18]

In any event, in corporate insolvency law, insolvency is always an economic concept and has traditionally been defined as either an inability to pay debts as they fall due or as an excess of liabilities over assets (balance sheet test), or both.

In contrast, in bank resolution the regulatory concept of FOLTF may, but does not always, derive from an actual insolvency, which means it resembles preventive restructuring proceedings more than the traditional concept of insolvency.

Further, from a procedural perspective, there is an important difference between bank resolution and traditional judicial insolvency proceedings in terms of the role and leeway of judges and resolution authorities. In a resolution scenario, the starting point is the broad discretionary powers of the resolution authority to adopt a resolution decision, as an alternative to submitting the bank to insolvency proceedings under national law. Conversely, the judge has no discretion in assessing the economic grounds for opening the insolvency proceedings, resulting in greater legal certainty.

All this means is that when the resolution authority must determine whether or not a resolution action is necessary in the public interest, it has to assess each national insolvency law against the resolution framework, even though the objectives and protected interests of such regimes are different. In addition, since national insolvency law is different in each Member State, some of the non-systemic banks (i.e. small banks) outside the scope of the resolution regime will have to be liquidated under different proceedings, which in turn leads to more differences among the Member States and, consequently, to a lack of legal certainty.

In this context, within the EU there are bank insolvency systems based on a judicial model (Spain) and others based on an administrative model (Italy), although in practice neither of these models is purely judicial or administrative.

In this respect, there are several complex legal issues that may arise in the context of the interplay between bank resolution and insolvency law with respect to the role of the courts in court-based models for bank insolvency. Indeed, administrative authorities may need court approval to initiate bank insolvency proceedings, or to adopt other key decisions during those proceedings. In most cases, such requests fall under the jurisdiction of commercial courts (Spanish model), general jurisdiction courts or, in a few cases, of specialised bankruptcy courts.

18 Szirányi (2024), Garcimartín Alférez (2024) and Pulgar (2023).

Under this framework, the main question that could be posed is: what is the criterion for judicial review? There are some models that introduce the judicial review rules from administrative law in the civil procedure relevant to bank insolvency, and some other models that limit the court's ability to rely on certain matters in its assessment of the petition.[19]

At the same time, it is important to note that the role given to administrative authorities in bank resolution should not be without safeguards and checks and balances.

That is why national insolvency law is, in my opinion, an alternative to resolution where the grounds for resolution do not exist. However, it cannot be a supplementary regime to plug gaps such as the economic grounds for opening resolution, which are only broadly regulated in the BRRD.

Simultaneously, this legal framework raises a number of questions, including: what if the resolution authorities, such as the SRB, decide not to resolve a national bank, even though the bank is very important for the local economy? What should national governments do? These questions could be resolved with the inclusion of the PIA at the regional level in the EU's proposal for the reform of the crisis management and deposit insurance (CMDI) framework.

5 Non-consensual bank resolution versus non-financial restructuring: bail-in and non-financial cram-down

Regarding cram-down, the BRRD introduced a statutory cram-down through bail-in, which was a first in EU law.

Following the 2008 crisis, the financial system in most Member States underwent far-reaching restructuring, conducted in accordance with the BRRD, via bail-in measures as opposed to bail-out programmes. The latter are considered a form of State aid, which not only affects taxpayers, but also increases the risk of moral hazard and creates a dangerous link between sovereign debt and potential economic crises.

The term bail-in, in contrast to the term bail-out, is regulated in the BRRD and the SRMR with a double meaning.[20] First, bail-in is mentioned as one of the possible resolution tools for credit institutions applicable by the administrative authority when the conditions laid down in Article 33 of the BRRD and Article 27 of the SRMR are met. As a resolution tool, it entails the

19 See the Unidroit project on small and medium-sized bank insolvency, led by Professor Ignacio Tirado, currently Secretary General of Unidroit, which aims to fill the current gap in the international legal architecture, by developing an international soft law instrument covering the main features of bank liquidation proceedings. Guidelines on bank insolvency were expected to be prepared over five sessions of the Unidroit Working Group on Bank Insolvency in 2021-2023, to be adopted in 2024. The work is conducted in cooperation with, and with the support of, the Bank for International Settlements' Financial Stability Institute and the participation in the working group as observers of several central banks, supervisory authorities, resolution authorities, deposit insurance schemes and academics (inter alia, the SRB, the European Banking Institute and the International Insolvency Institute). The current status of the project is available on the Unidroit website.

20 Wojcik (2016) refers to bail-in as an "umbrella term".

bank's losses being borne first by the shareholders and then by the creditors through write-down or conversion, the latter according to the order of priority of their claims established in ordinary insolvency proceedings. According to the BRRD, ordinary insolvency proceedings are collective proceedings involving the partial or total liquidation of a debtor and the appointment of a liquidator or an administrator under national law (Article 2(1)(47) of the BRRD).

As academics have rightly pointed out, bail-in is the authentic resolution tool introduced by the BRRD, as opposed to the negotiated or contractual nature of other instruments, such as the sale of assets.[21] As a resolution tool, bail-in can be used alone, as an internal measure to recapitalise credit institutions, or in combination with other tools, as a means to provide capital to a "bridge" bank and to complement the sale of its assets. Bail-in is not merely a loss-absorption mechanism, but also a mechanism to recapitalise the institution, and can therefore serve to restore its viability, at least as far as solvency is concerned. This is the essential purpose of the harmonised resolution regulated in the BRRD.

Second, the term bail-in is related to the concept of reductions or write-offs and cases of debt-to-equity conversion. In practice, write-offs and conversions can be applied independently or in combination with a resolution tool, in accordance with Article 37(3) of the BRRD and Articles 21 and 27 of the SRMR.[22]

In this context it is important to note that bail-in is in any event a resolution tool, unlike write-offs and debt-to-equity conversion, which can take place either independently of resolution action or in combination with a resolution action where the conditions for resolution specified in Articles 32 and 33 of the BRRD are met (Article 59(1) of the BRRD), and not only with a bail-in, but also, for example, with a sale or a bridge bank. They are therefore a "resolution measure" rather than a tool. Indeed, the latter, in combination with write-off and conversions, and not the bail-in as such, have so far been the means whereby resolution has occurred in practice. Accordingly, strictly speaking, bail-in has not yet been applied in practice.

