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THE SINGLE BANKING RESOLUTION MECHANISM

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Abstract

The European authority in the field of banking resolution is the Single Resolution Board (SRB), in collaboration with the national resolution authorities. The resolution of a bank involves its restructuring by this Board, through a series of instruments aimed at ensuring the continuity of the institution's critical functions and financial stability in one or several Member States. This article describes the basic characteristics of the Single Banking Resolution Mechanism. Aspects relating to its mission, governance and organisation are first set out. A description that follows of the substantive elements of a resolution plan, namely public interest, critical functions, resolution strategies and instruments, the analysis of a bank's resolvability and the identification of obstacles to resolution. The author also explains the setting of a minimum level of eligible liabilities (MREL) and describes the functioning of the Single Resolution Fund. Lastly, a summary is given of the SRB's activity since it was established in 2015, and the ongoing legislative reforms under the European resolution framework are set out.

1 Introduction

The 2008 financial crisis severely impacted the European banking system, prompting sizeable public aid. In some countries, what began as a banking crisis promptly became a public solvency crisis. The G20, in numerous meetings, backed the initiatives of the Financial Stability Board (FSB) in order to lessen the likelihood of the crisis and its impact affecting global systemic financial institutions. In 2009, the authorities of the most developed countries launched a new paradigm in the management of banking crises. There was a switch back from implicit public guarantees and bail-outs using taxpayers' money towards market discipline, where shareholders and creditors play a predominant role in loss-absorption and in the possible recapitalisation of banks, and where contributions to the banking system as a whole are demanded when banks require external funds.

Against this background, the European Union launched the Banking Union for the 19 euro area countries and approved the regulatory framework for banking resolution: the Bank Recovery and Resolution Directive (BRRD) and the Single Resolution Mechanism Regulation (SRMR)¹. The Single Resolution Mechanism (SRM) was established, under the management of the SRB and the national resolution authorities (NRAs), setting in place the second pillar underpinning the Banking Union.

The first pillar is the Single Supervisory Mechanism (SSM), managed by the European central bank (ECB) and the competent national authorities; the third pillar is still under construction and concerns the European Deposit Insurance Scheme (EDIS).

2 Mission, governance and functions of the SRM

The mission of the SRM is to ensure orderly resolution of a failing bank with the least possible impact on the real economy and public finances of the Member States of the Banking Union and of the rest of the countries affected, ensuring overall financial stability.

To fulfil its mission, the SRB cooperates closely with the NRAs. As regards its powers, the SRB is directly responsible for significant banks and cross-border banking groups.

¹ Directive 2014/59/UE 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 and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No. 1093/2010, and (EU) No. 648/2012, of the European Parliament and of the Council Text. Official Journal of the EU of 12.6.2014.

The NRAs are directly responsible for the other banks and for investment services firms, although the SRB may, in specific circumstances, assume these powers. The SRB likewise performs the function of overseeing the monitoring the NRAs' decisions on less significant institutions, promoting the application of uniform criteria throughout the Banking Union.

The SRM's mission may be specified in terms of its objectives and tasks. In principle, the main objectives of bank resolution (and, therefore, of the SRM) are the following (Article 14 of the SRMR):

- to ensure the continuity of the critical functions performed by the bank under resolution;
- to prevent significant adverse effects on the financial system;
- to protect public funds;
- to protect depositors; and
- to protect customer assets and funds.

The SRM is made up of the SRB and the NRAs. All the NRAs of the member countries of the Banking Union participate in the Plenary Session of the SRB, along with the six permanent SRB members, and with the European Commission and the ECB as permanent observers. The competencies of the Plenary Session are as follows:

- the approval each year of the SRB budget, work programme and accounts;
- in the event of a bank's non-viability, the approval of a resolution scheme if funds from the mechanism of over €5 billion are needed, or if over a 12-month period this amount has been exceeded, with several resolution schemes;
- authorisation to raise extraordinary ex post contributions, loans between SRF compartments and alternative funding with third parties;
- approval of the SRF's investment policy;
- approval of the cooperation framework between the SRB and the NRAs;
- other organisational and internal regime measures stipulated in Article 50 of the SRMR.

The SRB Executive Session comprises the six permanent members and the aforementioned observers. Its main competencies are the approval of the resolution plans of the banks under its responsibility (including the MREL) and its resolution schemes (which require the backing of the European Commission and approval, where appropriate, of the Council). In those decisions requiring an Extended Executive Session, i.e. the participation of the NRAs, when there is no consensus among members, only the permanent members of the SRB vote and the decision is adopted by simple majority.

The legal framework demands that a resolution meet the following requirements:

- the shareholders of a bank should bear, firstly, the losses;
- the creditors should bear losses after the shareholders and following the priority of creditors that is established for ordinary insolvency proceedings;
- the bank's board of directors and senior management should be replaced, except in justified cases, and duly

cooperate towards achieving the objectives of the resolution;

- natural and legal persons shall answer for the responsibilities incurred in the bank's failure;
- the deposits covered shall be fully safeguarded;
- the bank's former shareholders and creditors should incur no more losses than those they might have incurred in the event of liquidation.

The main tasks of the SRM are as follows:

- to draw up the resolution plans of all Banking Union banks;
- to set the minimum level for eligible liabilities (MREL) for these banks;
- to assess banks' resolvability and the removal of the attendant obstacles;
- to approve and apply resolution schemes for failing banks;
- to manage the resolution funds.

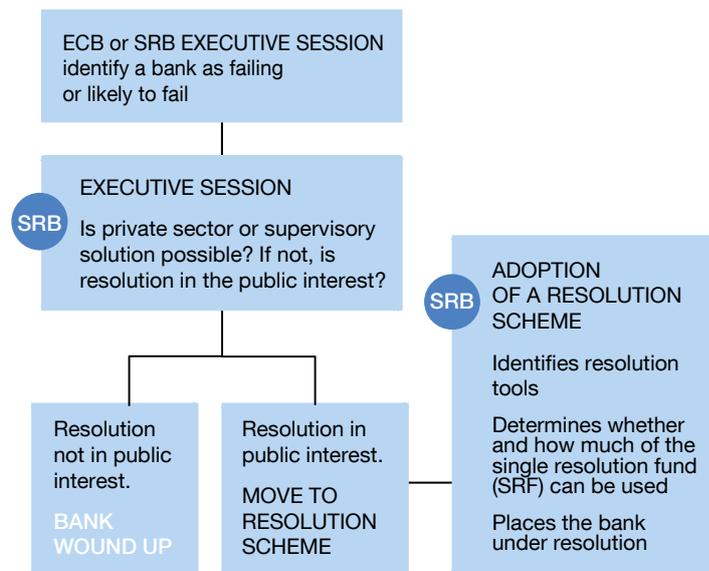
3 Basic elements of a resolution: non-viability of a bank, public interest and general requirements

The resolution of a bank involves the intervention by the related resolution authority to ensure the continuity of its critical functions and the financial stability of the Member State where the bank is operating.

The resolution of a bank is the outcome of a decision by the competent authority, and on condition that three cumulative conditions are given: that the bank is failing, or is likely to fail; that there is no private solution or supervisory action that may restore the bank's viability within a reasonable timeframe; and that the resolution is necessary, owing to public interest.

Both the BRRD and the SRMR stipulate that the resolution of the bank is only fitting if there is public interest in that resolution; that is to say, resolution will proceed if the liquidation of the bank, following national insolvency rules, were to endanger the critical functions it provides and, thereby, financial stability.

Article 18.4 of the SRMR states that a bank is failing or likely to fail (FOLTF) if any of the following circumstances arise: the bank has infringed (or is likely to infringe in the near future) the requirements for retaining its authorisation; the bank's assets are lower than its liabilities (or are likely to be shortly); the bank cannot meet the payment of its debts or



SOURCE: SRB.

Note: For simplicity, the role to play by the European Commission and the Council is not included in the scheme.

liabilities on their due date (or is likely to be unable to do so in the near future); and the bank requires extraordinary public aid (except in given situations stipulated by the SRMR in this same article). Scheme 1 sets out SRB decision-making for the resolution of a bank.

4 Resolution plans

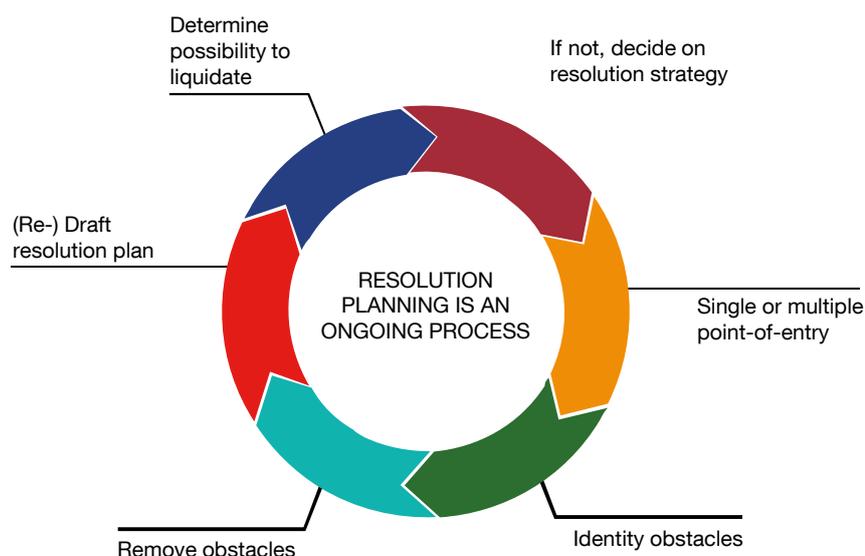
Resolution planning is one of the SRM's main tasks and is a cornerstone of the new bank resolution approach. This planning seeks, on one hand, to understand in detail a bank's operations and, on the other, to identify and manage any obstacle to its resolution. Naturally, this allows the authority to be prepared should resolution be necessary. Resolution plans are drawn up by the resolution authority and should be updated at least once a year (see Scheme 2). The main elements of resolution plans are reviewed below.

4.1 THE CRITICAL FUNCTIONS OF A BANK

Determining the critical functions is an essential step in the preparation of resolution plans (including, also in recovery plans). It affects the establishment of loss absorption capacity, the bank's operating and financial continuity, and also the choice of the preferred resolution strategy, the assessment of resolvability and the identification of obstacles to resolution.

To achieve consistency in this analysis, the SRB, with the cooperation of the ECB and the European Banking Authority (EBA), has developed a template for the identification of critical functions, the completion of which by banks began in the 2017 planning cycle. The template's format and content is standardised, it compiles quantitative information and requires expert evaluation by the resolution authority, which is ultimately responsible for identifying these functions. The indicators used include most notably national market shares and the number of customers, and, in addition to studying the impact of the discontinuity of these functions, it is essential that their substitutability by other providers be analysed.

Preserving financial stability by preventing contagion to other banks is one of the objectives of the resolution of a bank. Financial stability may refer to one or several



SOURCE: SRB.

Member States and to one or several regions. For the SRB, the framework for the analysis of possible adverse effects on financial stability should be one (or several) Member States and should take into account the size and importance of the bank under resolution (volume of assets, market shares in specific functions, significance of the bank's deposits, similarities between its business model and that of other financial institutions, etc.). If there is a risk to financial stability, the bank's resolution would be justified; if there is not, national insolvency rules should be applied (this without considering other resolution objectives).

4.2 VALUATION OF THE BANKS SUBJECT TO RESOLUTION

A common element in all valuations is the need for banks to provide reliable and rapid information. To achieve this, the resolution authority should give priority to this aspect during resolution planning. The lack of appropriate information management systems might be classified, as we will later see, as a material obstacle to a bank's resolution. There are three different types of valuations, aimed at meeting the following objectives:

- a) valuation 1: to inform the resolution authority whether the bank meets the conditions for its resolution;
- b) valuation 2: to inform the resolution authority on the quantification of losses, and on the resolution strategy and instruments that may be applied;
- c) valuation 3: to ensure that the shareholders and creditors do not incur greater losses under resolution than in liquidation.

Valuation 1 must be consistent with the accounting and regulatory rules applicable. Clearly, the focus of this valuation will be different if non-viability or the possibility of non-viability is due to a liquidity crisis or to the non-fulfilment of capital requirements.

Valuation 2 has to determine the bank's economic value, i.e. it has to take into account the present value of expected cash flows and all the factors or contingencies that may affect this value. Based on the resolution instruments to be applied, different valuation criteria shall be used, since it is not the same retaining assets as it is selling or liquidating them. An economic valuation is never absolute. Valuers make specific assumptions; they apply a specific methodology; and they consider more or less adverse scenarios to make adjustments in balance sheet items, which entails obtaining valuation ranges. In any event, valuers should explain in their report the assumptions and methodologies used and how they affect the results of the valuation. If, for reasons of urgency, a provisional valuation 2 is made, this should contain a realistic buffer that allows for full loss absorption.

Valuation 3 requires the classification of the bank's liabilities (including contingent liabilities) according to their creditor ranking in insolvency, in order to determine what result (recovery of their loans) the former shareholders and creditors would have obtained had the bank not been placed under resolution. This should always be done by an independent expert. The lack of uniformity characterising insolvency regimes in the various European countries hampers their consistency.

4.3 ANALYSIS OF RESOLVABILITY

What elements enable a bank's resolvability to be assessed? Firstly, a strategic analysis of its business model, which involves identifying its critical functions, main business lines and material legal entities. Secondly, an analysis of the credibility and feasibility of the resolution strategy, assessing whether the group's legal structure, and the intra-group interconnections are an obstacle to its resolution. Operational continuity is a further element and requires the bank to have identified and mitigated all material risks to this continuity in the event of resolution, including the maintenance of access to financial market infrastructures (FMIs). The fourth element is financial continuity, which requires the bank to be capable, first, of monitoring and anticipating financial needs under resolution (both loss absorption and liquidity-related) and, further, of identifying and mobilising available liquidity resources to cover these needs. The foregoing includes fulfilment of the MREL target set by the resolution authority.

Another relevant element is governance in communication policy, which involves verifying whether the bank has appropriate governance structure and procedures for timely decision-making in the event of resolution, and a clear communication plan with the various parties concerned, within and outside the bank, particularly with their customers and employees. Lastly, a key element is the information systems and infrastructures that will enable the bank to supply the information needed to implement the resolution strategy.

4.4 RESOLUTION STRATEGY

In devising a resolution plan, it is essential to determine the resolution strategy. This strategy is two-pronged: the choice of the resolution tool and the point of entry under resolution (single or multiple).

4.4.1 Resolution tools

The regulations provide for four resolution tools:

- bail-in,
- sale of business,
- asset separation, and
- bridge bank

With a bail-in, the bank under resolution restores its solvency after the absorption of losses and the recapitalisation of the bank until regulatory requirements are met. Under Article 27 of the SRMR, the bail-in can be applied to recapitalise the bank under resolution until the conditions of the authorisation are met; and to convert into capital or reduce the principal of claims or debt instruments that are transferred to a bridge bank, or following the application of the sale of the business or the separation of assets. This tool can be used if, thereby, there are reasonable expectations the long-term viability of the bank will be restored. In this connection, the plan for the restructuring of the bank's business post-resolution is essential, as is providing the necessary liquidity.

Article 27.3 of the SRMR stipulates the obligatory exclusion from bail-in of a series of liabilities (which would cease to be eligible for loss absorption and recapitalisation) and discretionary exclusion when faced with the exceptional circumstances indicated in Article 27.5 of the SRMR.

The sale of the business should be understood in a broad sense: sale of the bank's shares ("share deal") or sale of all or a portion of its assets, rights and/or liabilities ("asset deal"). Barring exceptional cases of urgency, the sale procedure should be transparent and competitive. Evidently, the price obtained may give rise to a financial imbalance at the bank, which would oblige its shareholders and creditors to bear losses. This principle (the shareholders and creditors of the bank under resolution should be the first to bear losses) is applicable to all the resolution tools.

The third resolution tool is asset separation, which involves separating these assets for their transfer, at a specific price, to a specialised asset management vehicle (AMV) that will administer them long-term. This instrument should be applied along with another of the three set out.

Lastly, the bridge bank allows the transfer of shares or other capital instruments, assets, rights and liabilities of the bank under resolution to this institution. Ownership of the bridge bank shall be fully or partly public; however, in any event, control will be in the resolution authority's hands. The functioning of the bridge bank shall be terminated as soon as possible and, in principle, before two years have elapsed since the last transfer to this bank, although this period may be extended for one or more years in certain circumstances (Article 41.6 of the BRRD).

4.4.2 The point of entry under resolution

When defining the resolution strategy for a bank with subsidiaries in several countries, the point of entry under resolution (i.e. on which bank the resolution tools are to be applied), which can be single (SPE) or multiple (MPE), must be determined.

The choice of point of entry under resolution will depend on the degree of financial and operational interdependence between subsidiaries and parent, and on the existence of a single or several resolution authorities in the countries in which the group operates. Lastly, a very important factor is the legal status of the banks in other jurisdictions (subsidiaries or branches).

In the SPE, there is a point of entry under resolution that is usually the parent company. This means that only one bank would go into resolution (that defined as a point of entry). If a subsidiary is posting significant losses, the group should have pre-established mechanisms for the transfer of losses to the bank that acts as a point of entry, and the latter will recapitalise the subsidiary in question. If it is the bank that acts as a point of entry

that has losses, its shareholders and creditors will have to bear the losses and recapitalise the bank.

An MPE means that the entity considered as a point of entry is independent from the rest of the bank. Consequently, its non-viability does not affect the rest of the group and, therefore, in the event of resolution, it is dealt with autonomously: its shareholders and creditors bear the losses and the bank can continue performing its critical functions normally.

Under the MPE strategy for the resolution of a group, there is scope for an SPE for the resolution of a sub-group. Hence, a bank with two points of entry can have a single point of entry for a group of subsidiaries (which would make up one resolution group) and another point of entry for other subsidiaries (which would make up another resolution group).

4.5 IDENTIFICATION OF OBSTACLES TO RESOLUTION

Once the resolution strategy has been defined, the authority must identify the obstacles to resolution and analyse how they affect the assessment of the bank's resolvability. This assessment will comprise three steps:

- 1) verifying whether the information provided by the bank is appropriate for identifying the aforementioned obstacles;
- 2) assessing their impact on the resolution strategy chosen;
- 3) determining whether these obstacles can be eliminated in the short/medium term, or whether they are likely to persist in the event of resolution.

What have the SRB's priorities been in assessing resolvability in the latest resolution planning cycles? There are five main priorities. First, the legal and financing structure, and loss absorption capacity. The aim here is to identify and eliminate inappropriate elements of complexity in the bank's legal structure, and to ensure there is a sufficient amount of loss-absorption instruments and that they are in the appropriate place in the case of a group.

Second, technological and operational capacity to provide the necessary information to enable implementation, if necessary, of resolution measures. This priority takes the specific form of the provision by the bank of full and correct information for the drawing up of resolution plans, the valuation of the bank and the identification of unencumbered assets. It is also necessary to examine the procedural and operational steps needed for the use of the resolution tools and, especially, for the reduction in value and conversion of liabilities.