The original intention was to apply bail-in measures only to certain creditors (in particular, to providers of regulatory capital).[23] However, it was ultimately extended to ordinary and subordinated claims, except for those specifically protected and excluded from bail-in under the BRRD and in the SRMR.[24]

Once again, in this context of burden-sharing, a comparison can be made between the resolution and restructuring framework for credit institutions and investment firms and insolvency proceedings, as collective procedures involving the partial or total divestment of a

21 Ringe (2016) refers to a compromise between two traditionally opposing tools in banking crisis, in particular the provision of liquidity by the ECB to illiquid banks and the liquidation of insolvent banks.

22 For more details on the functions of bail-in, see Wojcik (2016).

23 The bail-in measures were not initially intended to affect all creditors of a bank, but only shareholders and creditors participating in the "core equity instruments", "hybrid instruments" and "tier 2 instruments". In short, this means creditors who would be subordinated if an insolvency proceeding was initiated (Brescia Morra, 2020).

24 Gortos (2021). Troeger (2018) pointed out that the initial option to extend the bail-in only to specific creditors was more consistent with the system.

debtor and the appointment of a liquidator or an administrator under national law (Article 2(1)(47) of the BRRD).

The bail-in tool is exercised by public authorities through a special administrative procedure that differs from traditional judicial insolvency procedures. This is justified on the grounds of the public interest served by banks, which makes it possible to reconcile concurrent public and private law rules in the banking sector. Just as the incorporation of a credit institution and the beginning of its operations are subject to administrative authorisation, so too is the treatment of any economic difficulties it may encounter and the disappearance of the conditions necessary for the granting of the initial authorisation, even if corporate law techniques are used (Gleeson, 2012).

The bail-in tool is thus established, not as a contractual solution to a bank's economic difficulties reached by the bank, its shareholders and its creditors, but rather as a statutory cram-down, imposed by law and exercised by administrative authorities with broad discretionary powers under this framework. However, it should be noted that this is a regulated discretionality, as bail-in and its exclusions are subject to mandatory rules.

To such end, the resolution authority can determine the existing classes of shares or instruments that may be cancelled or transferred to creditors subject to bail-in. Moreover, the resolution authority may decide to convert the creditors' loans into shares or other instruments. Such a decision entails an accounting mechanism that modifies the structure of the bank's balance sheet and may sometimes dilute the position of existing shareholders (see Articles 47(1)(b) and 63(1)(f) of the BRRD).

This new approach to financial restructuring entails replacing a State aid regime with an effective bail-in mechanism that requires investing creditors to consider a bail-in scenario and to conduct an analysis of the credit institution's liability structure, including the debt ratio that would be outside the bail-in, in order to "predict" their position in such a context. Consequently, if creditors conclude that there is a significant possibility of a bail-in, they are likely to demand a higher rate of return to invest in debt instruments issued by a bank.

The bail-in tool represents the use of restructuring techniques that originated in corporate law and are justified by the corporate nature of financial institutions. They take the form of an administrative cram-down of shareholders, who are forced to bear the losses of the investee bank outside of a negotiated or contractual framework (Janssen, 2017). In this regard, the new aspect of the BRRD does not lie in the compulsory nature of the restructuring that the bail-in entails and that, as a compulsory corporate restructuring technique, was already provided for in Chapter 11 of the US Bankruptcy Code (Pulgar, 2020), but rather in two features. First, the administrative nature of the cram-down, subject to an ex post judicial review where the decision is challenged by affected creditors. Second, the particularity of bail-in as a tool, compared with a potential cram-down in the event of a non-financial corporation restructuring, is that it is forced on the creditors, or rather on those who are not legally excluded from the bail-in, i.e. investors in banks' subordinated debt instruments, determining the priority and

order among them based on the insolvency hierarchy (insolvency ranking). Therefore, the legal basis for bail-in is neither contractual, in the sense of being supported by a qualified majority of creditors, as is the case under the framework for restructuring non-financial corporations. Instead, it is regulatory in nature, based on a decision taken by the competent administrative authority under the legal framework governing bail-in.

This may certainly affect the property rights of shareholders, as recognised in Directive (EU) 2017/1132.[25] However, the underlying assumption is that corporate law should not be an obstacle to the resolution or specific restructuring of credit institutions, nor to the restructuring of non-financial corporations. This is reflected in recital (121) of the BRRD and finds its parallel in Directive (EU) 2019/1023, even if the mechanisms to overcome corporate law are different in each Directive. Indeed, Directive (EU) 2019/1023 provides for two different ways to achieve this objective. First, it empowers judges, instead of the general meeting, to take decisions on the restructuring of the company (e.g. the decision to increase capital via a debt write-off). Second, it treats shareholders as a class of creditors and, as such, subjects them to a cross-class cram-down procedure, under the framework for which Member States may choose between an absolute or relative priority rule, as a protection mechanism for dissenting classes.

In contrast, under the BRRD these options are regulatory in nature. Corporate law is overridden by an administrative decision on public interest grounds. In these scenarios, there are no absolute or relative priority rules typical of pre-bankruptcy corporate restructurings.

Academics have rightly highlighted the special status of bank creditors. In effect, they become creditors *sub iudice,* subject to a resolution condition if the entity is failing, in the broad sense analysed in this article, and its resolution is in the public interest. Despite being stakeholders, these creditors therefore run the risk of bearing, alongside the shareholders, any losses incurred by the institution.

The following reasons justify this shift from consensual restructuring to mandatory and regulatory administrative restructuring.

First, in bank resolution, the possibility of implementing a rapid solution is crucial, unlike what happens in the non-financial sector, and this speed could be jeopardised if the restructuring is consensual.

Second, as mentioned above, there is the concurrence of public and private interests when financial institutions fail, with the former taking precedence over the latter. In this area, taxpayers' interests come into play, since they must not bear the consequences of mismanagement of credit institutions or the issues of conventional restructuring.

Capital plays an important preventive role here, as financial institutions are required to have an adequate level of regulatory capital, consisting of a balanced combination of subordinated

25 Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law.

debt and hybrid capital.[26] It should be noted that in the event of ordinary insolvency proceedings, a high level of regulatory capital could, in theory, ensure that a bank's losses would be borne, first, by shareholders and subordinated creditors and then, and only to a limited extent, by senior creditors and the economy as a whole.

However, in the event of unexpected losses, this may be insufficient to satisfy investors' claims, especially where short-term solutions are needed. The traditional debt-to-equity conversion by non-financial corporations is also problematic, especially when shareholders are unable to provide supplementary capital.

Banks can admittedly issue contingent capital instruments, including contingent convertible bonds (CoCos) and write-down bonds (Gleeson, 2012). These typically contain a clause that allows them to be redeemed or converted into ordinary or preferred shares when a trigger event occurs. However, the advantage of bail-in, as provided for in the BRRD, is that it applies not only upon contractually agreed trigger events, but also when the resolution authority exercises its "resolution power" to take the appropriate resolution action. In these cases, the write-down and conversion of capital instruments must in any event precede the use of contingent capital instruments issued by credit institutions to supplement them.[27]

Third, non-consensual bail-ins of an administrative nature may, as mentioned above, have a relevant impact on the property rights of shareholders and creditors with regard to their instruments and claims respectively. This is also true from a contract law perspective, as a bail-in decision by the administrative authority affects the object and purpose of their contractual relationship with the financial institution. This raises the question of whether the administrative authority's decision constitutes a mandatory novation or rather a supervening impossibility of performance of the contract.

In this contractual area, the aim is to prevent a judicial decision in one Member State regarding the liabilities of a bank under resolution established in another Member State from undermining the effectiveness of the administrative cram-down initiated in the latter. For this reason, Article 55 of the BRRD regulates the "contractual recognition of bail-in" as a means of ensuring the resolvability of the institution. However, it should be noted that such clause only applies to liabilities governed by the laws of third countries, and not between Member States.

The rationale is to make bail-in more effective and conclusive and to ensure that the powers of the administrative authority – to convert, write down or cancel – under such framework are not affected by the decision of a judicial authority in another Member State. In this context, each Member State must require credit institutions to include, when issuing their securities or debt instruments in third countries, a contractual clause whereby creditors formally express that their debt may be converted into capital. Article 55(1) of the BRRD lays down the conditions under which this contractual clause must be included, which increases the effectiveness of

26 On the functions and structure of banks' capital, see Diamond and Rajan (2000).

27 Kenadjian (2013).

the contractual recognition of bail-in and, therefore, the effectiveness of a cram-down in the context of bank resolution.

In short, it is a regulatory/statutory cram-down, unlike the contractual/negotiated cram-down regulated by Directive (EU) 2019/1023 in the context of preventive restructuring proceedings of non-financial corporations, which is based on an economic approach to the economic difficulties and the underlying idea that corporate law should not jeopardise the restructuring of viable companies.

In addition, there are other key differences between the cram-down in financial resolution and in non-financial restructuring. In financial resolution, a cram-down is the only solution to protect the public interest. In non-financial restructurings, on the other hand, while this option is a possibility, it is an exception. Indeed, in the latter case, the general rule is to follow a contractual and negotiated approach between the debtor and its creditors to deal with corporations' economic difficulties, in order to protect creditors' interests. The restructuring of a non-financial corporation is ultimately subject to the approval of at least a majority of the affected classes of creditors, while bank resolution is enforced regardless of any creditor's approval.

Further, the delimitation of the scope of the non-consensual resolution or restructuring (cram-down) is different for financial institutions and non-financial corporations. The scope of bail-in is defined by law by distinguishing between bail-inable and non-bail-inable liabilities (Article 47 of the BRRD).

By contrast, the scope of cram-down in the context of the non-consensual restructuring of non-financial corporations (i.e. the scope of restructuring) is defined on a case-by-case basis by debtors/creditors based on consensual agreements, including inter-creditor agreements, according to recital (46) of Directive (EU) 2019/1023, as no restructuring is the same.

In any case, the fundamental justification for bail-in and cram-down measures for non-financial corporations and financial institutions is that they must be considered proportionate, meaning that they achieve their objectives while minimising the potential harm to the creditors and shareholders affected against their will.

Therefore, any bail-in or cram-down measure linked to non-financial corporations must ensure that it is proportionate in order to protect such creditors and shareholders. This is ensured under the resolution framework by the NCWO principle (whose counterpart in insolvency and pre-insolvency law governing non-financial corporations is the BIT).

6 Creditor and shareholder safeguards: no creditor worse off versus the best-interest-of-creditors test

The NCWO principle regulated in Articles 34(1) and 73(b) of the BRRD and Article 15 of the SRMR entails that "no creditor shall incur greater losses than would have been incurred if the bank had been wound up under normal insolvency proceedings".

The calculation of the outcomes of liquidation should be based on the information reasonably available to the authorities at the time of resolution[28] (not on the basis of the information available when the ex post evaluation is finalised), which needs to be compared with the actual outcomes of the resolution.[29]

In turn, the BIT is the safeguard that applies within each class of creditors in the context of intra-class cram-downs in non-financial restructurings pursuant to Article 10(2)(d) of Directive (EU) 2019/1023. In this case, the actual outcome is compared to the value attributable to creditors in the event of liquidation or, at the Member States' discretion, in the best alternative scenario, if the restructuring was not successful (Hicks, 2005; Bris, Welch and Zhu, 2006).

Therefore, the level of protection of creditors and shareholders both in a bail-in scenario and in a restructuring of non-financial corporations is compared to the hypothetical level of protection under a potential scenario of an insolvency proceeding ending in the liquidation of the company.

In any event, the position of the affected creditors or shareholders should not be worse than in an ordinary insolvency proceeding and, in conclusion, the limit of the sacrifices to be made by creditors and shareholders seems to be determined by their order of priority in an ordinary insolvency proceeding (Wojcik, 2015).

Were this objective to be effectively achieved, the cancellation of a share or the write-down or conversion of a liability would not actually alter the economic situation of the affected creditor or shareholder in comparison to a potential insolvency proceeding. In this respect, and applying an economic approach, if shareholders received nothing from the liquidation of the bank's assets under normal insolvency proceedings, the cancellation of their shares would not leave them worse off.

Similarly, if the claims of the bank's creditors were only partially redeemed under normal insolvency proceedings, a write-down to the extent of their economic loss in insolvency proceedings is justified in any event (Wojcik, 2016).

Creditors may admittedly try to argue that the introduction of bail-in as such changed their legal and economic situation, because, due to implicit State guarantees materialising in full bail-outs of failing banks, it was – prior to the adoption of the recovery and resolution framework – very unlikely that a systemically important bank would fail. Nevertheless, as the most qualified academics have pointed out, this argument must be qualified, because, under Articles 107 and 108 of the Treaty on the Functioning of the European Union, as a general rule State aid is prohibited in the EU.