The third priority has been business continuity under resolution and maintenance of access to FMIs. The necessary services for critical functions and business lines are identified and mapped; repositories of contracts with critical services suppliers are established, assessing their suitability in the event of resolution; and critical services supplied by FMIs are identified and mapped.

Liquidity under resolution has been a further priority, with the aim of improving the bank's liquidity management during resolution.

Lastly, priority has been given to communication with authorities and main counterparties. A full communication plan has been developed, ensuring a clear governance structure and laying down detailed internal procedures.

The interaction with the banks in this process is ongoing. The SRB communicates its priorities to the banks by letter; the banks make a self-assessment of their resolvability and discuss it with the internal resolution teams (IRTs); the banks propose measures to eliminate material obstacles to resolvability, which will be analysed by the authority; and the banks regularly report to the authority on progress made. This means that the resolvability of a bank is a joint responsibility of the authorities and the banks.

Among the potential obstacles to resolvability mentioned in the plans relating to the 2018 cycle were the complexity of group structures, the systems and infrastructures for the supply of information, and insufficient loss-absorption capacity. Key among the priorities for 2019 is the management of the aforementioned potential obstacles, and progress on the operationalisation of resolution tools, including separability in the event of the sale of the business, separation of assets and a bridge bank, and ensuring business and financial continuity under resolution.

The communication of material obstacles to resolution should be in conformity with Article 10 of the SRMR.

By definition, resolution planning is an ongoing process; accordingly, after identifying the obstacles to resolution and their removal, a new cycle of work starts and the bank's resolution plan should be updated.

5 MREL policy

One of the guiding principles of the new regulatory framework is to demand that banks have sufficient loss absorption capacity and have, in the event of going into resolution, a sufficient amount of liabilities that will enable the bank to be recapitalised with the minimum possible impact on critical functions, on financial stability and on public funds.

Article 45 of the BRRD requires that all European banks should have an adequate level of MREL to comply with the above-mentioned principle. The resolution authority shall annually communicate to banks their minimum MREL requirement. As regards eligible liabilities for the MREL, the BRRD and the SRMR consider the following as excluded: liabilities excluded from bail-in (liabilities that could not absorb losses or be of use for recapitalisation), and those instruments which, while not excluded from bail-in, are excluded from the MREL, since they are unable to absorb losses, are relatively unstable or for which it is difficult to conduct a bail-in (liabilities that are not fully paid-up, liabilities that are backed or financed by the same bank, liabilities that mature in at less than one year, liabilities arising from derivatives and liabilities considered preferential according to the national insolvency hierarchy). That is to say, the typical instruments for meeting the requirement are own funds, subordinated debt and senior debt issued at over one year.

On 23 May 2016, the Commission Delegated Regulation completing the BRRD in respect of MREL² was published. This legislation established a calibration by default which basically duplicates the capital requirements demanded by the supervisor, since its objective would be the recapitalisation of the bank, along with loss absorption. Hence, the amount the bank should have will be the sum of the amount needed to absorb losses (by default, that

² Commission Delegated Regulation (EU) 2016/1450 of 23 May 2016 supplementing Directive 2014/59/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying the criteria relating to the methodology for setting the minimum requirement for own funds and eligible liabilities (Official Journal of 3.9.2016).

demanded by the supervisor as capital requirements, including the combined capital buffer), that needed to recapitalise the bank (by default, the same amount needed to continue with the banking licence after having absorbed the losses resulting from the crisis) and an additional amount to restore market confidence in the bank after the resolution process.

In 2017 and 2018, the SRB published its criteria for determining the MREL in those years, the resolution plans, opting for a bail-in and for transfer strategies as the preferred resolution tools, broadly following the calibration by default established in the above-mentioned Regulation. However, the SRB understands that it is possible that the bank, after suffering the effects of the crisis and as a result of the losses incurred, may have seen its risk-weighted assets (RWAs) diminish; or that certain assets of the bank that reduce these RWAs can be easily sold; or that, as a result of a restructuring plan approved by the supervisory authorities, there is a clear expectation that RWAs will decline in a short period of time. In these specific cases, the SRB might reduce the amount stipulated by default for recapitalisation, in such a way that the MREL requirement would be reduced.

Regarding the quality of the MREL, it is expected for globally systemic institutions that a portion of the requirement equivalent (at least) to 16% of RWAs (plus the capital buffers) be met by own funds or subordinated debt. In the case of systemic institutions at the national level, the expectation is that at least 14% of RWAs (plus buffers) are subordinated. In both cases, the required level of subordination may be increased if the resolution authority considers that, in the event of having to execute the bail-in, there is some risk of non-compliance with the NCWO (“no creditor worse off”) principle whereby no creditors should incur greater losses than they would have done under liquidation. For the remaining institutions, the SRB will set subordination levels on a case-by-case basis. This analysis will take into account similar-ranked (*pari passu*) liabilities in the order of insolvency. Hence, derivatives, liabilities needed for the continuity of the institution and corporate deposits or senior bonds usually share the same rank in the order of insolvency. Were it necessary to exclude liabilities needed for business continuity from the bail-in, the share to be borne by the remaining creditors in the bail-in would be greater. As a result, in the event of resolution, the SRB (through the SRF) might have to compensate holders of converted liabilities who have incurred more losses than they would have done under liquidation.

In terms of quality, it is worth noting that the SRB clarifies that the following liabilities are not eligible: those issued under legal regimes outside the EU or by banks established outside the EU, unless the banks can demonstrate the effectiveness of the bail-in in the country of issue; non-preferential deposits and deposits not covered by the Deposit Guarantee Scheme in the long term, but where the holder can withdraw the money in a term of less than one year; and, in principle, structured bonds and those issued by special-purpose vehicles (SPVs).

To date, the SRB has been setting the MREL at the consolidated level. But SRB policy as from 2019 intends to set individual MREL requirements, adhering, in principle, to criteria similar to those explained.

Finally, once the requirement is set, a term over which institutions must comply with it is needed. This term will be determined by the level required (amount) and the quality required (subordination), and it will take into account other specific factors of the institution and of the markets in which it operates.

The basic aim of the SRF is to ensure the efficient application of resolution tools and the exercise of the resolution powers conferred on the SRB by the European banking resolution authority. Under the new paradigm, a bank crisis should be financed by shareholders and creditors and, where necessary, by the SRF, which is financed by financial institutions. Only exceptionally, after the use of the SRF, may national public funds be used.

The SRF is financed by ex-ante contributions from credit institutions and some investment companies. If one (or several) resolution case(s) consume(s) all the resources available in the SRF and more financing is needed, ex post contributions – by the same financial institutions – will be raised. Normally, these ex-post contributions are not available or not immediately accessible; in that case, the SRF will resort to debt (whether private or public) operations. The target amount for the SRF in 2024 is to reach at least 1% of the deposits covered in the euro area (currently estimated at around €60 billion).

Article 76 of the SRMR stipulates the potential uses of the SRF: to guarantee the assets or the liabilities of the institution under resolution; to make loans to the institution under resolution, its subsidiaries, a bridge bank or an AMV; to purchase whatsoever assets of the institution under resolution; to make contributions, in a broad sense, to a bridge bank and to an AMV; to pay compensation to shareholders and creditors for having borne greater losses under resolution than under liquidation; and to make contributions to the absorption of losses and recapitalisation of an institution, replacing specific creditors following their exclusion from a bail-in (Articles 27.5 and 18.7 of the SRMR).

The first two tools seek to strengthen the liquidity of an institution under resolution, and the following aim to shore up its solvency. When capital-strengthening measures are involved, compliance is necessary with the legal requirement whereby the shareholders and creditors of the bank under resolution must first absorb losses for a minimum amount of 8% of the institution's total liabilities,

with the SRF's maximum contribution at 5% of these total liabilities.

To make the SRF operational, the Member States have signed an Intergovernmental Agreement (IGA). Under the IGA, the SRF will, for a transitory period from 2016 to 2023, comprise different compartments corresponding to each of the Member States: the use of these compartments will be progressively mutualised until, by 2024, the SRF will be mutualised in its entirety (pursuant to Article 5 of the IGA). Thus, during the transitory period, the following order would have to be followed in the event of a resolution: first, use would necessarily be made of the "national" portion of the compartment of the country where the bank under resolution is domiciled (with the percentage to be defined by the IGA); second, if these resources are not sufficient to accomplish the SRB's mission, resort may be had to the mutualised portion of each of the other compartments; if the resources continue to fall short and more funds are needed, resort will be had to the remaining portion of the compartment of the country of resolution; finally, if, after the three foregoing steps, the resources were still to prove insufficient to finance the resolution arrangements, extraordinary (ex-post) contributions would be requested of the credit institutions authorised in the same country where the resolution case is unfolding.

Since the above-mentioned extraordinary contributions are not immediately accessible, each Member State has entered into a Loan Facility Agreement (LFA) for the estimated amount of its compartment as at end-2023. Importantly, LFAs will only be used as a last resort, and they will be fiscally neutral for each country in the medium term. This is because it is credit institutions that will have to return the funds used.

In addition, the SRF, on the request of the country where the resolution is unfolding and contingent on the approval of the other euro area member countries, may use loans between compartments. Lastly, provided that a resolution ensues, the SRF may under Article 73 of the SRMR seek alternative sources of financing with third parties.

To conclude, the SRB has made significant progress this year in determining the criteria for setting the MREL. However, much work remains to be done. The priorities here are: to set clear criteria to determine the MREL for those banks in which the resolution tool is not a bail-in; to make internal MREL operative (for institutions with an SPE); to set the MREL at the individual level; and to make headway in terms of reporting for the effective monitoring of MREL compliance.

6 SRB activity: 2015-2019

Firstly, the SRB has taken numerous steps to implement the regulatory framework. It has drawn up policies and methodologies (MREL, identification of functions and critical services, access to FMIs, operational continuity, liquidity in resolution, etc.). Further, it has developed templates, enabling it to obtain and analyse information on liabilities (LDR – liability data reporting), FMIs and critical functions. Finally, the total amount collected by the SRF will be around €33 billion as at end-June 2019.

Secondly, the SRB has made progress in drawing up resolution plans for banks under its jurisdiction. In particular, it has set obligatory MREL objectives for larger, more complex banks, and reporting objectives for the remaining banks. In devising these plans there has been ongoing interaction with the euro area NRAs (in IRTs, in various committees organised by the SRB and in the SRB plenary session), with the ECB (information exchange, consultation of resolution plans and observer-status participation in the executive and plenary sessions), with the European commission (also with an observer role in the executive and plenary sessions), with the EBA, and with the resolution authorities from countries outside the Banking Union.

Thirdly, it has participated and contributed actively in international fora on resolution, coordinating various groups within the EBA and the FSB, promoting best practices and improving reference texts.

The SRB priorities for 2019 are: to further refine those policies already approved (MREL, access to MFIs, operational continuity, operationalisation of resolution tools and assessment of the public interest); to approve new policies and guidelines (valuation, aimed at valuers and banks); to increase the scope of binding MREL decisions; to identify material obstacles to the resolution of banks; to review decisions on less significant institutions that are the responsibility of the NRAs; to develop an efficient framework for the management of bank crises; and to complete the SRF's investment policy.

It is worth highlighting one last priority, linked in this case to the United Kingdom's withdrawal from the European Union. Brexit may prompt various effects on the resolvability of European banks. The SRB is focusing on some of these effects, e.g. the eligibility of financial instruments which, in principle, might be MREL-eligible, but which on being issued in the United Kingdom would be considered as third country-issued instruments. This means that new UK issues should include a contractual clause acknowledging the capacity of the European resolution authorities to execute a bail-in on these instruments, although the legal uncertainty would only be removed if the issue were made under the laws of one of the EU Member States. Regarding outstanding issues, these will be analysed on a case-by-case basis to evaluate their eligibility.

7 Reforms pending in the resolution regulatory framework

Regarding the operationalisation of the SRF, one initial measure to pursue is the creation of a common backstop to the SRF. This must be available at the very latest in 2024, and it must work as a last resort and be neutral, from a fiscal standpoint, in the medium term (i.e. be financed, after its use, by financial institutions). Access to the backstop will require complying with the rules for the use of the SRF, without it, appearing necessary to add more requirements, which might entail excessive complexity of use. It is essential that the loans obtained by the SRF through the backstop can be mobilised immediately. Following the latest political agreements in December 2018, it appears the provider of the backstop will be the European Stability Mechanism (ESM) and the amount that will be made available

It was clear from the resolution of Banco Popular en 2017 that liquidity in resolution, including the availability of sufficient collateral, is a priority matter. In the resolution of a major bank, credibility (with respect to size and speed) in the provision of liquidity is only possible with the intervention of a central bank. The SRF, even with an operational backstop, might suffice to tackle a crisis at a medium-sized or small bank; but its limited capacity is a handicap when it comes to managing a crisis at a systemic bank. In some countries, such as the United States and the United Kingdom, the central bank

provides liquidity in resolution with a public guarantee. And this is the alternative that should be explored in the Banking Union.

The SRB is monitoring the level of encumbered assets in order to assess banks' capacity to gain access to funding on the market or at the central bank. The SRB is also cooperating with the ECB on the design of stressed liquidity scenarios, so as to be able to estimate potential liquidity needs and to design the measures to be taken.

to the SRB will reflect the size of the SRF. Hence, if the SRF target is €60 billion (an estimated 1% of covered deposits in 2023), the ESM will provide a further €60 billion through a revolving credit line. That means that the total financial capacity of the SRF will be around €120 billion.

A second group of measures would involve the revision of the BRRD and SRMR, and of capital requirements rules, with the aim of reducing risks in the financial system. A political agreement was likewise reached on this in December 2018. Focusing on the reform of the resolution legal framework, the SRB's position can be summarised as follows: banks with a similar presence in the Banking Union should have similar MREL requirements (Pillar 1 of MREL); the resolution authorities need flexibility to set an MREL target in accordance with the resolvability characteristics of each bank; the degree of subordination of the eligible instruments for MREL should be decided by the authorities in the context of the assessment of the resolvability of institutions and of the analysis of possible non-compliance with the NCWO principle; regarding the transitory period for meeting the MREL target, the authorities should set this having due consideration to the circumstances of each institution; the legal framework for the internal MREL should be clarified by the legislator and, in particular, so too should the different types of internal loss absorption capacity; the authorities should have more discretionality to react to a failure to meet the MREL target; the contractual clauses governing recognition of the resolution authorities' actions should focus on the eligible liabilities for MREL and bail-in; and the requirement of an intermediate parent undertaking (IPU) for third-country institutions operating in several European Union countries may enhance their resolvability.

The third major reform is to establish a European Deposit Insurance Scheme (EDIS), the third pillar of the Banking Union. Headway in this reform is linked to the approval of banking risk-reduction measures, which is progressing more slowly. Clearly, too, a solution must be found for the non-performing loans (NPLs) problem in some countries, so that the EDIS may be brought back to the negotiating table. The SRB resolutely supports the EDIS, as it does the harmonisation of national insolvency rules. As to the calculation of the contributions for the EDIS, the core criteria for the SRB should be simplicity, transparency and feasibility. The contributions should be calculated by the SRB and raised and transferred by the national deposit guarantee schemes. This is because the management

of the European scheme by the SRB would have synergies with the resolution strategies and management of the SRF. Also, the SRB considers that the EDIS should be able to make use of alternative measures (e.g. the transfer of deposits to another institution, subject to certain requirements).

8 Conclusions

The new European resolution framework has been operating for just over four years. Much progress has been made in this period in the organisational area (start-up of the SRB and of the national resolution authorities) and the operational area (approval of policies and internal procedures by the SRB and national authorities).

The quality of resolution plans has improved substantially over the period, with binding MREL objectives being set for a significant group of institutions. Following the first resolution case, the model has been seen to work.

However, we have seen throughout this article that the authorities still have progress to make on aspects such as identifying material obstacles to the resolution of institutions and finalising MREL policy. To conclude, it should be borne in mind that the resolvability of institutions is a shared task between authorities and banks. Accordingly banks, too, should adopt all the necessary measures to enhance their resolvability.

FROB IN THE RESTRUCTURING OF THE SPANISH BANKING SYSTEM. WHERE
IT STANDS AFTER A DECADE OF ACTIVITY (2009-2019) AND CONSIDERATIONS
FOR THE BANKING UNION

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This article is the sole responsibility of the author and does not necessarily reflect the views of the Banco de España, the Eurosystem, FROB or the Single Resolution Mechanism.

FROB IN THE RESTRUCTURING OF THE SPANISH BANKING SYSTEM. WHERE IT STANDS AFTER A DECADE OF ACTIVITY (2009-2019) AND CONSIDERATIONS FOR THE BANKING UNION

“Commenting on the behavior of the Bank of England in the crisis of 1825, Thomas Joplin said, ‘There are times when rules and precedents cannot be broken; others, when they cannot be adhered to with safety’. Of course. But breaking the rule establishes a precedent and a new rule, which should be adhered to or broken as occasion demands. In these circumstances, intervention is an art, not a science. General rules that the state should always intervene or that it should never intervene are both wrong.”

Manias, Panics and Crashes. A history of financial crises, Charles P. Kindleberger

Abstract

This article provides a chronological account of FROB’s first ten years of activity, describing the backdrop against which this organization has evolved and the actions it has taken to restructure the Spanish banking system.

It reviews FROB’s development during its decade of existence, the changes in its mandate, its functions and the tools at its disposal, and concludes with some basic reflections on the bank resolution environment in light of FROB’s experience and how the Banking Union and the current resolution framework could be further strengthened.

1 Introduction

Ten years ago, on 27 June 2009, the Spanish Official State Gazette published a royal decree-law setting up the Fondo de Reestructuración Ordenada Bancaria (Fund for the Orderly Restructuring of the Banking Sector, “FROB” by its Spanish abbreviation). That legislation conferred on FROB functions, tools and financing mechanisms which were innovative but fell far short of the powers and competences held today by FROB as the Spanish executive resolution authority within the European Single Resolution Mechanism (SRM). Since its creation, FROB has played a fundamental role, focused on driving the process of banking sector restructuring in Spain and channelling the substantial public funds provided to support it.