---

28 World Bank (2017).

29 Ventoruzzo and Sandrelli (2019) consider that this option is questionable, because it does not ensure that creditors will not be treated worse than how they would have been treated in liquidation, but rather than how they would have been treated based on an ex ante hypothetical assessment of the consequences of liquidation. It may be the case that during resolution information becomes available or events occur that suggest that the outcome of liquidation may have been significantly better than what was originally imagined.

Accordingly, investors in a bank cannot rely on legitimate expectations for the granting of public financial support or claim the right to benefit from a State aid measure.

Therefore, and taking into account the experience with the non-financial restructuring framework, bail-in in and of itself is not a form of expropriation, especially if the requirements analysed are met.[30]

Nonetheless, it is true that the NCWO principle, which acts as a safeguard for shareholders and creditors, needs to be applied such that the intended result is effectively achieved, and this is difficult in practice mainly for one reason: it involves a difficult "prognosis", from both a financial and an accounting perspective, that the resolution authorities must make in advance – if it wishes to avoid subsequent legal challenges – as to how the position of shareholders and creditors would have evolved without the bail-in having taken place as part of a resolution, i.e. in a hypothetical normal insolvency proceeding ending with the institution being wound up.

Indeed, as noted above, according to the NCWO principle, the limit on the sacrifices to be made by shareholders and creditors seems to be determined by their order of priority in a normal insolvency proceeding.

The problem is that, to date, the hierarchy of creditors in normal insolvency proceedings has not yet been harmonised across Europe, meaning that creditors in the same position in relation to their claims can be classified differently in a normal insolvency proceeding depending on each national insolvency law.

Similarly, if we apply to the NCWO assessment the parameters applied to the BIT for non-financial corporations, we must consider the time it would take for a creditor to see their claims satisfied in a liquidation proceeding, compared to the bank resolution tool. And once again, the lack of harmonisation of insolvency law across Europe means that the efficiency of those proceedings and how long they take vary depending on the national insolvency law.

That is why the harmonisation of insolvency law, in particular with regard to the hierarchy of creditors, must be a priority task for the European Commission if the goal is to achieve the capital markets union within the framework of a more predictable and effective bank resolution regime. However, the harmonisation of the hierarchy of claims was for some reason excluded from the scope of Directive (EU) 2019/1023 and from the Commission's proposal for a Second Insolvency Directive, published on 7 December 2022.

Notwithstanding these difficulties in the practical application of the NCWO principle as a safeguard for creditors and shareholders, where this principle is breached and they are bearing greater losses than they would have had to under normal insolvency proceedings, according to the ex ante assessment, Articles 73-75 of the BRRD provide for an important

30 See, in Spain, the Celsa group restructuring plan case (leading case), which was the first judicial approval *(homologación)* of a restructuring plan that was not agreed with the debtor and entailed a shareholder cram-down. (Ruling of Commercial Court No 2 of Barcelona of 4 September 2023).

additional safeguard to make the NCWO principle truly effective. To this end, the BRRD introduces a payment claim for bailed-in shareholders and creditors – including DGSs – against the resolution fund to compensate them if the resolution imposes a greater loss on them than they would have had to bear under normal insolvency proceedings (Article 74 of the BRRD). The compensation will be determined via a valuation carried out by an independent party as soon as possible (timing problem) after the bail-in tool is applied (Wojcik, 2016). This ensures that application of the bail-in rules does not lead to an "expropriation without compensation" of creditors or shareholders.

With regard to the cram-down in non-financial restructuring proceedings, Directive (EU) 2019/1023 does not contain express stipulations on compensation. However, Member States may provide for compensation in cases where shareholders or creditors suffer a greater loss in the preventive restructuring than they would have to bear in normal insolvency proceedings on the basis of the Directive. Therefore, unlike in the case of bank resolution, under the non-financial corporation framework this compensation is not obligatory in any case, but merely an option for the Member State.

In any event, the truth is that if a bank's shares are worth nothing in normal insolvency proceedings, no compensation is justified if the bank's losses are absorbed by its equity. Similarly, if all the losses cannot be absorbed by the equity and a bank continues to fall below the minimum regulatory capital requirements, no compensation is due to the creditors of that bank as long as the economic value of their claims is not reduced below the level at which those claims would have stood in the absence of State aid to the bank.[31]

7 Creditor hierarchy: resolution versus insolvency proceedings

Lastly, with respect to the creditor hierarchy, at first glance the fundamentals of the resolution system seem clear, and it respects the order of priority under normal insolvency proceedings. But things are not as clear as they first appear.

First, as mentioned above, the lack of harmonisation of the creditor hierarchy under normal insolvency proceedings poses a problem, as the comparison between a creditor's position in bank resolution and in a normal insolvency proceeding depends on each national insolvency law.

Second, if we were to compare the insolvency creditor hierarchy with the resolution creditor hierarchy, we could say that we are dealing with two different systems.[32]

Indeed, we can distinguish the creditor hierarchy under insolvency law, which is based on a vertical hierarchy of preferences, and the creditor hierarchy in bank resolution, which is based

31 Ibidem.

32 The EU has tried to minimise the impact of this potential clash between bank resolution and insolvency law through the minimum requirement for own funds and eligible liabilities that all banks, not just systematically important ones, must fulfill (Lamandini and Ramos (2019).

on an "in/out" system if we consider the liabilities legally exempt from bail-in and the legal distinction between bail-inable and non-bail-inable liabilities, which is not consensual but established by law (Ramos Muñoz and Solana, 2020).

In this context, Article 44 of the BRRD establishes a long list of liabilities that are excluded from bail-in. On the one hand, some liabilities (such as covered deposits or secured liabilities to other banks) are automatically excluded from the application of "write-down" or "conversion powers" (Article 44(2) of the BRRD) by the resolution authority. On the other hand, other liabilities are not automatically excluded but require a specific decision by the resolution authority (Article 44(3) of the BRRD). In this regard, one could speak of "discretionary exclusions" within the general discretionary powers of the resolution authority.[33]

Under this framework, creditors clearly prefer to be excluded from the bail-in. However, it is important to note that creditors do not have the standing to include themselves in a statutory bail-in exclusion category if their claim is not included by its nature among the liabilities that are legally excluded from the bail-in, nor do they have the standing to include themselves in the discretionary exclusion category that is determined by a mandatory administrative declaration. Therefore, only once their liabilities have been included in the bail-in may they challenge it through an appeal.