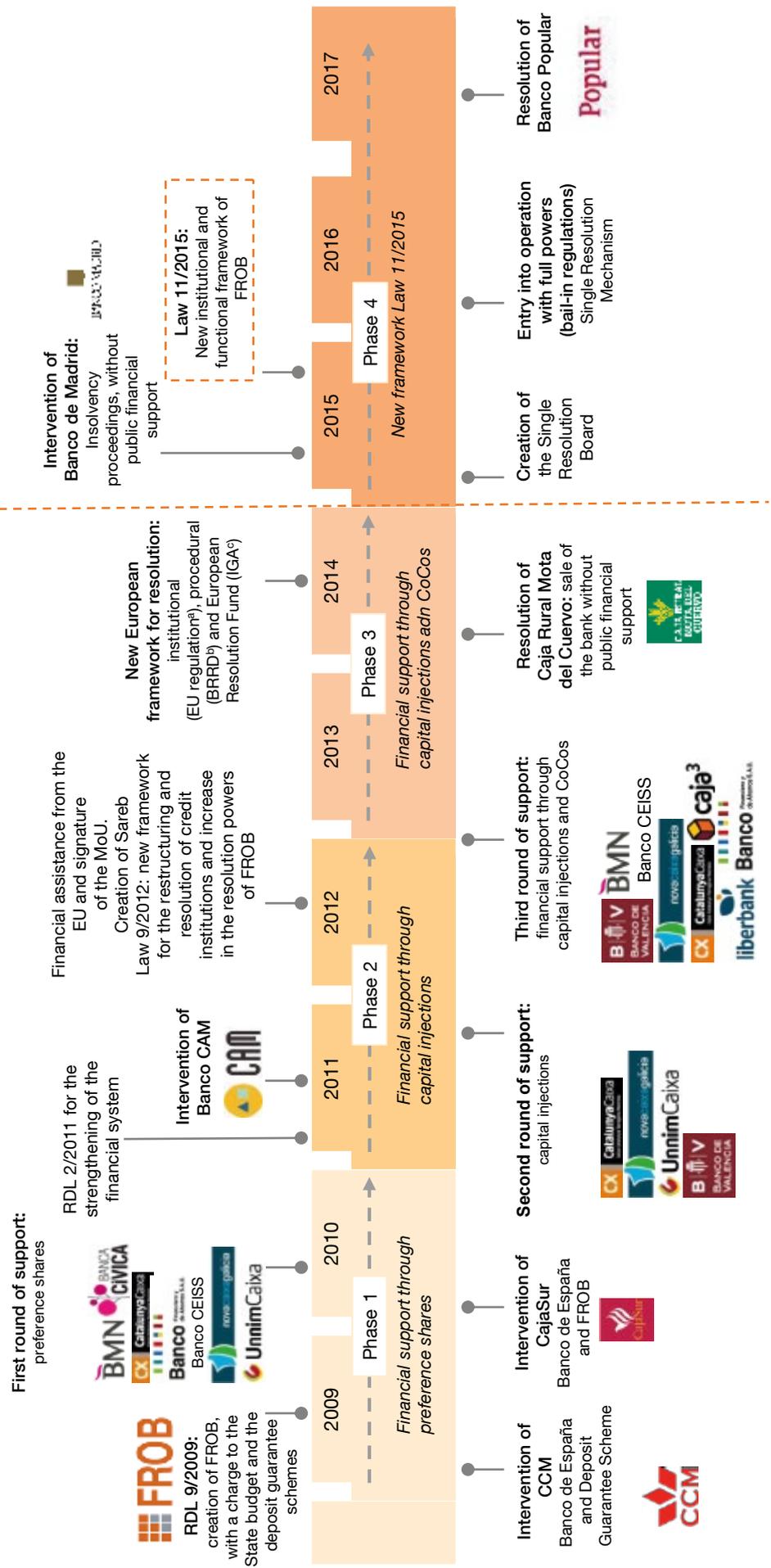
The role of FROB has evolved in parallel with the successive phases of the crisis and the consequent adaptations of its legal framework. There have been many developments since the pre-crisis regulatory framework, which was based on action by the Banco de España and the sectoral deposit guarantee schemes and has now given way to the new scenario of Banking Union under which the SRM has been acting since 2015.

FROB itself has also evolved rapidly as a public authority. What initially began as a “fund” in the strict sense, fed by the deposit guarantee schemes and public money provided to support certain mergers of the former savings banks, has now become an executive resolution authority, financed solely by private contributions from banks and forming part of a European network of authorities led from Brussels by the Single Resolution Board (SRB).

This evolution has had two effects. The first is that the developments of the initial ten years of FROB (see Figure 1) tell perfectly the story of the banking crisis, reflected both in its regulatory and theoretical debates and in the various practical applications designed to address bank resolution. The second is that FROB has taken its place today as an

RESTRUCTURING OF THE SPANISH BANKING SECTOR

FIGURE 1



SOURCE: Devised by the author.

a Regulation (EU) No. 806/2014 of the European Parliament and of the Council of 15 July 2014.

b Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014.

c Inter-governmental agreement on the Single Resolution Fund.

experienced national and international authority, which puts it in an excellent position to examine resolution rules critically and reflect on the tasks pending to strengthen the banking sector's resilience to future crises. These two topics, along with the historical milestones of FROB and the main lessons learned and debates pending, are discussed in this article.

2 FROB during the financial crisis

2.1 ORIGIN OF THE CRISIS AND INITIAL MEASURES

This is not the place to analyse the economic situation at the outbreak of the crisis, although, to give an idea of the setting in which FROB was created, I will cite some basic economic data which help define the importance of the financial crisis and the impact it had on Spain.

In the year FROB was created, 2009, the advanced economies were decelerating at a rate not seen since the Second World War (-3.4% of GDP). Spain's GDP contracted by 3.6% and this adjustment was worsened by the seriousness of the job destruction. In that same period, 7% of jobs were lost and unemployment reached 19%. At worldwide level, a battery of measures on a huge scale, aimed at monetary flexibility, fiscal expansion and financial sector support, had already been set in train.

Focusing our attention on the banking sector, the balance sheets of Spanish banks, whose business model focuses on retail banking, did not initially seem to be contaminated by what were then known as toxic assets, created by the structuring and sale of complex products. However, their balance sheets contained a high proportion of loans to the real estate sector, which had in turn leveraged itself in a vertiginous expansion of bank credit and was in those years approaching the burst phase typical of any speculative bubble. The non-performing loans of Spanish banks did not stop rising until December 2013, when they represented 13.60% of total credit.

Furthermore, Spanish banks were not immune to the problems of confidence besetting the world financial sector in general and the European system in particular. These problems crystallised in a drastic reduction in access to interbank credit and capital markets, on which Spanish banks had become strongly dependent in the years of frenetic expansion of real estate development credit. This meant the whole sector, including the part least affected by loan impairment, was faced with a serious liquidity problem, with a subsequent impact on the volume and conditions of credit to households and firms, which were already highly indebted (the bank debt of households and firms as a proportion of GDP remained above 200% until 2012 in non-consolidated terms¹). As a result of the vicious circle usual in any financial crisis, the high cost of funding further aggravated the financial situation of the country and reduced the quality of banks' assets. To this must be added the difficulties for half of the Spanish banking industry which were posed by the legal nature and corporate governance of savings banks.

The situation led the Spanish government to adopt initially measures focused on alleviating the liquidity problems, in line with those taken in other European Union countries. A fund was made available to banks for the purchase of financial assets² and their securities issues were deemed eligible to be backed by the guarantee of the State of Spain.³

¹ Total debt, including debt to the same sector.

² Royal Decree-Law 6/2008 of 10 October 2008 creating the Fund for the Acquisition of Financial Assets.

³ Royal Decree-Law 7/2008 of 13 October 2008 on urgent economic and financial measures relating to the concerted plan of action of the euro area countries.

And in those circumstances, with the prospect that on this occasion the liquidity measures, instruments and authorities used in other crises and the private funds available might not be sufficient to protect financial stability, FROB was set up. As the crisis became more drawn out and its intensity continued unabated with no respite in the level of non-performing real estate assets, the focus of attention turned to the solvency of some banks whose viability seemed shaky in the short and medium term and might (as indeed it did) jeopardise the whole of the Spanish economy.

2.2 CREATION OF FROB. FROB I AND FROB II

In March 2009, barely three months before the creation of FROB, the Banco de España ordered the intervention of Caja Castilla-La Mancha for failure to meet its capital requirements. This bank, with a balance sheet of €26,000 million, represented less than 1% of the system and its intervention made use of what may be considered strictly pre-FROB instruments. The Banco de España replaced its directors and the Deposit Guarantee Scheme provided liquidity of €7,000 million, sold the bank and granted an asset protection scheme.

This intervention framework was able to deal with an idiosyncratic crisis like that described above. However, it was insufficient to handle a crisis of the system as a whole such as that already seen in the United States and the United Kingdom and which was gathering force in the Spanish banking sector. A restructuring of the financial sector, led and financed by the public sector, then became unavoidable to prevent the potentially systemic effects of the failure of one or more banks at the same time.

The intervention of Caja Castilla-La Mancha was in March that year (2009). FROB was created in June⁴ and in May 2010 it provided the legal framework for the next intervention, namely that of CajaSur. FROB, then under the leadership of the Banco de España, came into being with powers to act either in support of voluntary processes of integration or to facilitate the restructuring of failed institutions when a solution could not be found within the traditional scope of action of the Deposit Guarantee Scheme. And, more importantly, to carry out this task FROB's intervention could be accompanied by financial support in the form of guarantees, loans, subordinated financing or purchase of convertible preference shares.

At the end of March 2010, FROB initiated the provision of financial support. It granted €9,674 million of convertible preference shares in seven separate integration processes (see Table 1), to facilitate the bank concentration measures approved by the Banco de España in the form of mergers or institutional protection schemes, against a backdrop in which access to the capital markets was complicated. It also participated in a restructuring process, namely that of the aforementioned Caja de Ahorros y Monte de Piedad de Córdoba (CajaSur). After its Board of Directors rejected a merger with Unicaja, the Banco de España decided to restructure it and provisionally replace its Board of Directors, designating FROB as its provisional administrator. FROB's support consisted of the purchase of equity units for €800 million and in providing a line of credit for a maximum amount of €1,500 million.

Despite the large amount of public funds committed in these initial interventions, shortly afterwards it became apparent that the sector's underlying problems persisted. Either because the support instruments used, i.e. convertible preference shares, were not as

4 On 27 June Royal Decree-Law 9/2009 of 26 June 2009 on bank restructuring and the strengthening of own funds of credit institutions came into force.

FROB I. SUMMARY OF INTEGRATION AND RESTRUCTURING PROCESSES
TABLE 1

Bank	Structure	Date approved by FROB	Type of aid	Status	Amount of aid (€m)	Date disbursed
Integration Processes						
UNIÓ DE CAIXES (UNNIM) Caixes d'Estalvis Comarcal de Manlleu, Sabadell and Terrassa	Merger	25.03.2010	Preference shares	Suscribed and paid in	380	28.07.2010
CATALUNYA CAIXA (CX) Caixes d'Estalvis de Catalunya, Tarragona and Manresa	Merger	25.03.2010	Preference shares	Suscribed and paid in	1,250	28.07.2010
CAJA ESPAÑA DE INVERSIONES, SALAMANCA Y SORIA (CEISS) Cajas de Ahorros Caja España and Caja Duero	Merger	25.03.2010	Preference shares	Suscribed and paid in	525	29.10.2010
NOVACAIXAGALICIA Caixa Galicia and CaixaNova	Merger	29.06.2010	Preference shares	Suscribed and paid in	1,162	30.12.2010
BANCO FINANCIERO Y DE AHORROS Cajas de Ahorros de Madrid, Bancaja, Caja Ávila, Caja Segovia, Caja Insular de Canarias, Caixa Laietana and Caja Rioja	IPS	29.06.2010	Preference shares	Suscribed and paid in	4,465	28.12.2010
BANCO MARE NOSTRUM Cajas de Ahorros de Murcia, Caja Granada, Caixa Penedès and SaNostra	IPS	29.06.2010	Preference shares	Suscribed and paid in	915	31.12.2010
BANCA BASE Cajas de Ahorros del Mediterráneo (CAM), CajaAstur, Caja Cantabria and Extremadura	IPS	29.06.2010	Preference shares	Subscribed but NOT paid	—	Suspended
BANCA CÍVICA Cajas de Ahorros de Navarra, CajaSol (including Guadalajara), General de Canarias and Municipal de Burgos	IPS	22.12.2010	Preference shares	Suscribed and paid in	977	11.02.2011
Total integration processes					9,674	
Restructuring processes CAJASUR	Assignment of business	15.07.2010	Equity units	Subscribed and paid in	800	17.06.2010
Total restructuring processes					800	

SOURCE: Devised by the author.

effective as hoped (they are not top-quality capital and entail a high cost for weak banks), or because the actual losses continued to be incompletely written off, or because the worsening of the economic situation was more than many banks could cope with or, what was more likely, because of a hard-to-determine combination of all these factors, the doubts over the solvency of the Spanish financial sector, far from fading, grew. As a result, some months after the so-called FROB I support, Spanish legislators increased the capital requirements for Spanish banks⁵ in terms of both quantity and quality of own funds.

Royal Decree-Law 2/2011 not only raised capital requirements but also provided incentives for groups with a high dependence on wholesale funding to access the capital markets. And, to tone down this regulatory requirement and facilitate compliance by already-fragile banks, FROB's mandate was changed to allow it to recapitalise banks by means of ordinary shares whenever so requested. These new requirements led to four banks receiving fresh support in 2011, known as FROB II (see Table 2), through the subscription of shares for some €5,700 million.

⁵ Royal Decree-Law 2/2011 of 18 February 2011 for the strengthening of the financial system.

Bank	Effective amount of aid (€m)	Date of agreement
CATALUNYA CAIXA (CX) Caixes d'Estalvis de Catalunya, Tarragona and Manresa	1,718	29.09.2011
NOVACAIXAGALICIA Caixa Galicia and CaixaNova	2,465	29.09.2011
UNIÓ DE CAIXES (UNIM) (a) Caixes d'Estalvis Comarcal de Manlleu, Sabadell and Terrassa	—	29.09.2011
BANCO DE VALENCIA	998	21.06.2012
Total recapitalisation processes	5,181	

SOURCE: Devised by the author.

a Although the FROB subscribed €568 million in September 2011, the final cost of this aid was borne by the Deposit Guarantee Fund.

2.3 FINANCIAL ASSISTANCE PROGRAMME. FROB III

Macroeconomic activity again contracted in 2012. There was a certain slowdown at global level, but in the euro area the fall was sharper in 2012 than in 2013, and was particularly violent in those countries whose financial instability prompted a lack of confidence in their fiscal capacity to sustain sovereign debt (particularly Greece, but also Spain and Italy). The dangerous sequence of events which follows bouts of financial mistrust reappeared with greater virulence than in the previous years. To the uncertainty in the private financial markets was added that of government indebtedness, while the doubts over the quality of bank balance sheets persisted. Hence the whole of the Spanish economy found itself enshrouded in a climate of mistrust, not only of bank solvency, but also of the country itself. This climate also worsened the financing conditions of all economic activity and left the government almost completely without any room for manoeuvre to mobilise resources to stabilise the banking sector.

Against this background, the Spanish government formally requested European financial assistance to stabilise the financial sector. In July 2012 Spain and the European Commission signed the Memorandum of Understanding on financial-sector policy conditionality (MoU), which included up to €100,000 million earmarked specifically for bank recapitalisation and entailed a series of commitments relating to the financial sector.

Once again the new phase of the crisis brought an organisational and operational refounding of FROB (see Table 4). In August 2012, scarcely a month after the signature of the MoU, Royal Decree-Law 24/2012 of 31 August 2012 on credit institution restructuring and resolution (later Law 9/2012) was approved. One of its main features was the strengthening of FROB's intervention powers to transform it into one of the main resolution authorities clearly aligned with international initiatives in this area. The Royal Decree-Law took into account, firstly, the key attributes⁶ approved by the Financial Stability Board (FSB) in November 2011 and, secondly, the initial work of the European Commission for a future restructuring and resolution directive. It introduced into Spanish law a homogeneous, consistent and effective regulatory system for crisis management which strengthened extraordinarily FROB's mechanisms and intervention powers. FROB thus became a fully-fledged resolution authority separate from banking supervision, in line with international recommendations and standards.

⁶ <http://www.fsb.org/2014/10/key-attributes-of-effective-resolution-regimes-for-financial-institutions-2/>.

		2009-2011	2011-2012	2012-2015	2015-PRESENT
Legislation		Royal Decree-Law 9/2009, of 26 June 2009 on bank restructuring and the strengthening of credit institutions' own funds.	Royal Decree-Law 9/2009, of 26 June 2009 on bank restructuring and the strengthening of credit institutions' own funds*.	Royal Decreeo-Law 24/2012 of 31 August 2012 on credit institution restructuring and resolution and, subsequently, Law 9/2012 of 14 November 2012 on credit institution restructuring and resolution.	Law 11/2015 of 18 June 2015 on the recovery and resolution of credit institutions and investment firms.
Governing Committee					
Composition	Number of members	8	9	9	11
	Origin	Five at the proposal of the Banco de España. Three representing the respective Deposit Guarantee Schemes.	Four at the proposal of the Banco de España. Three representing the respective Deposit Guarantee Schemes. Two representing the Ministry of Economic Affairs and Finance.	Four appointed by the Banco de España. Secretary of the Treasury and Financial Policy. Under-Secretary of Economic Affairs and Competitiveness. Chair of the Spanish Accounting and Audit Institute. Director General for Economic Policy. Director General for Budget.	Chair of the FROB. Four appointed by the Banco de España. Three representatives of the Ministry of Economic Affairs and Competitiveness. Deputy Chair of the Spanish National Securities Market Commission. Two representatives of the Ministry of Finance and Public Administration.
Chair		Deputy Governor of the Banco de España.	Deputy Governor of the Banco de España.	Deputy Governor of the Banco de España.	Chair of the FROB.
Vice-Chair		No express rule. In practice the vice-chair was selected from the members appointed at the proposal of the Banco de España.		Secretary of the Treasury and Financial Policy.	Deputy Governor of the Banco de España.
Attending (with right to speak but not vote)		A representative of the National Audit Office designated by the Minister for Economic Affairs and Finance at the proposal of the Auditor General.		A representative designated by the Auditor General. A representative designated by the Attorney General-Director of the Spanish State Legal Service.	
Ordinary management					
		Not addressed. However the Governing Committee appointed a Director General.		Director General, appointed by royal decree of the Council of ministers, at the proposal of the Minister for Economic Affairs and Competitiveness.	Chair of the FROB, appointed by royal decree of the Council of Ministers, at the proposal of the Minister for Economic Affairs and Competitiveness, upon consultation with the supervisory authorities, and after appearing before Parliament. Non-extendable mandate of five years. Specified reasons for termination.

SOURCE: Devised by the author.

From that time on, the intervention in the financial sector was unprecedented in terms of the volume of public funds mobilised and the institutions affected. A detailed examination of those interventions is beyond the scope of this article, although, in order to assess properly their full significance, their main features are listed below:

- The total aid disbursed amounted to €41,270 million.
- Between December 2012 and March 2013, FROB channelled €39,078 million for the recapitalisation of eight credit institutions under restructuring or resolution.
- The other €2,192 million were used to purchase FROB's stake in the capital of Sociedad de Gestión de Activos Procedentes de la Reestructuración Bancaria (Asset Management Company for Assets Arising from Bank Restructuring, "Sareb" by its Spanish abbreviation) and to purchase a portion of its subordinated debt:
 - Around 200,000 troubled real estate assets were transferred to Sareb at a transfer price of €50,700 million and a time horizon of 15 years for their liquidation.
 - The use of this tool allowed the financial sector recapitalisation requirements to be reduced by €1,300 million and bank balance sheets to be cleaned up. The consequent recovery of confidence in financial institutions allowed their managers to focus once again their attention and efforts on ordinary business.
 - Notably, the senior debt issued by Sareb, for €50,700 million, was backed by the guarantee of the Treasury.
- Mention should also be made of the losses for a nominal amount of around €14,000 million incurred by shareholders and subordinated creditors, imposed to minimise State aid in accordance with Spanish regulations which drew on the principles set out in the MoU by the European authorities. Of these stakeholders, 70% of those that acquired preference shares were retail investors who had been sold the product in transactions which, as became clear in subsequent court rulings, were significantly lacking in transparency.
- Lastly, in accordance with European legislation on State aid,⁷ banks were obliged to apply adjustment plans which, among other things, reduced staff and branches by a quarter and a third, respectively.

Clearly, this was not a minor government intervention in economic activity and, unfortunately, the restructuring had to be made using large amounts of public funds against a background of fiscal weakness. But otherwise the consequences would have been more serious. Importantly, the total assets of the banks that received government

7 These are compensatory measures taken to limit the impact on competition caused by State aid. They aim to stimulate the internal market by favouring the entry of competitors. [Commission communication on the return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State aid rules, (2009/C 195/04)]. The FROB monitored achievement of the commitments given by all banks in their so-called recovery and resolution plans. In April 2018 all the banks concluded their restructuring periods. All the commitments given by them were achieved and their objectives were met. Also, the FROB made a significant effort to execute the divestment of most of its investees except the BFA-Bankia group.

support at that time accounted for a highly significant percentage (18%) of total assets. Thus, in 2012 the total deposits at Spanish banks were around €1.3 trillion, of which some 700,000 million were covered by the Deposit Guarantee Scheme, of which it is in turn estimated that about €250,000 million were at the banks that received aid.

This is a clear example of a government bail-out helping to protect financial stability, motivated by the protection of the general interest. Subjecting the distressed banks to ordinary insolvency proceedings would have had a major impact in terms of depositors' losses, contagion to healthy banks, loss of confidence and instability in the financial markets, widespread deterioration in lending to firms and households and a general worsening of employment and economic growth.

2.4 OTHER INTERVENTIONS

After the interventions made under the financial assistance programme and Law 9/2012, but before the new European banking union framework got fully under way, FROB again had occasion to use some of the powers conferred on it by that law, when it resolved a credit cooperative through the sale of the business in 2014 and decided on the resolution of a bank intervened by the Banco de España in 2015.

In January 2014, FROB resolved a small rural credit cooperative, Caja Rural Mota del Cuervo, Sociedad Cooperativa de Crédito de Castilla-La Mancha, which represented less than 0.01% of the assets of the Spanish banking system.⁸ It had become apparent that it would soon be unable to meet its obligations and would foreseeably be incapable of remedying the situation on its own (its general assembly had rejected a plan to be merged into another bank), so the Banco de España resolved to initiate a resolution process. After FROB had been appointed as its provisional administrator, the institution was sold to another cooperative bank (Globalcaja) in an emergency procedure executed on a weekend. The failure to take this measure would have been detrimental in terms of confidence in and stability of the sector, despite the bank's small size. Notably, its resolution did not entail the provision of public funds of any type.

The second case was the intervention of Banco Madrid, an institution with a balance sheet of €1,300 million. In March 2015, the *Financial Crimes Enforcement Network* (FinCEN) of the US Treasury Department announced its decision to consider the Andorran institution BPA as a foreign financial institution of primary money laundering concern. Additionally, it issued a proposed resolution in this respect which consisted, among other measures, in prohibiting US financial institutions from opening or holding accounts in the name of BPA or any other entity in its group, including Banco de Madrid, SA (Banco Madrid). In view of this circumstance, and following the intervention and replacement of directors by the Banco de España, the bank requested the competent court to authorise voluntary insolvency proceedings. The court informed FROB of the suspension of the proceedings so that the FROB could inform the court of whether it was going to initiate a recovery or a resolution process. After analysing whether the circumstances were considered to be those requiring resolution, FROB considered that the initiation of such a process was inappropriate and informed the judge of this. Immediately afterwards, the guarantee of deposits covered by the Deposit Guarantee Scheme was activated for the first and only time during the recent crisis. Most of the payments of the amount guaranteed were made without significant incidents and took place during the maximum legal period of 20 working

⁸ The bank had a single branch with a staff of 11 employees. Its total assets were €82.55 million, equal to 0.003% of the assets of the Spanish financial system. Its deposits were €74.32 million and its loans €73.34 million.

days from the date of entry into insolvency proceedings. Nearly four years later the courts had yet to hand down a ruling, underlining the scant effectiveness of these ordinary procedures for winding up credit institutions.

3 Amount of aid

The total amount of aid granted by FROB in diverse capital instruments amounts to €56,545 million. This figure does not include the estimated €20,182 million provided by the Deposit Guarantee Scheme, which were financed by the credit institutions themselves, nor does it take into account the €178,000 million of liquidity support to banks (through State guarantees and liquidity facilities), all matured and repaid except for the guarantees given on Sareb issuances, the outstanding balance of which is currently €36,435 million.

The breakdown of aid is shown in Table 3.

There is much debate on the matter of recovery of aid. Here a distinction must be made between the aid that has already been recovered and the factors which will determine the ability to recover the rest of the aid.

The amount of aid already effectively recovered to date is €5,911 million, of which €4,477 million come from the various bank sales and capital instrument repayments and €1,434 million are interest received by FROB on these instruments. Additionally, it should be noted that this list does not include the more than €2,800 million received by BFA from Bankia as dividends (around €740 million) or the proceeds of the sale of a package of shares of Bankia in 2014 for €1,304 million or the €818 million for the sale of shares in December 2017.

The factors determining the ability to recover aid are threefold. The first depends on how events unfold in the pending divestment of the indirect stake in Bankia, following its merger with BMN. At present FROB has a stake of 61%, which must be divested within the stipulated legal period (presently December 2021), by a procedure ensuring due competition.

The second factor will depend on the performance of Sareb, which is subject to significant risks derived from the behaviour of the real estate market, the pace of divestment and the ability to absorb its assets, all against a background of high financial costs and overheads. These variables are difficult to predict over a period as long as Sareb's remaining eight years. However, it is advisable to be cautious and FROB's accounts already estimate a scant recovery of its investment.

The third factor will depend on the final behaviour of the guarantees offered by FROB in the divestment processes, particularly if there are deviations from the expected loss currently estimated at around €2,500 million.

Unquestionably, in the recent crisis all the world authorities, almost without exception, had to take unprecedented measures, basically to provide significant liquidity to the credit market and make available the public funds needed to avoid the bankruptcy of banks and, consequently, of many firms and households. Spain was no exception and, like many of its European neighbours, has had to bail out banks. Although the high absolute amount used is beyond question, it is nevertheless useful to put this on a relative basis. Here it is instructive to look at what happened in the European countries. In the European Union, between 2008 and 2010 alone the European Commission authorised aid to 215 financial institutions for an overall amount of €4.3 trillion (36% of European GDP), of which however,

HISTORICAL TABLE OF FROB AID

TABLE 3

Bank	APSS and guarantees	Shares, preference shares or CoCos	Recoveries (FROB) (a)
CATALUNYA BANC Catalunya, Tarragona, Manresa	526	12,052	782
CEISS Caja España-Caja Duero	430	1,129	604
NOVACAIXAGALICIA Caixa Galicia, CaixaNova	382	9,052	783
Banco Gallego (separated from NCG) (a)	95	245	—
BFA-BANKIA Madrid, Bancaja, Laietana, Insular, Rioja, Ávila, Segovia	—	22,424	—
BANCO MARE NOSTRUM Murcia, Penedès, Sa Nostra, Granada	—	1,645	—
BANCA CÍVICA Navarra, Cajasol-Guadalajara, General de Canarias, Municipal de Burgos	—	977	977
BANCO DE VALENCIA	666	5,498	—
LIBERBANK G. Cajastur, Caja Extremadura, Caja Cantabria	—	124	124
CAJA3 CAI, Caja Círculo, Caja Badajoz	—	407	407
CAJASUR	392	800	800
Interest received on coupons and other	—	—	1,434
Aid provided by FROB	2,491	54,353	—
Sareb	—	2,192	—
Total	2,491	56,545	5,911

SOURCE: Devised by the author.

a The aid finally recovered will depend on the performance and final divestment of the investees of the FROB (BFA/Bankia with BMN and Sareb). This column does not include €1,304 million resulting from the sale of 7.5% of Bankia in January 2014, or €818.3 million from a recent divestment of 7% of Bankia in December 2017, or €742 million of dividends distributed by Bankia out of profits for 2014, 2015, 2016 and 2017 (in April 2019 an additional €219 million were received out of 2018 profit), since in all cases the amounts received remain at BFA.

only €1.2 trillion (10.5% of GDP) were used, mostly (60%) to provide liquidity by means of guarantees.

The countries with greatest recourse to capital aid between 2008 and 2015 used between 20% and 25% of their 2015 GDP and were Greece, Ireland and Cyprus. They were followed by Portugal and Slovenia, which used nearly 9%, after which came Spain, Belgium and Luxembourg (between 5% and 6%) and Denmark, the United Kingdom, Austria and the Netherlands (between 3% and 4%).

The restructuring entailed a drastic adjustment of the financial sector, but also offered the occasion for it to undertake a far-reaching transformation. As the IMF acknowledged in its 2018 Article IV report on Spain,⁹ the profitability of most Spanish banks has improved substantially, their efficiency in terms of cost is among the highest in Europe, they have made adequate process in meeting the new regulatory requirements and credit is again flowing. The situation has changed with respect to that a decade ago.

⁹ <https://www.imf.org/en/News/Articles/2018/10/03/Spain-IMF-Staff-Concluding-Statement-of-the-2018-Article-IV-Mission>.

4 FROB within the Banking Union. Institutional framework and European resolution of Banco Popular

In all these years of financial instability, the euro project has been subjected to its own stress test. The doubts over the ability of some States to withstand the impact of the bankruptcy of their banks, the consequent fragmentation of the financial markets and the difficulties in achieving effective monetary policy transmission did not result in the collapse of the euro, but rather prompted a project, still unfinished but essential, to create a Banking Union.

4.1 INSTITUTIONAL FRAMEWORK

In Spain the adaptation to this new framework was undertaken through the approval of the still current Law 11/2015 of 18 June 2015, which, although representing a continuation of the aforementioned resolution principles and instruments, included some important new features. First, it established in Spain the preventive and planning phase of resolution entrusted to the Banco de España and the National Securities Market Commission (CNMV by its Spanish abbreviation). Second, it set up the National Resolution Fund as an instrument financed by banks themselves and serving to obviate the use of public funds. Finally, it defined Spain's participation in the Single Resolution Mechanism (SRM). It should be kept in mind that since the Single Resolution Board (SRB) was set up, it has been in charge of the effective functioning of the SRM and, in particular, directly responsible for the resolution of significant institutions in the euro area.

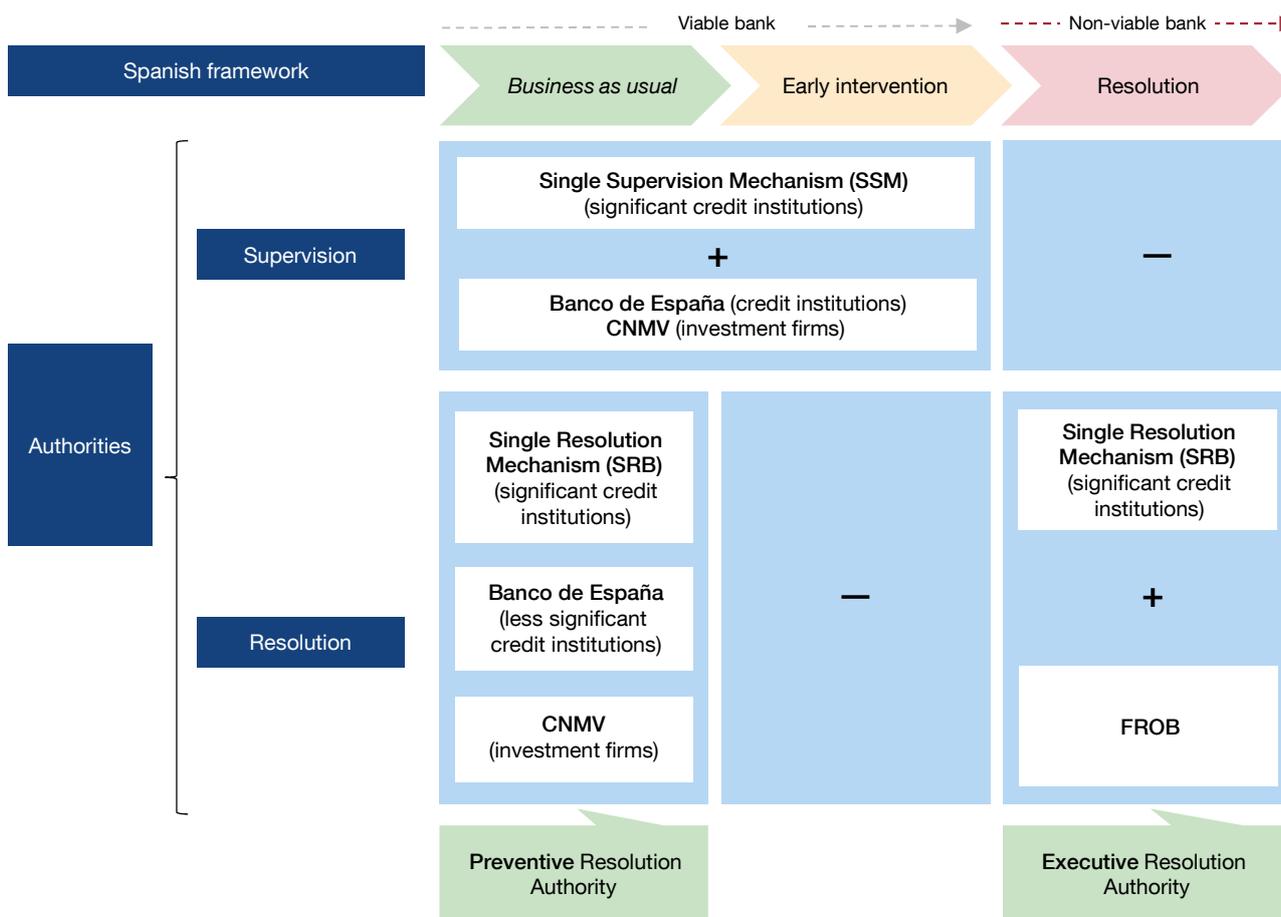
European resolution legislation¹⁰ establishes that the ordinary path is to create resolution authorities separate from the supervisory authorities. This is the model applied in the architecture of the banking union, which separates the supervisory functions of the Single Supervisory Mechanism from the resolution functions of the Single Resolution Mechanism. In the words of the preamble to Law 11/2015, the basis for this is the "necessary separation of supervisory and resolution functions for the declared purpose of removing the conflict of interest which could be faced by the supervisory authority if it were to simultaneously have resolution powers". However, the European directive also offers Member States the possibility of adopting another organisational approach, which is to include the resolution function in the central banks or supervisors, provided that clear independence is ensured. It even allows a system in which there is more than one resolution authority, provided that only one of them is designated as the contact authority. This latter arrangement has been adopted in Spain, where the resolution functions have been divided among three authorities, as described below.

An executive resolution authority, FROB is entrusted with executing the resolution decisions adopted by the Single Resolution Board for significant institutions and with the direct exercise of these competences for other institutions. In addition, it exercises Spanish representation before the SRB and it is the contact and coordination authority at international level. FROB also collects the contributions of all Spanish institutions to the Single Resolution Fund and manages the National Resolution Fund, fed by contributions from investment firms not forming part of groups of credit institutions.

Two preventive resolution authorities, the Banco de España and the CNMV, are responsible for drafting resolution plans for less significant credit institutions and investment firms,¹¹ respectively. The Banco de España cooperates with the SRB in the drafting of resolution plans for significant institutions.

¹⁰ 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.

¹¹ It should be noted that the CNMV exercises resolution functions over institutions of such a limited size that its importance for stability purposes is minimal.



SOURCE: Devised by the author.

The allocation of national competences, combining the competences of the European banking union authorities with the responsibilities of the supervisors in the early phases of a bank crisis, are set out in Figure 3.

Additionally, FROB continues to manage the activities relating to monitoring of the pre-restructuring processes mentioned above.

The Spanish institutional framework is completed by the Deposit Guarantee Scheme, which also has a vital function in the event of failure of credit institutions that do not affect financial stability and may thus find themselves in common insolvency proceedings. Its remit is to ensure coverage of up to €100,000 in retail deposits. To perform this function, not only does it engage in collection and management tasks, but it may also take measures to assist the resolution of an institution, including the use of its funds to prevent liquidation, provided that it is less costly than payment of depositors. Also, like FROB, it manages guarantees and stakes arising from previous resolution processes.

The foregoing institutional model of separation between preventive resolution and executive resolution responsibilities is not completely in line with the most widely accepted models at international level.¹² Although specialised independent authorities like FROB are

¹² Within the European Union, it has similarities only to those of Denmark and Croatia.

frequent (examples are the euro area itself with the Single Resolution Board, the USA with the Federal Deposit Insurance Corporation, Canada, Mexico, Finland, etc.), these usually monopolise all resolution powers, including planning, execution, depositor protection and, commonly, the insolvency proceedings and resolution of other financial institutions (insurers, CCPs). The most frequent arrangement in euro area Member States is to entrust the resolution function to the central bank or the authority responsible for prudential supervision. In this case, the resolution competences, in the broad sense, are usually also concentrated in a single body. The authorities always have separate legal personality (“agency within an agency” model, such as that of the French *Autorité de Contrôle Prudentiel et Résolution*) or particularly robust hierarchical independence, in which the resolution agencies report directly and exclusively to the authority’s top executive body (UK, Germany, the Netherlands and Belgium).

4.2 FIRST RESOLUTION IN THE BANKING UNION

FROB’s already extensive experience since its creation in 2009 was hugely enriched when, at the mandate of the SRB, it executed the first bank resolution at European level in 2017, namely that of Banco Popular.

In view of the continued worsening of this bank’s situation in the first half of 2017 and, in particular, the deterioration of the liquidity position notified by the European Central Bank, the authorities responsible for the bank’s supervision and resolution stepped up the exchange of information, tightened monitoring of the bank and began work to manage its possible resolution should the difficult situation not improve.

Based on its previous work, the SRB decided to hire experts to support its functions in the event of a hypothetical resolution: one as a legal adviser and another as an independent expert to begin the task of valuing the bank. Also, at the end of May FROB began to engage a legal firm and an investment bank, subject to the SRB’s approval, for the purpose of receiving general advice and, where applicable, cooperation in the execution of the various resolution instruments it might potentially be instructed to apply by the SRB.

In view of the information received from the ECB on the worsening of the bank’s situation and the risk of an imminent outcome, on Saturday, 3 June the SRB Extended Executive Session decided to launch the process of sale of Banco Popular conditional on its eventual entry into resolution. FROB began work to implement the strategy decided by the SRB and, through the investment bank engaged, invited the identified banks to express their interest in participating in the sale process in the event of resolution. Finally, two banks participated in the sale process.