Further, Article 108(1) of the BRRD, which regulates the ranking of deposits in the insolvency hierarchy, as amended by Directive (EU) 2017/2399, contains a minimum set of rules for the harmonisation of national provisions on bank insolvency/liquidation in relation to the ranking of creditors in the insolvency hierarchy.

It establishes a three-tier depositor preference in the hierarchy of claims in insolvency by providing that covered deposits and DGS claims (in the case of subrogation in the rights of covered depositors in insolvency) have (pari passu) the highest ranking (super-preference) in the hierarchy of Member State insolvency laws relative to non-covered preferred deposits, which in turn rank above the claims of ordinary unsecured and non-preferred creditors.[34]

However, the BRRD does not regulate the ranking of the remaining categories of deposits (non-covered, non-preferred and deposits excluded from repayment, in accordance with Article 5(1) of Directive 2014/49/EU of the European Parliament and of the Council of 16 April 2014 on deposit guarantee schemes). As a result, national discretion applies, which creates an uneven playing field and raises obstacles to the resolution of cross-border groups.

In its 2021 consultation document, the European Commission raised the issue of amending the ranking of claims in insolvency and introducing a general depositor preference with a

33 In its contribution to the Commission's consultation (2021), the SRB supported the objective of reducing the mismatch between the resolution and insolvency hierarchy, while noting that the risk of breaches of the NCWO principle can be minimised, but not eliminated, given the possibility of discretionary exclusions.

34 DGSs are critical players in some jurisdictions by funding transfer strategies and ensuring their success, particularly in the United States (Federal Deposits Insurance Corporation, FDIC) and Japan (Deposit Insurance Corporation of Japan (DICJ), as well as (in the EU) in Italy (Ramos, Lamandini and Thijssen, 2023).

single ranking for all deposits (in particular, for ordinary unsecured claims) to allow for the use of DGS funds for measures other than the payout of covered deposits.

This framework would facilitate the use of the DGSs both in resolution and in insolvency and avoid breaches of the NCWO principle, taking into account the lack of harmonisation of the ordinary unsecured and preferred layer of liabilities in insolvency.[35]

The Commission proposed amendments to Article 108 of the BRRD in its April 2023 legislative package, which includes a comprehensive review of the CMDI framework:

— First, it proposes an amendment to Article 108(1) to replace the three-tier depositor ranking preference with a fully harmonised single-tier general depositor ranking in two senses:

  • The statutory priority over ordinary unsecured claims provided for in the Member States' national insolvency laws is extended to all deposits, including those made through non-EU institutions, which shall rank above the claims of ordinary unsecured creditors.

  • The super-priority of DGS claims and of covered deposits will be eliminated, and they will now rank pari passu with other deposits (general privilege), which nevertheless are ranked higher than ordinary unsecured claims. This will, inter alia, "contribute to reinforcing depositors' confidence and to further preventing the risk of banks runs".[36]

— Second, the legislative proposal introduces new provisions to the effect that, where only part of the assets, claims or liabilities of the credit institution under resolution are transferred through the use of transfer tools (in particular, through the sale of business or the bridge bank), the resolution financing arrangement shall have a claim against the residual institution for any expenses and losses incurred as a result of any contributions made to resolution in connection with losses which creditors would have otherwise borne. Such claims, together with those regulated in Article 37(7) of the BRRD, shall have preferential ranking in national insolvency laws which shall be higher than the ranking provided for the claims of depositors and of DGSs under the (amended) Article 108(1).

35 Gortos (2023), pp. 46-47. The issues raised by the Commission in its consultation document were in line with the Eurogroup's 2022 Statement.

36 See recital (39) of the proposal for a Directive of the European Parliament and of the Council of 18 April 2023 amending the BRRD, with regard to the scope of depositor protection, the use of DGS funds, cross-border cooperation and transparency (Colino Mediavilla, 2023). At this stage, it would appear that this idea has essentially been abandoned, as most Member States are in favour of maintaining the super-priority and the discussion has instead moved towards relaxing the proposals on the least-cost test, in order to allow the mobilisation of DGS funds in resolution. How this will be achieved, however, was not clarified in the latest Council working group meeting held at the end of March 2024.

8 Conclusion

The banking union, established in 2014 against the backdrop of a banking sector marked by recent economic crises, made the Single Resolution Mechanism a cornerstone of bank resolution, which sought to avoid the winding-up of significant credit institutions subject to prudential supervision under a normal insolvency proceeding. By doing so, the potential adverse effects on financial stability and possible contagion effects were avoided, fostering the continuity of their essential functions, protecting investors and depositors, without affecting taxpayers, who should not have to foot the bill for the banking sector's errors.

As analysed in this article, it is a resolution model designed largely by reference to insolvency law, requiring resolution authorities to apply insolvency legislation not only as part of the resolution itself, but also counterfactually, in ex ante and ex post situations with respect to key matters that are either not regulated in Directive 2014/59/EU on the recovery and resolution of credit institutions, or are but very broadly (grounds for resolution and creditor safeguards and hierarchy).

Here, it should be highlighted and stressed that one of the key problems, a decade after banking resolution was launched, is that, in addition to the very tensions stemming from equating two legal frameworks that pursue different objectives and protect different interests, there is the particular issue arising from the lack of harmonisation of insolvency law across the EU. In this respect, the harmonisation introduced at procedural level by the Regulation on insolvency proceedings and the harmonisation of preventive restructuring procedures of viable firms under Directive (EU) 2019/1023 are insufficient.

Negotiations are admittedly under way at present over the proposal for a Second Insolvency Directive of 7 December 2022, which, opting for a targeted harmonisation, includes areas of insolvency law that are not harmonised in Directive (EU) 2019/1023 (avoidance actions, pre-pack proceedings, directors' duty to request the opening of insolvency proceedings, winding-up of insolvent microenterprises). However, several aspects that are key to bank resolution are excluded from this harmonisation, in particular the concept of insolvency and the related classification of claims that entail numerous problems and dysfunctionalities in the practical application of principles such as NCWO.

This lack of harmonisation means that there are as many national insolvency laws as Member States, with substantial differences among them and different degrees of efficiency. It also means that the resolution authorities must apply and take into account the national particularities vis-à-vis insolvency in order to conduct the above-mentioned assessments as a part of a bank resolution. All this may lead to different results in resolution, with the legislation on the forced restructuring of non-financial corporations not serving to interpret the gaps in bank resolution, despite the use of parallel techniques (cram-down) and the equivalence in terms of creditor safeguards in non-financial restructuring and in bank resolution (BIT/NCWO principle).