The events came to a head on Tuesday, 6 June with the formal declaration of failure of the bank by the ECB. The resolution process was triggered by the bank’s inability to continue meeting its payment obligations.

In view of the existence of a clear public interest, the option chosen was resolution. Its ultimate purpose was to avoid the consequences that the entry into insolvency proceedings of the sixth largest Spanish bank (listed on the stock exchange) might have for depositors (around €60,000 million, of which €35,000 million were deposits of less than €100,000 euros), customers (around 4.5 million), employees (about 12,000) and, in general, for the financial stability of Spain and of the banking union. The SRB pressed ahead in the formulation of its resolution decision with all its components, including a provisional valuation by the independent expert, and urged FROB to complete the sale.

Early in the morning of 7 June, FROB, as the national resolution authority, signed, upon the instructions of the SRB, the contract of sale of Banco Popular to Banco Santander and approved the resolution whereby the resolution arrangements approved in Europe became strictly enforceable. At the usual time, 8 o'clock in the morning, Banco Popular opened its branches as a bank under the ownership of the Banco Santander group, which provided all the liquidity needed to meet Banco Popular's payment obligations from the very moment of acquisition.

Different international analysts and authorities have qualified the resolution of Banco Popular as an important achievement of the new international resolution regime. One has to be prudent in choosing the words to qualify a bank resolution. It is a process which prejudices many shareholders and creditors and is especially hard on minority interests. However, an objective analysis of the legal mandate of the resolution authorities shows that it has been reasonably well carried out by the Single Resolution Mechanism. And this was done in emergency circumstances which made an already complicated task all the more taxing. Law 11/2015, which is drawn from European Union legislation, which in turn derives from the basic resolution principles agreed at international level by the G20, is very clear in setting the objectives to be pursued in the event of a bank failure. The ultimate aim is to protect two intimately linked public goods: customer deposits and the stability of the financial system as a whole. And it is expressly stated that this is based on the basic principle that shareholders and creditors – and not the public funds of all citizens – must bear the losses of a resolution, subject to the sole reasonable limitation that their losses may not be higher than would have been caused by insolvency proceedings.

5 Considerations for the Banking Union

The experience acquired by FROB during the process of reform and recapitalisation of the financial sector just described above was extremely valuable and encompassed a wide variety of circumstances and types of intervention. Thanks to this, it is not difficult to draw pertinent conclusions which can be of use for ongoing efforts to improve the framework of action of resolution authorities in the Banking Union. Some of the key lessons learned are briefly detailed below, although each of these considerations would probably warrant its own in-depth study.

Rapid diagnosis of solvency problems. Liquidity and solvency problems usually appear together in weak banks. Although these two difficulties have to be dealt with expediently and effectively, an overriding consideration is to refrain from using liquidity instruments to prolong what are directly problems of balance sheet deterioration. When a systemic crisis strongly impacts the confidence of the financial sector as a whole, separating the two scenarios may be complicated. Despite the enormous difficulty of making estimates in highly uncertain scenarios, it is critical to diagnose solvency problems as promptly as possible so that the best resolution strategy can be employed, rather than simply relying on the economic cycle or future earnings to remedy the situation on their own.

The application of resolution measures to minority interests has its own impact on financial stability. During these last few years, burden sharing reduced by approximately €13,000 million the amount of public funds required to deal with bank failures. However, most preference shares were owned by retail investors who had been sold the product in transactions which, as evidenced by subsequent court rulings, were significantly lacking in transparency. The compensation mechanisms applied and the subsequent favourable court decisions allowed retail investors to recover a large amount of their outlay. Thus Spanish experience demonstrates that transparent selling to these investors is crucial, not only in its own right, but also for the appropriate allocation of losses to private shareholders

and creditors in the event of resolution. Even in cases of careful selling practices, the massive presence of retail investors among subordinated debt holders must be closely monitored and handled prudently by the resolution authorities.

Corporate governance. Management practices and appropriate corporate governance are crucial factors in bank failure. Therefore, the replacement of the Board of Directors or similar body and the selection of suitable professional managers is crucial to ensure the appropriate leadership of resolution processes. After FROB became a stakeholder in failing banks, this matter became important for it from the standpoint of determining liability. FROB has been active in the detection of misconduct which might have caused financial injury at bailed-out banks and, where appropriate, has directly taken court and out-of-court action to obtain compensation.¹³

Public interest. The concept of public interest which justifies intervention in a bank to avoid insolvency proceedings cannot be defined statically, but rather must be adjusted dynamically to the macroeconomic and financial situation prevailing at the time in question and to the specific conditions of the failed bank and the specific risk of contagion to the system. As demonstrated by the resolution of Caja Rural de Mota del Cuervo and the absence of public interest following the Banco Madrid insolvency proceedings, it is not a simple question of balance sheet size. Therefore, it is not feasible to completely limit the analysis of public interest to a preventive, and thus theoretical, phase of bank resolution. This analysis will always be subject to the unpredictable circumstances in which a bank may fail.

Credit cooperatives. Credit cooperatives are institutions whose legal form is provided for by law and recognised in the financial sector of Spain and of the rest of Europe. They do, however, present certain special features in the event of resolution. For example, the link between the members and the depositors of a credit cooperative, or the special nature of its capital in the event of application of resolution instruments such as sale of the business or bail-in, or the existence of systems of internal solidarity in the credit cooperative sector are matters which require specific attention from the standpoint of resolution.

Insolvency proceedings. Insolvency proceedings may be too slow and inefficient to be an effective alternative to resolution in the event of bank failure. With the current allocation of competences in the Single Resolution Mechanism, and with the recent experience both nationally (Banco de Madrid) and abroad (Banca Popolare di Vicenza and Veneto Banca in Italy or ABLV Bank in Latvia), the management of bank crises cannot disregard the bank wind-up regulations contained in insolvency law. However Spanish law (unlike in many other countries¹⁴) is practically bereft of the effective and flexible legal provisions needed for the bankruptcy of financial institutions. Unlike in other countries, Spanish law does not have a procedure specifically designed for financial institutions, nor does it provide for the possibility that agencies specialised in bank crisis management may have a decisive role in ordinary insolvency proceedings.

In this respect, the Single Resolution Board applies harmonised resolution rules and regulations, but with 19 different legal regimes for solvency proceedings. While not

¹³ The FROB forwarded 57 forensic reports to the public prosecutor's special anti-organised crime and anti-corruption unit. The related financial damages were assessed at a total of €3,704 million.

¹⁴ Financial Stability Institute: How to manage failures of non-systemic banks? A review of country practices. <https://www.bis.org/fsi/publ/insights10.htm>.

overlooking the problems stemming from different treatments for identical liabilities within the banking union, the most important consequence is that, since the concept of public interest is relatively dynamic and flexible, the availability of more or less effective insolvency proceedings may provide arbitrarily different treatments for similar situations. Just as it is imperative to have a shared deposit protection scheme to complete the structure of the banking union, it is essential that a harmonised insolvency proceedings regime for financial institutions be included in the European regulatory agenda. Moreover, the resolution authorities have the most appropriate knowledge and resources to play a decisive role in these winding-up proceedings.

Time management and preparation for resolution. A fairly general consideration with a broad scope is that of time management in the adoption of resolution decisions. The search for the right moment at which managers, supervisors and, finally, resolution authorities should intervene to mitigate the effects of failure will always be one of the basic themes of debate. Moreover, it is a key issue because the decision that a bank has failed is highly complex, irrevocable and unleashes enormously rigorous consequences. And, to make things more difficult, it is usually taken in situations of incomplete information, based on estimates and expectations which are difficult to calibrate. Finding a balance between procrastination and haste is not easy, but our accumulated experience leads us to believe that usually the strongest inclination is to trust in palliative measures to resolve the problem rather than in the hypothetical haste of authorities to launch a resolution plan.

The above thoughts lead to other immediate reflections. The first is that managers must be fully conscious that the time they have to resolve their weaknesses is not unlimited. The second is that, in addition to efficient early warning systems and strong supervisory involvement in anticipating critical situations, it would be advantageous for the resolution authorities to have the legal capacity to initiate the early intervention phase. The third is that the preventive resolution phase, including the setting of minimum requirements for eligible liabilities (MREL) to absorb losses at banks, is of prime importance. It must therefore not be forgotten that the ultimate objective is that banks should be capable of managing failures in an orderly manner. At the same time it is crucial to address the challenges posed by certain banks that have the following three characteristics: a medium size, neither very big and financially sophisticated, nor small and readily wound up in insolvency proceedings; limited access to capital markets; and a simple business model with a clear predominance of retail depositors on the balance sheet.

Information for resolution. From a more operational standpoint, it should be noted that the quality and availability of a bank's basic data are important for the application of any resolution instrument. Two of the main resolution instruments are cases in point. In the case of the business sale tool, the more information that is available and the better its quality, the more likely it is that the sale will be made under advantageous conditions. In the case of the bail-in tool, to achieve the maximum legal certainty, it is necessary to have all the information on each liability (how, when and by means of which vehicle it was issued, what treatment applies to it in insolvency proceedings, etc.). If to this we add the need for valuation by an independent expert, or we consider the more operationally complex instruments such as asset segregation or bridge banks, it can only be concluded that the absence of high quality, up-to-date and readily available information may pose one of the main obstacles in bank resolution.

Liquidity in resolution. Another matter which it has become essential to take into account following the Single Resolution Board's experience with Banco Popular is that of liquidity

in resolution. It is irrelevant to look at the external sources of liquidity used by solvent, viable banks, because that refers to a stage before resolution and does not fall within the remit of the resolution authority. What should be emphasised, however, is a fact which became plain following the resolution of Banco Popular. Current international legislation does not attach sufficient importance to liquidity and the need to establish mechanisms to ensure funding in the post-resolution phase, for example, after implementation of a bail-in.

There are various initiatives underway to mitigate this weakness. First, greater emphasis will have to be put on liquidity measures and on the funding options contained in resolution plans. Approaches such as the specific identification of eligible collateral or of the funding needs to apply resolution instruments are extremely necessary. Second, it is essential to work on a post-resolution communication strategy that is effective, well coordinated between the competent authorities and helps to restore confidence in a resolved bank.

Having said this, the most decisive matter for providing liquidity under resolution will be the launch of the specific institutional mechanisms. The provider of available liquidity is the Single Resolution Fund, but the conditions under which it can provide these funds must be clarified beforehand, and it must be assured that the liquidity approval procedure is rapid, simple and sufficient. In addition, it must be taken into account that the funds of the Single Resolution Fund are limited,¹⁵ so it will be necessary to explore other possible means through the European Central Bank and implement as soon as possible the agreement on a support mechanism through the European Stability Mechanism (Eurogroup, 4 December 2018).

Institutional model. The institutional model of Spanish resolution has operated and currently operates with reasonable effectiveness. And recently it has demonstrated its validity, with FROB leading the executive functions and the Banco de España and the CNMV handling the planning functions. In this respect, faced with a genuine resolution situation such as that in 2017, characterised by extreme urgency and complexity, the Spanish system performed satisfactorily, executing the orders of the Single Resolution Board to avoid the failure of a private-sector bank from damaging a superior public interest. Despite these precedents, an examination of the current model is still warranted. It has some inefficiencies derived from a fragmented institutional set-up, the architecture of which was designed ad hoc in response to the Spanish financial sector crisis discussed in this article. Nowadays, without the urgency of the crisis, it is good time to review the system and endow it with the appropriate solidity to address future challenges.

6 Conclusión

Nearly ten years down the road from the initial outbreak of the financial crisis and from the creation of FROB, the enormity of the work needed to stabilise and resize the Spanish banking sector is now evident. Progress has been made on many fronts to strengthen the resilience of the system to banking crises. The experience acquired and the work done at European and national level are considerable. However, there are many tasks still to be completed. Now that we have taken stock of what has been achieved, this should serve primarily to convince us to keep working apace to improve the ability of our system to react to failure scenarios in a manner more attuned to the public interest. FROB's track record in meeting this objective demonstrates its ability and commitment to continue being a key player.

¹⁵ It is estimated that in 2023 the endowment of the Single Resolution Fund will reach €60,000 million.

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RESOLUTION PLANNING FOR CREDIT INSTITUTIONS IN SPAIN
AND IN THE EURO AREA

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RESOLUTION PLANNING FOR CREDIT INSTITUTIONS IN SPAIN AND IN THE EURO AREA

Abstract

This article presents the planning process for the resolution of Spanish credit institutions. In particular, it sets out the content of the resolution plans prepared by the Banco de España since 2015, in its capacity as the national preventive resolution authority under the European Union's regulatory framework. The Banco de España participates actively, whether exclusively or in collaboration with the Single Resolution Board (SRB) and with other resolution authorities belonging to the Single Resolution Mechanism (SRM), in resolution planning for 79 credit institutions.

Resolution planning is an essential component of the Banking Union framework, providing for the actions required in the event that credit institutions should need to be resolved.

The authors explain in some detail the key components of resolution plans. In particular, they offer a detailed analysis of banks' business models and other key aspects such as the resolution strategies and tools to be applied in each case, the identification of obstacles to executing these strategies and tools, and the adoption of the measures needed to remove or minimise such obstacles.

Resolution planning does not seek to anticipate when and how future bank crises will arise, nor to estimate the probability of a crisis at specific financial institutions. The main aim of such planning is to have action plans in place for immediate and coordinated action if the time comes for a bank's obligatory resolution. In that way, the adverse effects on financial and economic stability are minimised.

1 Introduction

The international financial crisis, with its epicentre in the United States, affected many developed countries, particularly in Europe, entailing a high cost for these countries' taxpayers. This, along with a very high opportunity cost of public funds since the financial crisis coincided with a very severe economic crisis, led to reconsideration of the possible solutions for countering bank crises. Through the political impulse from the G20 and via the FSB (Financial Stability Board), the crisis-resolution paradigm for systemic banks was changed. There was a switch from the bail-out (a bank rescue using public funds) to the bail-in (an internal rescue instrumented on the basis of shareholder and creditor hierarchy).

It should be clarified that neither the G20 nor the FSB have called into question the need to rescue or recapitalise a systemic bank, or a group of such banks, in the event of non-viability. Provided, that is, that this is necessary to avoid major costs for the banks' depositors and the emergence of negative externalities for the other stakeholders, for other financial institutions and for the economy in general. What was reconsidered is who should bear the cost of the rescue; under the new resolution arrangements the aim is that the first agents to defray the costs of the rescue will be the shareholders and debt-holders, following the related hierarchy, and taxpayers only in the last resort.

The possibility of using public – namely taxpayer – funds in bank rescues is not entirely ruled out provided that, in the common interest, the social costs of not bailing out the ailing bank were higher than the value of the public funds used in the bail-out if put to alternative uses. Prior to the current bail-in strategy for bank resolution, expectations that systemic banks could not fail gave rise to a situation of moral hazard under which systemic

institutions benefited from lower funding costs owing to the implicit public guarantee; and they were able, in turn, to assume more risks, passing them through indirectly to society as a whole. By ensuring that shareholders and debt-holders are the first in line to assume the costs of financial insolvency, it is sought to redress and, if possible, eliminate conduct constituting moral hazard.

The G20 and the FSB strove to develop a resolution framework for systemic institutions, published in the document “Key attributes on effective resolution regimes for financial institutions”,¹ along with highlighting the capital and liability requirements to be used in resolution procedures² (TLAC, or Total Loss-Absorption Capacity). The aim hereby was, as earlier stressed, to minimise moral hazard at systemic institutions, to lessen the probability of them going into insolvency and to limit the impact any such insolvency might have on the rest of the banking system and the economy. In short, it is sought to achieve greater market discipline in the exercise of shareholders’ control functions in respect of the bank’s management team. Discipline acts directly – as shareholders are the first to forgo capital if the bank goes into insolvency – and indirectly, owing to the demands in terms of risk premia and the oversight of the bank’s behaviour by the debt-holders, mindful of the risk they run as the following agents in the loss-bearing hierarchical order under insolvency proceedings. That alignment removes or substantially reduces, at least in theory, the advantage in terms of lower funding that systemic banks have enjoyed in the past.

The banking resolution authorities have considered it vital to have recourse to appropriate resolution for systemic institutions, both in practical terms and with a view to the design of an optimal regulatory policy. Hence regulators and public authorities are concerned with squaring two elements: the rule whereby the bulk of the costs caused by bank insolvencies fall on those who directly or indirectly influence the decisions leading to such insolvency; and safeguarding the general interest. That is in contrast to the scant attention dedicated by the academic community to this key question for economic efficiency and the safeguarding of taxpayers and, generally, of public funds. Traditional bank theory and management textbooks barely touch on optimal bank resolution, beyond the role of the lender of last resort or deposit guarantee schemes, in contrast to the academic interest in the causes of bank instability and systemic risk.³ Much attention has focused on the causes behind bank runs and how to resolve them, assuming this will always be possible. Yet appropriate research has been lacking on what happens if the bank run is not stopped and/or if the bank becomes non-viable, beyond general references to the fact that, if extreme situations are reached, there will be resort to a bail-out using external funds.

An exception to this lack of bank resolution analysis is Dell’Ariccia et al (2018), who analyse the trade-offs between different resolution systems or tools (e.g. between bail-out and bail-in). Their paper defends the use of bail-in (shareholders and debt-holders assuming

1 See FSB (2014).

2 See FSB (2015).

3 For instance, the classics by Berger et al. (2010), Sironi and Resti (2007) and Saunders (1997) scarcely broach the various alternatives to bank resolution, practically ignoring them. Schinasi (2005) and Barth et al. (2006) have hardly any references to the various options for bank resolution, despite focusing on the safeguarding of financial stability and reflecting on the optimal banking regulatory environment. Freixas and Rochet (1997) and Repullo (2000) are notable exceptions to the lack of academic interest in banking resolution. By contrast, broad-based corporate finance textbooks do address bankruptcy costs and shareholder/debt-holder conflict in the event of a company being wound up, and the impact on the financial structure of companies [see, for example, Grinblatt and Titman (1998)].

the bulk of the costs of keeping the financial institution running) in most circumstances, albeit leaving the door open to bail-out (public funds being contributed to maintain the institution's viability) in the event of systemic crises. Bail-in reduces moral hazard and thus the incentive for banks to take on excessive ex ante risk; however, the authors consider that bail-out may be warranted where spillover effects derived from a bail-in could heighten financial instability and potentially lead to systemic crisis. The paper is consistent from the standpoint of regulatory policy since it argues that there should be sufficient leeway at each bank to absorb losses (capital and convertible debt) and that these instruments should be in the hands of those able to absorb losses. In short, the authors argue that bail-outs should be the exception rather than the rule and that their use is only justified as a last resort when financial stability is seriously endangered.

Zhou et al. (2012) explain the paradigm change from bail-out to bail-in and go on to describe the characteristics and potential advantages of bail-in, the prerequisites for its application and the essential elements for its proper design. They compare bail-in with other alternative tools such as the sale of the distressed bank or a bridge bank, and conclude that bail-in is preferable for global systemically important banks with solvency problems because of the lower risk this strategy entails compared with the alternatives.

Of interest from the viewpoint of the potential problems posed by bank resolutions affecting various countries is the discussion in Quarles (2018). He points out the need to take into account the perspective of both the home and host authorities when planning the resolution of a cross-border systemically important bank, and emphasises the need for appropriate cooperation between these two authorities.