In addition, the lack of insolvency law harmonisation also has adverse consequences for those banks that are not subject to resolution because they do not comply with the public interest assessment but are subject to different winding-up procedures at national level. Here the importance of the Unidroit project on the insolvency and liquidation of small and medium-sized banks should be underscored. This project will foreseeably be adopted at the end of 2024 and aims to overcome to some extent this important handicap by developing an international soft law instrument covering the main features that bank liquidation proceedings should have.

The harmonisation of insolvency law, which is so important from various perspectives (e.g. the construction of a capital markets union), is therefore a pressing matter, especially in the areas that most affect the design of bank resolution, in order to achieve truly harmonised outcomes and avoid the current differences across Member States and the lack of legal certainty stemming from the lack of harmonisation.

REFERENCES

Brescia Morra, Concetta. (2020). "Lending activity in the time of coronavirus". In Christos Gortos and Wolf-Georg Ringe (eds.), *Pandemic Crisis and Financial Stability.* European Banking Institute, pp. 391-410. https://doi.org/10.2139/ssrn.3607930

Bris, Arturo, Ivo Welch and Ning Zhu. (2006). "The Costs of Bankruptcy: Chapter 7 Liquidation versus Chapter 11 Reorganization". *The Journal of Finance,* 61(3), pp. 1253-1303. https://doi.org/10.1111/j.1540-6261.2006.00872.x

Colino Mediavilla, José Luis. (2023). "Los objetivos de la propuesta de reforma del régimen europeo de gestión de crisis bancarias y garantía de depósitos de abril de 2023". Revista de Derecho Bancario y Bursátil, 42(171), pp. 275-292. https://dialnet.unirioja.es/servlet/articulo?codigo=9442088

Diamond, Douglas W., and Raghuram G. Rajan. (2000). "A Theory of Bank Capital". NBER Working Paper Series, 7431, National Bureau of Economic Research. https://doi.org/10.3386/w7431

Galazoula, Olga, Inga West and Charlotte Harvey. (2023). "Corporate restructuring following the EU Directive on preventive restructuring frameworks: is the UK still the center for European reorganization?". *Revista General de Insolvencias & Reestructuraciones (I&R),* 10, pp. 207-221. https://www.iustel.com/v2/revistas/detalle_revista.asp?id_noticia=426255

Garcimartín Alférez, Francisco José. (2021). "Article 4". In Christoph G. Paulus and Reinhard Dammann (eds.). (2021). *European Preventive Restructuring: Directive (UE) 2019/1023. Article-by-Article Commentary.* Beck/Hart/Nomos, pp. 85-96.

Garcimartín Alférez, Francisco. (2024). "Las acciones rescisorias en la propuesta de nueva directiva de armonización del derecho concursal". *Revista General de Insolvencias & Reestructuraciones (I&R),* 12, pp. 39-60. https://www.iustel.com/v2/revistas/detalle_revista.asp?id_noticia=427049

Gleeson, Simon. (2012). "Legal aspects of bank bail-ins". Special Paper, 205, LSE Financial Markets Group. https://www.fmg.ac.uk/sites/default/files/2020-10/SP205.pdf

Gómez de Tojeiro, Darío, and Lucía Piazza Dobarganes. (2024). "La actuación temprana. Balance tras una década de vigencia". *Revista General de Insolvencias & Reestructuraciones (I&R),* 12, pp. 217-256. https://www.iustel.com/v2/revistas/detalle_revista.asp?id_noticia=427055&texto=

Gortos, Christos. (2021). "Considerations on the application of the NCWO principle under the SRM Regulation". *EBI Working Paper Series,* 88, European Banking Institute. https://doi.org/10.2139/ssrn.3807971

Gortos, Christos. (2023). "A reform of the CMDI framework that supports completion of the Banking Union". *EBI Working Paper Series,* 142, European Banking Institute. https://doi.org/10.2139/ssrn.4454297

Grünewald, Seraina. (2017). "Legal challenges of bail-in". In *ECB Legal Conference 2017: Shaping a new legal order for Europe: a tale of crises and opportunities.* European Central Bank, pp. 287-310. https://doi.org/10.2866/08105

Hadjiemmanuil, Christos. (2014). "Special resolution regimes for banking institutions: objectives and limitations". In Wolf-Georg Ringe and Peter M. Huber (eds.), *Legal Challenges in the Global Financial Crisis: Bail-Outs, the Euro and Regulation.* Hart Publishing, pp. 209-235. https://doi.org/10.2139/ssrn.2336872

Haentjens, Matthias. (2017). "Chapter IV". In Gabriel Moss Q. C., Bob Wessels and Matthias Haentjens (eds.), *EU banking and insurance insolvency* (2nd ed.). Oxford University Press, p. 220.

Hicks, Jonathan. (2005). "Foxes Guarding the Henhouse: The Modern Best Interests of Creditors Test in Chapter 11 Reorganizations". *Nevada Law Journal,* 5(3), pp. 820-841. https://scholars.law.unlv.edu/nlj/vol5/iss3/10

Janssen, Lynette. (2017). "Bail-in from an insolvency law perspective". *Hazelhoff Research Paper Series,* 9, Hazelhoff Centre for Financial Law, Leiden Law School. https://doi.org/10.2139/ssrn.2962403

Joosen, Bart, Juana Pulgar Ezquerra and Tobias H. Tröger. (2024). "10 years of Banking Union case law. How did CJEU judgments shape supervision and resolution practice in the Banking Union?". Economic Governance and EMU Scrutiny Unit, European Parliament. https://doi.org/10.2861/8656518

Kenadjian, Patrick S. (2013). "CoCos and Bail-Ins". In Andreas Dombret and Patrick S. Kenadjian (eds.), *The Bank Recovery and Resolution Directive: Europe's Solution for "Too Big To Fail"?.* De Gruyter, pp. 229-230. https://doi.org/10.1515/9783110321401.229

Lamandini, Marco, and David Ramos Muñoz. (2019). "14. Minimum Requirement for Own Capital and Eligible Liabilities". In Mario P. Chiti and Vittorio Santoro (eds.), *The Palgrave Handbook of European Banking Union Law.* Palgrave Macmillan, pp. 321-348. https://doi.org/10.1007/978-3-030-13475-4_14