Lastly, World Bank Group (2016) gives a list of examples of the approaches taken in dealing with banking crises in the European Union, many of them prior to the approval and entry into force of the Bank Recovery and Resolution Directive (BRRD). These examples help the reader to understand the complexity of these processes, the costs and trade-offs faced by the authorities, the practical difficulties of bail-in and the preference for resolution rather than liquidation as a less costly alternative. Further, they show, in short, the need to prepare for the eventuality of a bank resolution by drafting a suitable plan for each bank, removing obstacles to resolution and setting in place at each bank an appropriate level of capital and debt convertible into capital to recapitalise the bank in the event of resolution (making it "bailinable").

The engine driving this process of preparation for bank resolution is none other than the need to reduce the high cost (and adequately align the incentives) which bank crises impose on the banking systems, economies and communities where they occur.⁴

At the regulatory level, as from 2012 the idea arose in Europe to create the so-called Banking Union in response to the problems described. The main aims of the Union are to minimise, as far as possible, future banking crises and/or provide for their more efficient management, and to limit their impact on financial stability, on the real economy and, ultimately, on taxpayers.

To achieve these aims the Banking Union has, to date, two fundamental components: the Single Supervisory Mechanism (SSM), created in November 2014, and the Single Resolution Mechanism (SRM), which commenced operating in January 2015. Concurrently,

⁴ Saurina (2018) offers information on the costs of the last international banking crisis.

a single regulatory code was introduced, characterised most notably by the capital requirements framework set by Regulation (EU) 575/2013 and by Directive 2013/36/EU, Directive 2014/59/EU on the resolution of credit institutions and investment services firms, and Directive 2014/49/EU on deposit guarantee schemes.

The traditional insolvency proceedings through legal channels are of no use, in many cases, for addressing the non-viability of a credit institution. This is because there are differential factors in the case of banks compared with other companies, such as the complexity and singularity of their funding sources, which include legally guaranteed deposits of the general public, and the interconnection with other institutions. Faced with the non-viability of the bank, such factors might entail irreparable damage to the financial system, to payment systems and/or to the economy of the country in question. Thus, the winding-up of a credit institution will be applicable exclusively in those cases in which it is susceptible (because of its small size, simplicity and scant interconnections) to be treated under this regime, while respecting the public interest. However, for other credit institutions there is a need to apply an administrative process, namely resolution, geared to managing the situation of non-viability and to minimising the potential harmful effects of insolvency on economic and financial stability.

Set against the broad aim of winding-up, which involves obtaining the maximum protection possible for the creditors affected by the insolvency proceedings, the specific goals of bank resolution are:

- to maintain the continuity of the core functions performed by the bank concerned;
- to prevent adverse repercussions for financial stability and the risk of contagion;
- to safeguard public funds;
- to safeguard depositors and investors covered by Directives 2014/49/EU and 97/9/EC, respectively; and
- to safeguard customers' funds and assets.

Insofar as knowledge of the objectives, contents and preparation of resolution plans is provided, the significance, information requirements and challenges of the task involved will be better understood, as will the essential role that close collaboration with the authorities plays in successfully seeing resolution through.

Experience shows that, on many occasions, the speed with which the effects of the crisis on banks manifest themselves precludes achieving the aims of resolution established in the regulations if, beforehand, there has been no suitable analysis and planning in relation to the actions to be taken as and when needed.

The following sections set out, firstly, the legal and institutional framework in which resolution planning tasks and their distribution among the various institutions comprising the SRM are prepared. Secondly, the aim and content of resolution plans are detailed, along with the processes pursued up to their final approval. Finally, a summary of some of the challenges still to be addressed is included, and some conclusions are drawn from the intensive work performed in the past three years.

- Directive 2014/59/EU (BRRD) of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of European credit institutions and investment firms.
- Law 11/2015 of 18 June 2015 and its implementing Royal Decree 1012/2015 of 6 November 2015 transpose the Community regulations into Spanish law.
- Regulation 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.
- *The national resolution authorities* draw up the resolution plans for the banks considered less significant (the LSIs). Further, the SRB may, for the banks within its purview, call on the national resolution authorities to prepare draft resolution plans. Thus, since commencing operating, the SRB has used this power with the Spanish significant institutions (SIs), meaning that the Banco de España, in addition to drafting LSI's' resolution plans, has also annually devised resolution plans for SIs, covering all those areas assigned in the distribution of tasks agreed annually with the SRB.

In this legal framework, Spanish regulations institute a model that distinguishes between two functions:

In the euro area the Single Resolution Board (SRB) is the central body of the SRM, which comprises the SRB and the national resolution authorities of the euro area countries, with the following distribution of tasks.

- *The SRB* is tasked with devising the resolution plans for the banks that fall within its scope, i.e. basically banks considered significant from the standpoint of the European Central Bank.
- Preventive resolution, which is the responsibility of the Banco de España and of the CNMV, for credit institutions and investment services firms, respectively.
- Executive resolution, the responsibility for which falls on the FROB, in relation both to credit institutions and to investment services firms.

2 Frequency and content of resolution plans

The resolution plans of credit institutions should be prepared and updated at least annually, unless:

- A change in the institution's legal or organisational structure or in its financial position significantly affects the effectiveness of the current plan, and is considered necessary to amend it significantly. This need will be determined by the preventive and/or executive resolution authorities.
- The preventive resolution authority deems it advisable, on its own initiative or on that of the executive resolution authority (the FROB in Spain's case).

As an exception to the annual frequency, the regulations also envisage the possibility of establishing simplified obligations for certain institutions, regarding both the minimum content of the resolution plans, and the foreseeable frequency at which they are updated. In this respect, in the attention to, among other factors, the lesser complexity, size or interconnections of the institution, content might be cut back. Also, in these cases, the frequency at which plans are updated might be greater than the one-year period generally set.

It should be stressed in any event that, under Article 13.2 of Law 11/2015, institutions will be obliged to co-operate in the preparation and updating of plans with the preventive resolution authority. The latter may require of institutions the information needed to prepare, approve and update the plans and, at the very least, the information specified in annex II of Royal Decree 1012/2015.

If and when simplified obligations are not applied, the minimum content of resolution plans is listed in Article 25 of Royal Decree 1012/2015, and is structured around the following sections:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1 Analysis of the structure and business model of the institution/ groups. 2 Analysis of strategy and the preferred/alternative resolution tool. 3 Loss-absorption capacity and minimum requirement for own funds and eligible liabilities (MREL). | <ol style="list-style-type: none"> 4 Analysis of financial continuity. 5 Analysis of business continuity. 6 Necessary information and communication plan in the event of resolution. 7 Assessment of resolvability of institutions/groups. |
|--|--|

Once the resolution plan has been approved by the pertinent authorities, the latter will communicate to the institution to be resolved a summary of the key elements of this plan and, where appropriate, the need to adopt the measures deemed necessary to ensure, with reasonable security, that the institution can be resolved if necessary.

The content of the resolution plans is developed in conformity with the SRB's common criteria and guidelines, to seek to ensure a level playing field and uniformity with respect to all the institutions located in the euro area.

A non-exhaustive description follows of the content and end-purpose of each of the sections cited in Box 2.

2.1 ANALYSIS OF THE STRUCTURE AND BUSINESS MODEL OF THE INSTITUTIONS AND GROUPS

This section analyses, among other matters, the structure and composition of the group in question, in order to identify the main group institutions and the distribution of tasks and business therein. The most significant companies are identified by their contribution to the business and/or on the basis of which of them provide essential services for the fulfilment of its functions, for instance, the technological support needed to sustain activity. These will be subject to particular attention in the event of resolution to prevent business continuity problems.

Further, it is examined whether the institution or group institutions perform critical economic functions, understanding as such those provided to third parties which probably have a significant impact on them in the event of an acute shock, or those which were liable to prompt contagion or undermine the general trust of market participants. This aspect is of particular importance, since critical economic functions should be retained in a resolution process, given their systemic character or potential for the contagion of problems to the economy and/or to financial stability.

Also considered are the main interdependencies – essentially, financial, legal and operational, both within the group and with third parties – in order to assess the possible effects that a sudden interruption in activity at any of the institutions might exert on the rest of the group or on the financial system as a whole.

The analysis of all the foregoing information will, on the basis of the institution's business model, enable the preferred resolution strategy to be determined. And within this strategy, the resolution tool best suited to the characteristics of the institution or group in question may be selected, so as to achieve compliance with the resolution objectives set in the regulations.

Under current resolution plans, an analysis is made not only of which resolution tool would be preferred in terms of the institution's or group's characteristics, but also of possible alternatives that might be set in place if the circumstances prevailing at the time of resolution so advise. It is hereby sought to cover different scenarios of possibilities in order to smooth execution of the resolution as much as possible. In Spain, it is the FROB which will ultimately decide on the resolution tool to be applied, if any, in light of the circumstances prevailing at the time of resolution.

2.2 ANALYSIS OF STRATEGY AND THE RESOLUTION TOOL

2.2.1 Resolution strategies

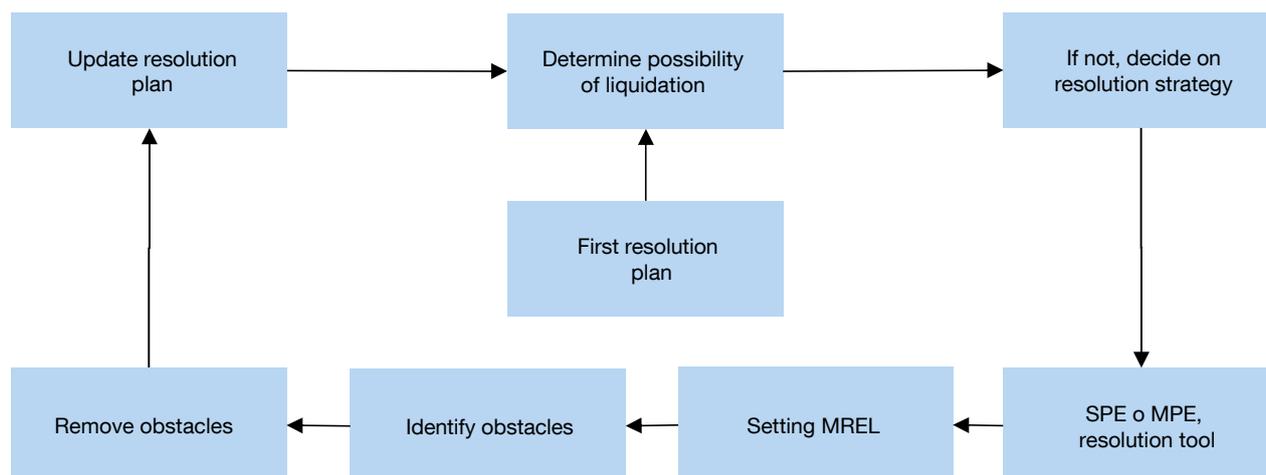
Resolution plans include an assessment on the public interest of institutions. Assessing whether the institution or group subject to analysis are of public interest is the first factor to be taken into account for deciding on the most appropriate resolution strategies. If this element is missing, the ordinary insolvency proceedings established under Law 22/2003 of 9 July 2003 shall be applied.

There will be deemed to be public interest if it is concluded that the winding-up of the bank as part of an insolvency procedure does not enable the resolution objectives to be reasonably achieved to the same extent as under the administrative resolution procedure. To conduct this analysis, assessment is made of the best procedure to attain these objectives, whether through resolution or insolvency proceedings. By way of example, if a bank is identified to be providing critical economic functions, it might be concluded that its resolution would better enable the objective of maintaining the continuity of such functions to be secured than would its winding-up under regular insolvency proceedings.

In the event of an absence of public interest, a simplified plan shall be drawn up to cover basically the following sections:

- Analysis of the structure and business model of the institutions and groups.
- Aspects denoting an absence of public interest.
- Proposal for the application of normal insolvency proceedings.
- Analysis of loss-absorption capacity and MREL.
- Communication in the event of winding up.
- Assessment of possible obstacles to winding up and measures, if any, to be adopted.

If the resolution authorities conclude that there is public interest, they should assess the possible resolution strategies to be applied. In that connection they should take into account the structure and business model of the bank or group in question and, as will subsequently be analysed, assess the possible obstacles to practical implementation and, where necessary, propose measures to remove such obstacles. The main stages to be followed in resolution planning are included in Scheme 1:



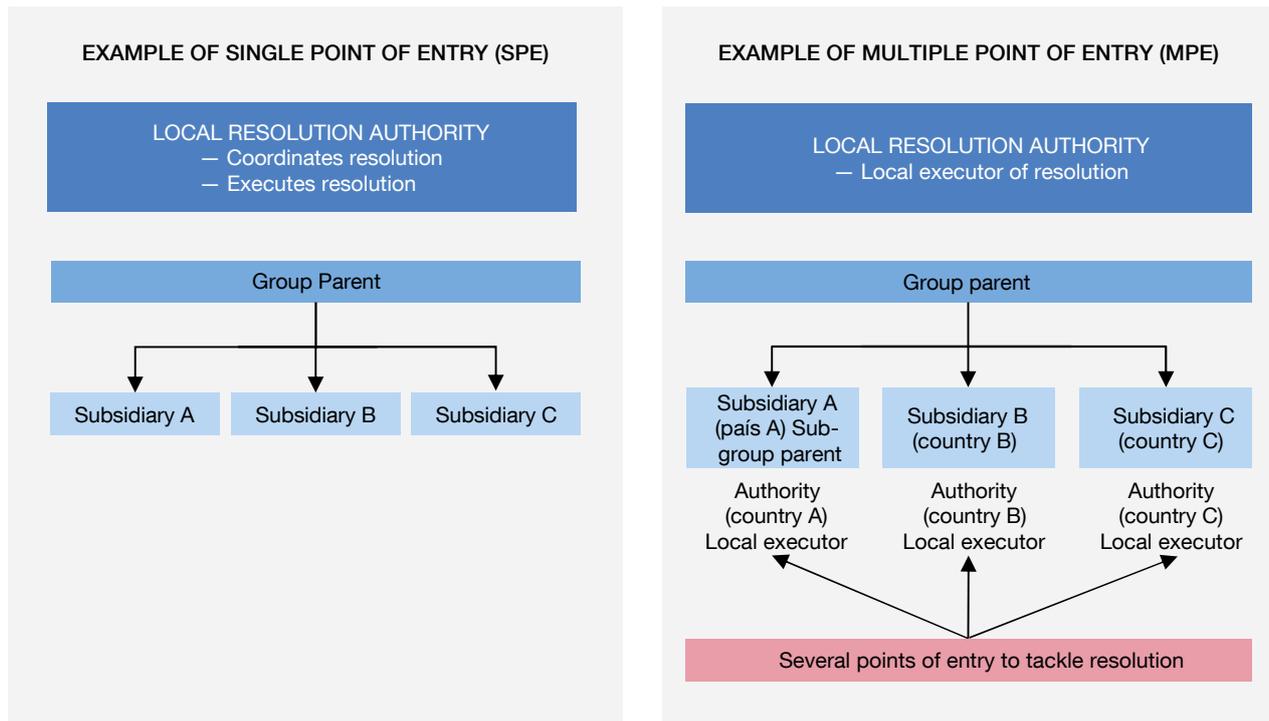
SOURCE: Own elaboration.

Resolution strategies are divided chiefly into single and multiple point of entry (SPE and MPE, respectively) strategies. In practice, there may also be mixed models, with a single point of entry strategy for a part of the group located in specific geographical areas, and a multiple point of entry for that part located in other jurisdictions, depending on the organisation, configuration, geographical presence and applicable legal regime in the different countries in which the groups of credit institutions operate.

The points of entry refer to those banks in which it is planned to apply resolution actions if necessary. Thus, in the case of a single point of entry the resolution tools would be applied only in one institution of the group, normally the main one, or the group parent. In the case of a multiple point of entry, by contrast, these tools would be applied to several institutions within the group.

To be able to assess which is the most suitable resolution strategy regarding point of entry, regard should be had, in accordance with Commission Delegated Regulation (EU) 2016/1075, to the following factors:

- Which resolution instruments would be used according to the preferred resolution strategy, and whether the legal persons to which the strategy plans to apply these instruments have access thereto.
- The amount of qualifying eligible liabilities (MREL), the risk that they do not contribute to loss-absorption and recapitalisation, and the legal persons that issue them.
- The contractual or other provisions adopted for the transfer of losses between legal persons of a single group (e.g. domination agreements).
- Whether the operating structure and business model of the institution or group is highly integrated or has a decentralised structure.
- The effectiveness of the resolution instruments to be applied, in particular in third countries.



SOURCE: Own elaboration.

- Whether the resolution strategy requires the application of support measures by other authorities, and whether such measures are feasible and credible for these authorities.

In the current regulations, there are no defined quantitative references or clear limits for adopting one strategy or another. However, a series of explanatory factors on which to base decisions in this regard can be listed.

In this connection, the single point of entry strategy will be more recommendable in banking groups with the following characteristics:

- The liabilities that should contribute to loss-absorption and recapitalisation have been issued by the last parent company or the group holding company.
- When the group operates with a high degree of integration and, in particular, when its liquidity management, risk management, treasury functions, IT services and other shared core services are centralised.

The multiple point of entry strategy will be more recommendable in banking groups where:

- The liabilities that should contribute to loss-absorption and recapitalisation have been issued by more than one institution or regional or functional sub-group of the group.
- The group's activities are divided into two or more clearly identifiable sub-groups that are predominantly independent from other parts of the group, from the financial, legal and operational standpoint.

Along with the resolution strategy, the competent authorities should determine which of the resolution tools included in the regulations, or combinations thereof, are considered most suitable for achieving resolution objectives. The tools envisaged in the current legislation are the following:

- The sale of the bank’s business.
- The transfer of assets or liabilities to a bridge bank.
- The transfer of assets or liabilities to an asset management company.
- Bail-in.

These tools may be applied individually or jointly, except for the transfer of assets or liabilities to an asset management company, in which case application should be jointly with another of the tools available.

The sale of the bank’s business may be through the transfer of the shares, equity capital contributions or instruments representing share capital to an acquirer that is not a bridge bank, or through the transfer of all or part of its assets and liabilities.

The bridge bank is a public limited company controlled by the resolution authority, in which the FROB may have a stake. The ultimate objective of the bridge bank is its sale to a third party within the specific period stipulated by the regulations. To incorporate this bank, all or part of the shares, equity capital contributions or instruments representing share capital and all or part of the assets and liabilities of the bank in resolution shall be transferred to it. In this way, it may fulfil its purpose of pursuing fully or partly the activities of the bank in resolution, including the core functions it performs, and the management of the shares or other capital instruments and of all or part of its assets and liabilities.

As regards the asset management company, the executive resolution authority may oblige a bank in resolution or a bridge bank to transfer specific asset classes on the bank’s balance sheet (normally impaired or problem assets) to one or several asset management companies. That provides for a ready return to viability of the bank in resolution, by unloading assets that do not generate revenue from its balance sheet.

Lastly, the bail-in enables the resolution authorities, once the pertinent loss-absorption has taken place, to transform creditors into shareholders and/or to reduce the nominal value of their debts, following the rules and procedures laid down in the regulations (in keeping with the creditor hierarchy).

Also, and wherever possible, the plans contain an analysis of the alternative resolution tools should the circumstances at the time of resolution so advise. Numerous factors are used for these analyses, including inter alia the complexity and size of the banks in question, their legal structure, possible purchasers in terms of business absorption capacity, their volumes or proportions of impaired assets and the structure of own funds and liabilities that would contribute to the loss-absorption and recapitalisation of the banks.

The plans also include a summary of the reasons recommending the use of certain resolution tools in preference to others. Once the tool considered most appropriate has

been chosen, the plans must include information on the necessary steps for practical implementation.

2.3 LOSS-ABSORPTION CAPACITY AND MREL REQUIREMENTS

One key aspect to analyse in resolution plans is banks' loss-absorption capacity and the availability of financial instruments that might contribute to recapitalisation if necessary. It is worth recalling that one of the essential aspects of the new regulatory framework is that the cost of bank crises should not fall on the public offers but be defrayed by shareholders and creditors. Only those creditors protected by the regulations to this end should be excluded, such as holders of guaranteed deposits, and for the legally stipulated amount.

To examine this basic aspect, the supervisory authority periodically requests information of banks (the so-called Liability Data Report). This includes a breakdown of the composition of its own funds and liabilities, maturities and amounts, the legal regulations to which they are subject, the nature of their holders, etc.

The Liability Data Report provides for a view of the financial instruments that:

- Are eligible for MREL requirements. Such instruments will basically be those which, owing to their characteristics (stable value, extensive term until maturity, non-guaranteed, etc.), offer reasonable security as to being used to absorb losses and recapitalise the banks if necessary.
- While not eligible for MREL, they might contribute to recapitalising the bank if necessary and, lastly,
- They are not susceptible to be considered either for MREL or contributing to the desired recapitalisation. Included in this category would be collateralised liabilities, among others.

In the process of preparing, evaluating and maintaining resolution plans, the preventive resolution authority will set the minimum MREL requirement for each bank and will check that banks meet this requirement at all times.

The methodology for determining MREL requirements depends, among other factors, on the resolution tools considered in resolution planning, with these differing in terms of the tools proposed.

At the current stage, the SRB is determining MREL requirements at the consolidated level of significant banks. For the calculation of MREL requirements, a sufficient amount of own funds and eligible liabilities is required in order to be able to apply the resolution tool selected for each bank, and so that these amounts may comply with the capital requirements determined by the supervisor following resolution, ensuring continued market confidence.⁵

In the case of banks where it has been decided that the most appropriate resolution strategy is the application of normal insolvency proceedings, MREL requirements will be confined to those deemed necessary to absorb losses, with it not being necessary to

⁵ For banks with a bail-in resolution tool, see: https://srb.europa.eu/sites/srbsite/files/item_1_-_public_version_mrel_policy_-_annex_i_-_plenary_session.pdf.

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- a) The need to ensure the bank's resolution by means of the application of whichever resolution instruments.
 - d) Size, the type of company, the funding model and the bank's risk profile.
 - b) The need to ensure that, when appropriate, the bank has sufficient eligible liabilities for the effective application of the bail-in instrument.
 - e) The extent to which the deposit guarantee system may contribute to financing resolution.
 - c) The need to ensure that the bank has sufficient eligible liabilities so that the bail-in may be effectively applied, if the resolution plan foresees specific exclusions in the amount of eligible liabilities for this bail-in.
 - f) The extent to which the non-viability of the bank might have an adverse effect on financial stability.
-

recapitalise the bank as it is not foreseen that the bank will pursue its activity after being wound up.

Prior to the definitive setting of MREL requirements, the resolution authorities grant banks a hearing procedure and the possibility of expressing their opinion on the requirements made to them. The MREL requirements set are reflected in the resolution plan, along with the terms laid down, where necessary, to attain them. Here, banks may be required to submit credible financing plans demonstrating they are capable of attaining the requirements set.

During resolution planning, the preventive resolution authorities periodically review the MREL objectives, while closely monitoring developments in order to verify compliance.

2.4 ANALYSIS OF FINANCIAL CONTINUITY

The analysis of banks' capacity to ensure their financial continuity or of their capacity to meet payment obligations in crisis situations is also included in resolution plans. In particular, banks' capacity to meet the liquidity requirements that may arise, without having to envisage public liquidity support, is examined.

Generally, it will be very difficult to know what the exact liquidity needs in crisis situations are beforehand, since it will be affected by numerous factors, such as the type of crisis, the speed at which events unfold, the market situation as a whole, etc. Notwithstanding this, there is an in-depth study of aspects such as banks' availability of unencumbered liquid assets and their ability to generate additional liquid assets or obtain other funding sources swiftly and credibly, if necessary. To this end, stressed scenarios are used that help assess banks' ability to withstand complex situations, bearing in mind their business model and balance sheet composition.

Currently, moreover, the European authorities are working on the possibility of setting up a backstop mechanism to face liquidity needs of the institutions in a resolution process, if necessary.

2.5 ANALYSIS OF OPERATIONAL CONTINUITY

In a hypothetical case of resolution, particular attention should be paid to all those aspects that enable reasonable security to be had beforehand that, as a result of resolution, the

bank's critical activities will not be interrupted, as will neither those supporting the provision of critical economic functions for the economy.

In this connection, in the planning phase each bank's or group's operating model is analysed, and the providers of critical services and banks' agreements with them are identified. In this framework, banks are required to maintain a detailed repository of agreements, centralising all the information relating to the pertinent agreements. This simplifies the in-depth review of agreements by the preventive authority, so that clauses or provisions that might give rise to doubts over continuity in the event of resolution are detected. That means, if necessary, that banks may amend or adapt them, thereby ensuring operational continuity in resolution.

It is also assessed whether there may be access problems to market infrastructures that may prove critical for the bank during resolution. Possible alternatives to adopt should banks lose access to such infrastructures during a crisis are studied, as are contingency plans to withstand these situations.

2.6 INFORMATION AND COMMUNICATION PLAN IN THE EVENT OF RESOLUTION

One of the key aspects for ensuring that a resolution process is conducted effectively is the analysis of banks' capacity to swiftly provide all information that might be necessary for decision-making by the resolution authorities. This is one of the areas that will probably generate most work in the future, since banks' reporting systems currently focus on the ability to provide detailed information on their assets and, essentially, on all matters relating to lending. However, the new resolution framework requires detailed information on own funds and liabilities that may contribute to banks' loss absorption and recapitalisation, at the crucial time for decision-making, and not necessarily on pre-set reporting dates.

To this end, banks' governance structure is analysed with a view to the provision of information where necessary, and the quality of the information reported to the resolution authorities. When deemed necessary, stress tests are conducted to assess banks' responsiveness.

In a resolution process it is vital that the authorities should have a series of uniform, manageable and flexible data, most of which template-based, that support decision-making. Currently, the main templates used in resolution planning relate to the detailed information on:

- Composition and characteristics of liabilities and own funds (Liability Data Report);
- Identification and analysis of critical economic functions to be protected in resolution;
- Financial Market Infrastructures with which the bank operates, and
- Other templates developed by the EBA on aspects such as the groups' organisational structure, governance structure, information systems, contact data, etc.

In a resolution there must be coordinated communication between the resolution authorities and the banks affected, so as to avoid contradictory messages or confusion and in order to provide clear, timely information on the reasons behind the adoption of the resolution

decision and its effects on all those potentially interested and/or affected. The ultimate aim is to be prepared beforehand to provide all information that may contribute to increasing the transparency of the resolution process and obtaining a swift resumption of market confidence in the bank in resolution.

Further, with a view to smoothing the communication potentially needed to allow the resolution process to be implemented, those responsible for banks' communication, the various groups that might be affected, the main services providers, market infrastructures, etc. should be clearly identified beforehand.

2.7 ASSESSMENT OF THE RESOLVABILITY OF BANKS

The objective of assessing the resolvability of banks is to obtain reasonable security that, if subjected to resolution, their structure or means of functioning would allow this resolution to be performed without endangering financial stability and/or the economy as a whole. The authorities carry out this assessment not only during the resolution planning phase, but also during the phase in which banks' recovery plans are drawn up. The legislation thus makes it obligatory to consult with those responsible for supervision and resolution. The resolution authorities must review banks' recovery plans before they are approved by the supervisor so as to indicate whether any of the recovery measures included in the plans might adversely affect resolvability. With this process it is sought to prevent measures being adopted by the bank at an early stage of the crisis that might subsequently hamper its resolution, if this were ultimately necessary.

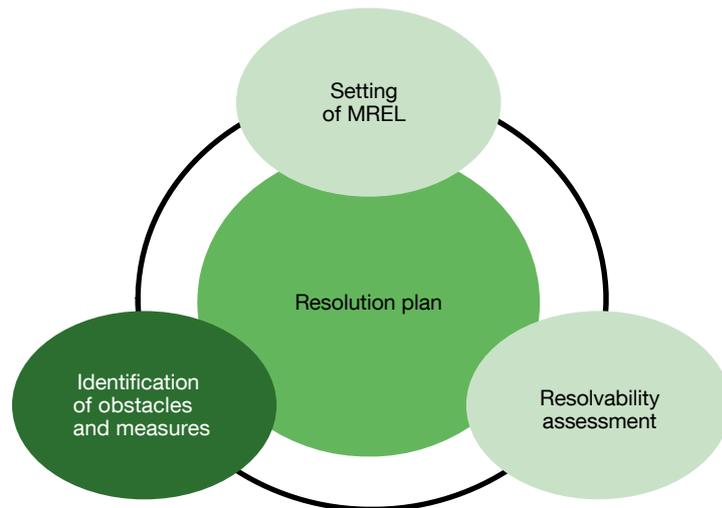
Once the preferred resolution strategies and tools have been determined, the authorities seek to identify the potential obstacles in the way of practical implementation, and to adopt the necessary measures to remove them. The obstacles identified to date are centred essentially on matters of business continuity with services providers, access to market infrastructures in the event of resolution, loss-absorption capacity and recapitalisation, and the capacity to swiftly generate the information needed for resolution.

To try and ensure uniformity in the identification and treatment of obstacles to resolvability, the SRB is preparing common guidelines for action for the euro area national resolution authorities.

In this process to analyse and enhance resolvability, the resolution authorities attempt to have banks incorporating into their day-to-day management ongoing reflection on the possible obstacles that might arise in a resolution process, and the need to head them off beforehand. Some courses of action here would involve requiring banks to appoint managers, both at senior and middle levels, to oversee resolvability, maintain contact with the resolution authorities and submit work plans on specific projects to improve resolvability, whenever necessary. In this way, the authorities would subsequently conduct periodical monitoring of the attendant suitability, developments and implementation in practice, calling for the changes they consider appropriate.

Finally, if the analysis of resolvability were to infer the existence of considerable impediments to resolution, the normal planning process would be suspended; i.e. a plan cannot be approved without the necessary measures being approved for removing the major obstacles to resolvability beforehand. If banks do not contribute to minimising the major obstacles identified or do not adopt the appropriate measures, the legislation envisages a broad and categorical set of measures.⁶ These include, if necessary, the resolution authority being

⁶ See Articles 17 and 18 of Law 11/2015.



SOURCE: Own elaboration.

able to impose on banks the adoption of structural, organisational or any other types of changes to ensure that resolution is orderly and entails no cost to taxpayers should the bank become non-viable.

3 Number and frequency of plans to be drawn up

The Banco de España currently carries out preventive resolution tasks. It does so exclusively and/or sharing them with the SRB and other national resolution authorities for a total of 79 credit institutions, including both individual banks and groups.

In December 2018 this group comprised 12 significant institutions (SIs) and 55 less significant institutions (LSIs). Moreover, the Banco de España cooperates, by providing analyses and timely information, with the SRB, the FROB and the national resolution authorities of other euro area Member States in the preparation of resolution plans for 12 credit institutions headquartered in one of the Member States and that have significant subsidiaries and/or branches in Spain.

As set out in section 6.2, the Banco de España participates actively in nine resolution colleges in the resolution plan preparation cycle.

4 Consultation processes and approval of resolution plans

The approval of resolution plans and of the other elements making up the preventive resolution mechanism (analysis of resolvability and determination of the MREL requirement) is preceded by an *extensive consultation process* in which both the competent supervisory authorities and the national resolution authorities of the Member States where there are significant subsidiaries and/or branches participate.

In the case of SIs, the consultation process includes the European Central Bank and the national resolution authorities affected.

Of particular importance in this consultation process is the role of the *supervisory authority*. Hence, the ultimate objective of the supervisory and resolution framework is a common one, and is aimed at ensuring the stability of the financial system. That said, in striving for this objective, the supervisory authority pursues a “going concern” principle, focused on

ensuring the existence of solvent institutions, as opposed to the “gone concern” convention adopted by the resolution authority, which seeks to ensure resolvability, if necessary.

This dual approach means that, on occasion, measures adopted in the resolution framework might affect the viability or performance of going-concern institutions and, conversely,⁷ that supervisory measures might impact resolvability. By way of example:

- The resolution plan may envisage measures aimed at improving the separability of institutions in an eventual resolution, e.g. the need to keep critical services providers separate or the setting of restrictions on the movement of funds between institutions. These measures may affect their business model and their cost structure; accordingly the supervisor, in its consultation process, should assess their scope.
- Determining the MREL requirement has a direct effect on banks’ financial structure and financing costs, and it may even entail changes in the business model, the consequences of which should be painstakingly studied by the supervisor.

Along with this, and on a lower scale of importance, the supervisor will draw on its knowledge of the institution to assess its appropriate reflection in the resolution plan, essentially in that part relating to the description of the structure and business model.

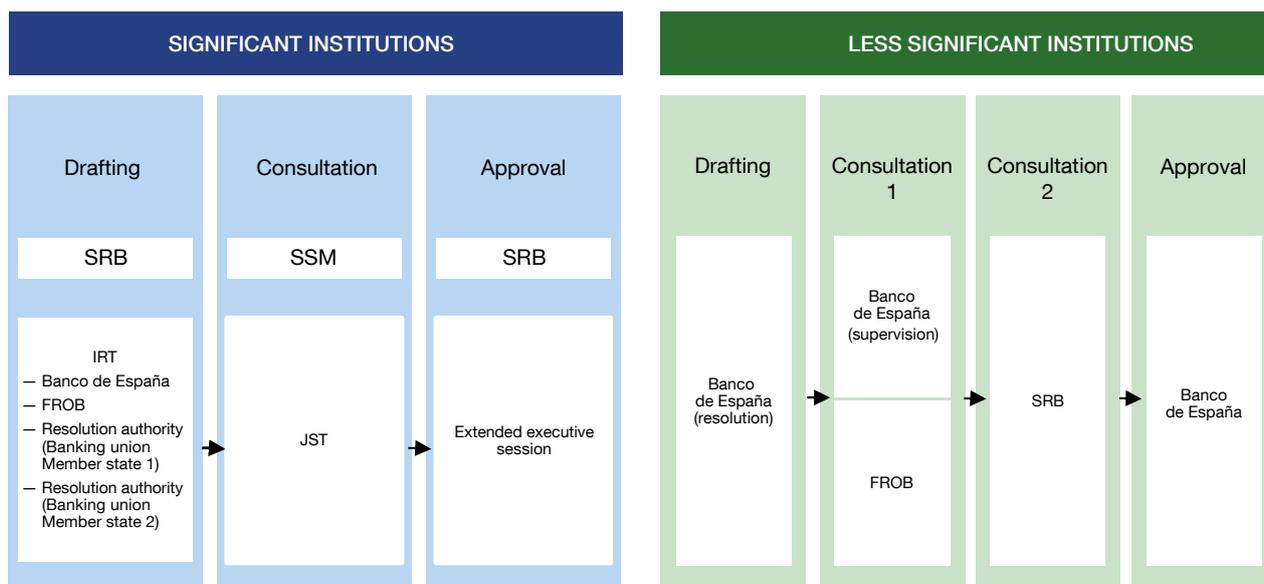
As regards the *resolution authorities of the Member States* where there are significant subsidiaries and/or branches, the objective of the consultation is two-pronged: on one hand, it is sought to ensure the appropriate coordination and harmonisation of measures; and on the other, to prevent disproportionate impacts on the financial stability of any of the States affected, which might not have been properly detected by the resolution authority of the group.

In this respect, a distinction should be drawn between:

- Resolution authorities of Member States not belonging to the Banking Union, for which the consultation and approval process is essentially structured around the resolution colleges.⁸
- Resolution authorities of Member States belonging to the Banking Union. In these cases, the SRB is the competent resolution authority for preparing and *approving* the resolution plan. This approval will come about in the so-called Extended Executive Session, in which the SRB members themselves and the national resolution authorities affected by the decisions to be adopted participate. Irrespectively, the preparation of the resolution plans for SIs is done by the so-called Internal Resolution Teams (IRTs), work teams comprising SRB and national resolution authority representatives. These two mechanisms – approval in the Extended Executive Session and formation of the IRTs – promote the observance of the objective of coordination between authorities, even though the competent resolution authority is the SRB and there is no formal consultation process, such as that established in the resolution colleges.

⁷ In this connection, see the section on the analysis of resolvability and the role of the resolution authority in the review of recovery plans.

⁸ See section 5.



SOURCE: Own elaboration.

In the case of LSIs and their groups, whose resolution plans are the competence of the Banco de España, the consultation process will include both the supervisory authority and the FROB and the SRB. Given the particular configuration of competences in resolution in Spain, with a preventive resolution authority (Banco de España) and an executive resolution authority (FROB), the consultation process should also include this latter authority.

The objectives of the consultation to the supervisory authorities and the resolution authorities of other Member States will coincide with those set out earlier for the SIs.

In the case of the FROB, the consultation process seeks to ensure that the preventive resolution mechanism does not include measures or actions that hamper effective execution.

The last step of the consultation process involves sending the plans to the SRB, which seeks to ensure a level playing field in the preparation of the resolution plans for the different Member State institutions.

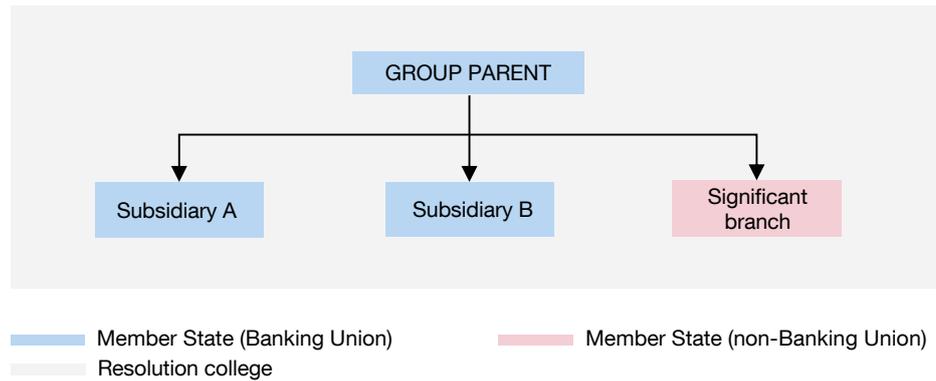
The approval of the plans and of the other components of the preventive resolution mechanism in relation to LSIs is the competence of the Banco de España.