Lastra, Rosa María, Constanza A. Russo and Marco Bodellini. (2019). "Stock take of the SRB's activities over the past years: What to improve and focus on?". Economic Governance Support Unit, European Parliament. https://doi.org/10.2861/07097

Pulgar Ezquerra, Juana. (2020). "Risoluzione della banca e 'bail-in': 'no creditor worse off'". *Il Diritto Fallimentare e delle Società Commerciali,* 3-4. https://www.dirittofallimentaresocieta.it/Article/Archive/index_html?ida=219&idn=17&idi=-1&idu=-1

Pulgar Ezquerra, Juana. (2023). "Rescisorias concursales y prepack en la propuesta de segunda directiva de insolvencia". *Revista de Derecho Bancario y Bursátil,* 42(171), pp. 11-58. https://dialnet.unirioja.es/servlet/articulo?codigo=9442082

Ramos Muñoz, David. (2017). "Bank resolution and insolvency ranking and priorities". In *ECB Legal Conference 2017: Shaping a new legal order for Europe: a tale of crises and opportunities.* European Central Bank, pp. 256-287. https://doi.org/10.2866/08105

Ramos Muñoz, David, Marco Lamandini and Myrte Thijssen. (2023). "A reform of the CMDI framework that supports completion of the banking union". Economic Governance and EMU Scrutiny Unit, European Parliament. https://doi.org/10.2861/860142

Ramos Muñoz, David, and Javier Solana. (2020). "Bank Resolution and Creditor Distribution: The Tension Shaping Global Banking – Part I: 'External and Intra-Group Funding' and 'Ex Ante Planning v. Ex Post Execution' Dimensions". *University of Miami Business Law Review,* 28(1). https://repository.law.miami.edu/umblr/vol28/iss1/3/

Ringe, Wolf-Georg. (2016). "Bail-in between Liquidity and Solvency". *Legal Research Paper Series,* 33/2016, University of Oxford. https://doi.org/10.2139/ssrn.2782457

Single Resolution Board. (2019). *Public Interest Assessment: SRB Approach.* https://www.srb.europa.eu/system/files/media/document/2019-06-28_draft_pia_paper_v12.pdf

Szirányi, Pál-Lajos. (2024). "Alive and kicking — the first year of the insolvency harmonisation proposal of the European Commission". *Revista General de Insolvencias & Reestructuraciones (I&R),* 12, pp. 339-356. https://www.iustel.com/v2/revistas/detalle_revista.asp?id_noticia=427060

Tröger, Tobias H. (2018). "Too Complex to Work: A Critical Assessment of the Bail-In Tool under the European Bank Recovery and Resolution Regime". *Journal of Financial Regulation,* 4(1), pp. 35-72. https://doi.org/10.1093/jfr/fjy002

Ventoruzzo, Marco, and Giulio Sandrelli. (2019). "O tell me the truth about bail-in: theory and practice". *Law Working Paper,* 442/2019, European Corporate Governance Institute. https://doi.org/10.2139/ssrn.3343324

Wojcik, Karl-Philipp. (2015). "The significance and limits of the 'No Creditor Worse off' Principle for an effective Bail-in". In *ECB Legal Conference 2015: From Monetary Union to Banking Union, on the way to Capital Markets Union. New opportunities for European integration.* European Central Bank, pp. 253-258. https://www.ecb.europa.eu/pub/pdf/other/frommonetaryuniontobankingunion201512.en.pdf

Wojcik, Karl-Philipp. (2016). "Bail-in in the Banking Union". *Common Market Law Review,* 53(1), pp. 91-138. https://doi.org/10.54648/cola2016006

World Bank. (2017). "Understanding bank recovery and resolution in the EU: A guidebook to the BRRD". https://documents.worldbank.org/en/publication/documents-reports/documentdetail/100781485375368909/understanding-bank-recovery-andresolution-in-the-eu-a-guidebook-to-the-brrd

How to cite this document

Pulgar, Juana. (2024). "Bank resolution and insolvency law: interactions and frictions". *Financial Stability Review - Banco de España,* 47, Autumn. https://doi.org/10.53479/38941

ARTICLES PUBLISHED IN THE *FINANCIAL STABILITY REVIEW*

Issue 37 – Autumn 2019

Energy transition and financial stability. Implications for the Spanish deposit-taking institutions
Margarita Delgado

The energy transition and the financial system
Jaime Terceiro Lomba

Building a sustainable financial system: the state of practice and future priorities
Simon Dikau, Nick Robins and Matthias Täger

Non-bank financial intermediation
Ana Martínez-Pina García

The shadow banking system and regulatory arbitrage: the eternal return?
José María Roldán Alegre

Capturing macroprudential regulation effectiveness: a DSGE approach with shadow intermediaries
Federico Lubello and Abdelaziz Rouabah

Financial system interconnectedness
José Alonso and Patricia Stupariu

Brexit: Uncertainties and challenges in the financial sector
Paloma Marín Bona, Susana Moreno Sánchez and María García Lecuona

Second Financial Stability Conference of the Banco de España and of the CEMFI
Madrid, 3 and 4 June 2019
Rafael Repullo and Jesús Saurina

Issue 38 – Spring 2020

BigTech "banks", financial stability and regulation
Jorge Padilla

Taxonomy of the Spanish FinTech ecosystem and the drivers of FinTechs' performance
Santiago Carbó-Valverde, Pedro J. Cuadros-Solas, and Francisco Rodríguez-Fernández

FinTech: data and data collection challenges
Jara Quintanero, Román Santos, Ana Fernández and Auxi Moreno

The outlook for the digitalisation of Spanish banks: risks and opportunities
Carolina Toloba and José Miguel del Río

The Banco de España in-house credit assessment system
Sergio Gavilá, Alfredo Maldonado and Antonio Marcelo

Euro risk-free interest rates: the transition from EONIA to €STR
Inmaculada Álvarez López and Pablo Lago Perezagua

Issue 39 – Autumn 2020

The regulatory and supervisory response to the COVID-19 crisis
Rebeca Anguren, Luis Gutiérrez de Rozas, Esther Palomeque and Carlos Rodríguez

The challenges associated with the use of agencies' credit ratings in the context of the COVID-19 crisis
Elena Rodríguez de Codes, Antonio Marcelo, Roberto Blanco, Sergio Mayordomo, Fabián Arrizabalaga and Patricia Stupariu

At-risk measures and financial stability
Jorge E. Galán and María Rodríguez-Moreno

Stablecoins: risks, potential and regulation
Douglas Arner, Raphael Auer and Jon Frost

Digitalization, retail payments and Central Bank Digital Currency
Jorge Ponce

A future-proof retail payments ecosystem for Europe – the Eurosystem's retail payments strategy and the role of instant payments therein
Mirjam Plooij

Incorporating sustainability factors into asset management
Ricardo Gimeno and Fernando Sols

Issue 40 – Spring 2021

Support measures in the banking sector: loan moratoria
Gabriel Jiménez, Eduardo Pérez Asenjo, Raquel Vegas and Carlos Trucharte

Estimating the cost of equity for financial institutions
Luis Fernández Lafuerza and Javier Mencía

Adapting the supervision of credit institutions to the COVID-19 crisis
Sonsoles Eirea, María Oroz and Carlos Díez

Euro area bank profitability and consolidation
Édouard Fernandez-Bollo, Desislava Andreeva, Maciej Grodzicki, Lise Handal and Rose Portier

Function and application of the new macroprudential tools available to the Banco de España
Ángel Estrada and Christian Castro

Implications for financial market infrastructures of a wholesale central bank digital currency based on distributed ledger technology
José Luis Romero Ugarte, Abel Sánchez Martín, Carlos Martín Rodríguez and Justo Arenillas Cristóbal

Cyber risk as a threat to financial stability
Francisco José Herrera Luque, José Munera López and Paul Williams

The design of macroeconomic scenarios for climate change stress tests
Pablo Aguilar, Beatriz González and Samuel Hurtado

Issue 41 – Autumn 2021

Central bank digital currencies and financial stability
Jean-Pierre Landau

An initial analysis of energy transition risks using the Banco de España's FLESB stress-testing framework
Alejandro Ferrer, Javier García Villasur, Nadia Lavín, Irene Pablos Nuevo and Carlos Pérez Montes

Archegos and Greensill: collapse, reactions and common features
José Alonso Olmedo, Rebeca Anguren Martín, María Gamoneda Roca and Pablo Pérez Rodríguez

Measuring interconnectedness across institutions and sectors
Julio Gálvez

Strengthening the cyber resilience of the financial sector. Developments and trends
Silvia Senabre, Iván Soto and José Munera

Regulating for competition with BigTechs: banking-as-a-service and "beyond banking"
José Ramón Martínez Resano

Regulatory developments in bank solvency, recovery and resolvability
Ignacio Colomer, Sara González Losantos, María López Pérez and Luis Mohedano Gómez

Programme of the third Conference on Financial Stability of the Banco de España and CEMFI

Issue 42 – Spring 2022

Digitalisation and banking: new risks and three scenarios for the European banking system of the future
Thorsten Beck and Antonio Sánchez Serrano

Reflections on the future business model of European banks and the supervisory approach
Julio R. Hernáez, Alejandra Bernad, Laura Hierro and Ana M. Gómez-Bezares

Bank fees and charges: economic analysis, legal framework and relevance for financial stability
Alejandro Ferrer and Álvaro Pereda

Wholesale financial markets and digital currencies: making headway in the tokenisation of central bank money
Sergio Gorjón

Sectoral indicators for applying the Banco de España's new macroprudential tools
Carmen Broto, Esther Cáceres and Mariya Melnychuk

The first ten years of the European Systemic Risk Board (2011-2021)
Luis Gutiérrez de Rozas

Issue 43 – Autumn 2022

Impact of payout restrictions in the wake of the COVID-19 pandemic on European and US banks' stock market valuation
Irene Pablos Nuevo and Carlos Pérez Montes

Structural risk indicators for the Spanish banking sector
Carmen Broto and Mariya Melnychuk

Digital resilience and financial stability. The quest for policy tools in the financial sector
José Ramón Martínez Resano

Unwrapping black-box models: A case study in credit risk
Jorge Tejero

Issue 44 – Spring 2023

The EURIBOR surge and bank deposit costs: an investigation of interest rate pass-through and deposit portfolio rebalancing
Alejandro Ferrer, Gergely Ganics, Ana Molina and José María Serena

EU energy derivatives markets: structure and risks
Antoine Bouveret, Davide Di Nello, Jordi Gutierrez and Martin Haferkorn

Digital assets and reporting: is there anything new under the sun?
Fernando García Martínez and José Ramón Martínez Resano

Climate change, financial risks and reporting: distant horizons?
Covadonga Martínez and Pablo Pérez Rodríguez

Crypto-asset regulation in the current international and European framework
Rebeca Anguren, José García Alcorta, Lucas García Calvo, Diego Hernández García and Eva Valdeolivas

The European Central Bank and financial stability: a quarter of a century of evolution and transformation (1998-2023)
Luis Gutiérrez de Rozas

Issue 45 – Autumn 2023

Building trust to prevent banking crises
Dominique Laboureix and Mark Pozlep

The 2023 banking crises: the causes and the role played by bank management, supervisors and regulators
José Alonso, Rebeca Anguren, M.ª Cruz Manzano and Joaquín Mochón

Macroprudential tools for open-ended investment funds
María Isabel Cambón and Gema Pedrón

Pillar 3 disclosures on ESG risks. First disclosures of Spanish and other European banks
Herminia Cuevas, Esther Palomeque and Beatriz Santa-Cruz

Innovation in retail payments and its impact on central banks' oversight function
Desirée Alemán, Justo Arenillas, Lourdes Cremades, Rosa Martín and Miguel Pérez

Fourth Conference on Financial Stability organised by the Banco de España and CEMFI

Issue 46 – Spring 2024

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

Revisiting the estimation of the cost of equity of euro area banks
Luis Fernández Lafuerza and Mariya Melnychuk

The euro area banking sector and MREL: a challenge for medium-sized banks?
Lucía Ibáñez, Miguel Kruse, María Pollos, José María Serena and Miquel Tarí

A method for reducing credit scores' sensitivity to economic conditions
Óscar Fidalgo, Víctor Martínez, Esther Moral and María Oroz

BANCO DE ESPAÑA PUBLICATIONS

The Banco de España publishes various types of documents providing information on its activity (economic reports, statistics, research papers, etc.), which can be consulted in the Institutional Repository at https://repositorio.bde.es/.

Most of these documents are available in pdf format and can be downloaded free of charge from the Banco de España website at http://www.bde.es/webbde/en/secciones/informes/.

ISSN: 2605-0897 (electronic edition)