5 Resolution colleges

5.1 CONCEPT, TYPES AND COMPOSITION

For the effective resolution of credit institutions – or groups thereof – operating in different European Union countries, cooperation is required. It is necessary between the competent and resolution authorities within the framework of the colleges of supervisory and resolution authorities (hereafter, “resolution colleges” or “colleges”), and indeed at all stages of resolution, from the preparation of the plans until the effective resolution of the institution.

Given the background to the last financial crisis, where the absence of a harmonised resolution framework led to different forms of management by different countries, the new



SOURCE: Own elaboration.

regulatory framework has sought to promote cooperation between different authorities in such a way as to prevent fragmented national responses. In this respect, the regulations envisage two different types of resolution colleges:

1 Resolution Colleges

These colleges are foreseen for *cross-border European groups*, i.e. for those cases where the parent of the group of credit institutions is domiciled in an EU Member State and has, in turn, one or more significant subsidiaries and/or branches in another or other Member States.

In particular, for those institutions under the remit of the SRB (essentially SIs) there is understood to be a single resolution authority, irrespective of whether the group has significant subsidiaries and/or branches in different Member States within the Banking Union. Therefore, there would only be an obligation to set up these resolution colleges if the group of credit institutions were present in other EU countries not belonging to the Banking Union.

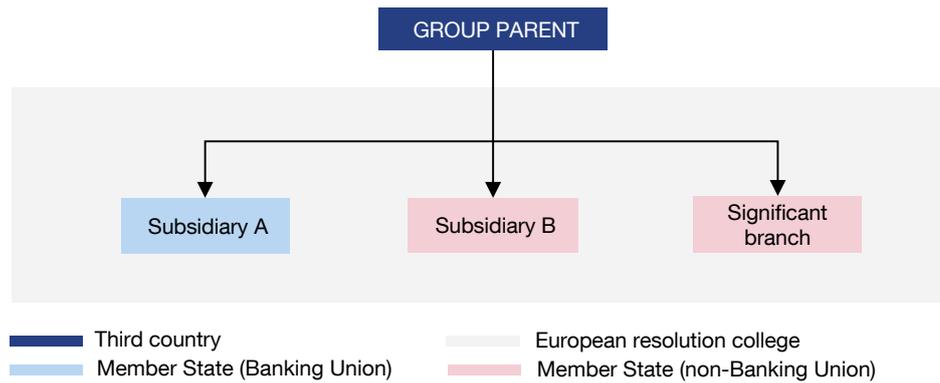
These colleges would be chaired by the group-level resolution authority (GLRA).

2 European Resolution Colleges

These are conceived as colleges reserved for *third-country cross-border groups*, despite their confusing name. Their focus is on situations in which a group of credit institutions, whose parent is situated in a non-EU Member State, has two or more significant subsidiaries and/or branches in Member States.

As in the case of the colleges of resolution authorities, if an institution present in several Member States is under the remit of the SRB, there is understood to be a single resolution authority for all Member States within the Banking Union, which will be a member of this college.

The college chair will be occupied by the resolution authority of the Member State where the supervisor on a consolidated basis is located.



SOURCE: Own elaboration.

5.2 FUNCTIONS OF THE COLLEGES IN THE PLANNING PHASE AND DECISION-MAKING PROCEDURE

The functions are structured around three major objectives:

- 1 To ensure appropriate collaboration and cooperation between resolution authorities, from both the EU and third countries, promoting a fluid exchange of information.
- 2 To establish a discussion forum for all matters affecting cross-border resolution groups.
- 3 To carry out the tasks laid down in the regulations, both for the resolution planning and execution stages.

Focusing on the planning phase, the resolution college's competences include, apart from the continuous exchange of information, the approval of the preventive resolution mechanism, which comprises:

- The resolution plan.
- Assessment of the institution's resolvability.
- Where appropriate, exercise of the powers needed for the removal of the obstacles to resolvability detected.
- Setting the MREL requirement, both at the consolidated and solo levels.

These four tasks would be subject to a joint decision-making process structured around different *stages*:

- First, to agree on the working schedule, upon the proposal of the GLRA.
- Once the time schedule is agreed, the necessary information will be gathered to prepare the draft resolution plan, and the resolvability analysis, which will be submitted to initial consultation among the members.
- Subsequently, the college will have an internal dialogue on the resolution plan and the resolvability analysis, and it will discuss a joint decision proposal and the schedule for approving this.

The resolution colleges shall be made up of the following members:

- a) The GLRA and the supervisor on a consolidated basis.
- b) The resolution authorities of the Member States in which the significant subsidiaries or branches are established and their national supervisory authorities.
- c) The competent ministries and the authorities responsible for national deposit guarantee schemes, if these authorities are not included under b).

d) The EBA (without the right to vote).

- e) On their own request, and as observers, the resolution authorities of subsidiaries or branches in third countries that are classified as significant in the EU may be invited.

In the case of global systemically important banks (GSIBs), crisis management groups (CMGs) have also been created. These are fora in which it is sought to reach specific agreements, exchange information and coordinate action with the resolution authorities of third-country non-EU members in which the institution or group in question has a significant presence.

- Communication of the joint decision outcome to the parent company.

- In any event, if the resolvability analysis were to infer there were major impediments to resolvability, the joint decision process for the Resolution Plan would be suspended. Before that, the joint decision on the existence of major obstacles to resolvability and, where appropriate, the measures to be adopted, would be approved.

In the case of the setting of the MREL requirement, the phases of the process will be similar to those above. Consequently, the resolution college will generally take advantage of the same meeting to also propose the joint decision on the MREL requirement.

Throughout this process, the EBA will contribute to promoting and overseeing the correct functioning of colleges, focusing on cross-border aspects, monitoring the proper application of the related EU regulations and standards, and cooperating on identifying major impediments to resolvability.

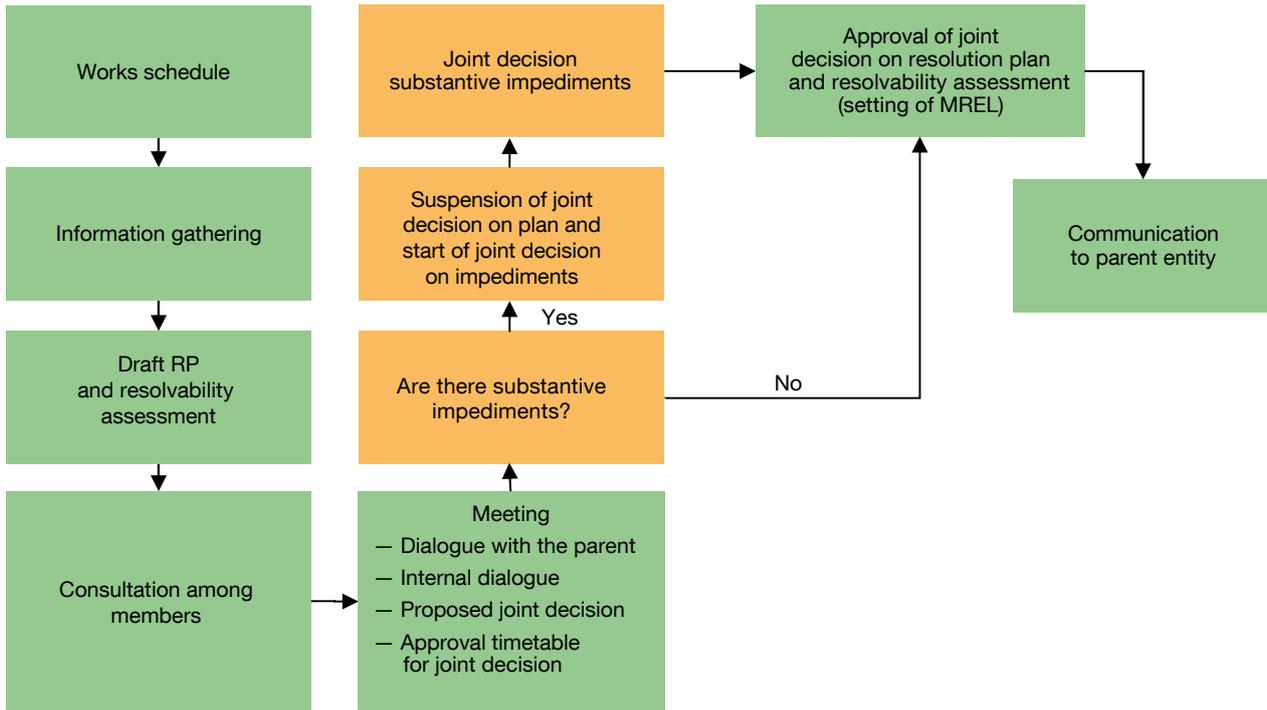
With a view to achieving these objectives, a mediator role is reserved for the EBA, in light of the potential disagreements there may be among the various European resolution authorities involved in the process.

Currently, the Banco de España participates in nine resolution colleges. Three of these relate to institutions with a parent in Spain, and six to institutions with their central headquarters in other Member States.

6 Challenges pending

In the current context, and despite the considerable advance the new SRB regulatory and institutional framework represents for facing future crises, a series of challenges remains pending, including most notably:

- The need to have a stable regulatory framework. In this respect, the Directive on the recovery and resolution of credit institutions and investment services firms,



SOURCE: Own elaboration.

which is one of the regulatory reference points in the field of resolution, has already been subject to revision just a few years after its adoption. This will probably entail changes in various aspects relating to resolution planning, e.g. as regards MREL requirements.

- Headway must continue to be made on ensuring the resolvability of institutions through the removal of any major obstacles, and on the progressive setting of MREL requirements that will enable banks' loss absorption capacity and recapitalisation to be ensured whenever necessary.
- Mechanisms must be reinforced or new ones created so that the liquidity requirements that may arise in cases of resolution may be effectively addressed. In that way, the resolution arrangements adopted will be effectively implemented.

Admittedly, the challenges indicated are not minor ones. But foreseeable regulatory stability in the near future and active involvement by the most significant institutions at the European level will surely contribute to strengthening and overcoming the difficulties inherent in the creation of new regulatory and institutional frameworks, as is the case of the new resolution framework.

7 Conclusions

Since 2015 the Banco de España has been preparing resolution plans for Spanish banks and collaborating with other resolution authorities in the preparation of resolution plans for foreign credit institutions with a presence in Spain.

Thanks to this it has been able to: obtain detailed information on the complexities of banks' internal structures and interdependencies, especially in the case of banking groups; identify the core functions performed by banks that should be maintained in the event of

resolution; and explore the resolution strategies and tools that best fit each particular case. Further, it has been possible to identify potential obstacles to the practical implementation of the plans proposed, with work under way on adopting measures for their elimination. In turn, MREL requirements are being quantified and the terms for attaining compliance therewith are being determined.

In Europe, some regulatory aspects are admittedly still pending implementation. But notable progress is being made on numerous fronts that will contribute to attaining those resolution objectives already established and, ultimately, to the credibility of the regulatory commitment whereby bank losses should be borne by their shareholders or capital instrument-holders and by their creditors, depending on hierarchy. It is wished hereby to minimise or avoid costs for the public coffers arising from future bank crises and, moreover, to contribute to lessening the likelihood of a crisis occurring. It should be borne in mind, within the framework of the bail-in, that it is those responsible for decision-making on assuming risks who must also most directly and immediately bear the consequences.

Despite the fact that there is a learning curve and that improvement-related aspects will require some time, both the authorities and financial institutions are progressively assigning greater resources and means to allow for the planning of any future resolution. Work is under way on identifying, minimising and removing the obstacles that might affect resolution in various areas. This includes ensuring business continuity, improving the preparation and reporting of information needed for decision-taking in the event of resolution, the simplification of complex legal structures, the establishing of MREL requirements that enable the effects of the crisis to be absorbed, etc. All these factors are contributing to improving the resolvability of institutions and to smoothing the practical implementation of the new regulatory framework, which reasonably ensures that, if necessary, banks may be resolved without significantly affecting financial stability and the economy.

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CENTRAL CLEARING COUNTERPARTIES: BENEFITS, COSTS AND RISKS

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Since the international financial crisis, central clearing counterparties (CCPs) have assumed a key role in the over-the-counter (OTC) derivatives market. One of the factors behind this increase in activity is the G20 requirement to centrally clear standardised OTC derivatives. This initiative rests on the belief that centralised clearing can help reduce counterparty risk, and the systemic risk associated with OTC derivatives markets. But risk concentration in CCPs (chiefly counterparty risk), potential loss mutualisation in the event of one or more clearing members defaulting and the high interdependencies with the rest of the financial system entail significant consequences for financial stability. Hence international agencies, such as the Financial Stability Board (FSB) and the European Commission and other regulators, are working on initiatives to strengthen their soundness and the capacity for recovery and resolution in the event of crisis. From the banking perspective, the analysis of these entities is significant insofar as a big portion of clearing members are banks. Accordingly, any tool aimed at ensuring the continuity of the CCP will have a direct effect on them. This article analyses the functions of a CCP, its risks and the tools available for facing losses given the role that banks play in centralised clearing.

1 Introduction

Central clearing counterparties (CCPs) are financial entities that interpose themselves, in their own name, in financial instrument trades, becoming a seller to each buyer and a buyer to each seller.¹ Through a process known as novation, each trade cleared through a CCP is converted into two transactions, with both having the CCP as a counterparty. While its net position is zero, the CCP assumes the counterparty risk of both the purchaser and the original seller, both being clearing members. To protect itself against this risk, the CCP establishes lines of defence that include initial and variation margins to positions, members' contributions to a default fund and a buffer of its own capital, with a well-defined default waterfall established in its regulation.

Centralised clearing began to develop over a century ago, linked to the organised exchanges where highly standardised derivatives (ETD or exchange-traded derivatives), such as bond and stock market futures and options, are traded. In parallel, and above all in the 80s and 90s, OTC derivatives markets and products such as swaps, credit default swaps (CDSs) and exchange rate derivatives, in which trading and clearing were bilateral, were progressively developed. Since then, both markets have existed alongside one another, serving different needs of their participants, with much activity and each with a certain degree of specialisation. However, before the crisis, some CCPs had already begun to offer centralised clearing of instruments traditionally cleared bilaterally, such as swaps, CDSs, repos and even shares.²

1 Clearing is the set of processes that take place after the trading of a transaction and before settlement (e.g. payment versus delivery of securities). Specifically, clearing involves determining the obligations and entitlements of the parties. It also includes the possible netting of obligations between buyer and seller. Clearing can be bilateral (between the buyer and seller) or centralised, through a CCP. In that case, the CCP becomes the buyer to the seller and the seller to the buyer. Trading can also be bilateral (OTC markets), or through organised exchanges (e.g. on a stock exchange).

2 For example, in 1999 LCH Ltd began to clear interest rate swaps. In 2009, ICE Clear Credit US and ICE Clear Europe Limited began to clear CDSs. Notably, in some jurisdictions such as Spain, centralised clearing of stock market equity transactions is obligatory. In the United States, for example, transactions with listed bond and exchange trade funds are also cleared.

The financial crisis highlighted the differences between bilateral and centralised clearing. Firstly, whereas the centrally cleared derivatives markets proved relatively stable, the opaqueness and complexity of the OTC derivatives markets hampered the valuation of the positions held by financial institutions, fuelling mistrust and generating bouts of acute volatility.

Secondly, the centralised clearing markets were seen to be more resilient for absorbing losses. For example, when Lehman Brothers collapsed, it was one of the most active participants in the interest rate swaps (IRSs) segment of the London clearing house LCH Ltd. In particular, the bank had an outstanding position for 9 of the \$100 trillion cleared in this segment. Despite the volume of exposure, it was possible to resolve the bank's failure through the auctioning of its positions and the use of the collateral posted by Lehman, without any other participant incurring losses [see Monnet (2010) and Gregory (2014)].

The shortcomings on the OTC derivatives markets prompted G20 leaders, meeting in Pittsburgh in 2009, to agree to an ambitious reform package. The aims were to enhance transparency, prevent market abuse and mitigate systemic risk. The G20 authorities committed themselves to having all standardised OTC derivatives contracts traded on electronic trading markets or platforms and centrally cleared before end-2012. In the case of bilaterally cleared contracts it was agreed, with the aim of encouraging centralised clearing, to raise capital requirements of banks, to require margins on positions and to improve their transparency through the recording of trades in a repository [see G20 Research Group (2009) and FSB (2018 a)]. This package has given rise to legislative changes at the national level. In Europe, for instance, the agreement was incorporated in 2012 through the European Market Infrastructures Regulation (EMIR), and in the successive technical standards drawn up by the European Securities and Markets Authority (ESMA). In the United States it was passed in 2010, through the Dodd-Frank Wall Street Reform and Consumer Protection Act. Significantly, the timing of the implementation of these obligations has differed in terms of instruments and across jurisdictions.³

Mandatory centralised clearing has posed a significant challenge for CCPs. It involves a considerable increase on one hand in the volume of positions to be cleared, and, on the other, in more complex and less standardised products. In 2007, the clearing of OTC derivatives was essentially bilateral: only 17% of interest-rate derivatives (swaps and FRAs) were centrally cleared.⁴ By contrast, as at June 2018, this proportion had risen to 76%. In the case of CDSs, the increase in positions cleared in CCPs has also been significant, exceeding 50% of outstanding positions as at mid-2018.

CCPs are not free from risks. First, even when they can reduce the overall exposure to credit risk, by setting themselves up as counterparties in all transactions, they concentrate that risk; and, by means of the lines of defence they set up, they mutualise and distribute it among their clearing members. Further, CCPs are also subject to operational and liquidity risk. Moreover, on assuming the counterparty risk of all outstanding contracts, CCPs are highly exposed to other financial agents. That means that the failure of one of its members may translate into losses for the CCP and vice versa. It is thus essential to ascertain which financial institutions act as counterparties and their degree of activity.

³ For example, the centralised clearing of interest rate swaps (in yen) has been obligatory in Japan since November 2012 and, in the United States (in the main currencies), since March 2013 (see Annex 1).

⁴ Interest-rate derivatives account for approximately 81% of the total derivatives traded on OTC markets.

The Financial Stability Board (FSB) has pursued an avenue of research focusing on the analysis of interdependencies between CCPs and their clearing members. Drawing on a study of 26 global CCPs, it concludes that clearing activity is highly concentrated in a small number of clearing members which, moreover, are common to several CCPs [see FSB (2018b)]. Moreover, a big portion of these members are banks. Indeed, the global systemically important banks (G-SIBs) generally clear in several CCPs. Consequently, in the absence of appropriate risk-management mechanisms, the default of a global bank might generate losses at several CCPs which, in the event of failure, would affect all participating banks and the other members.

The systemic nature of CCPs explains why they are highly regulated and supervised entities; the aim is to ensure their soundness, and prudent and transparent risk management. Moreover, they need to have an orderly recovery and resolution framework in place and, given the high degree of interdependencies with banks and other entities in the financial system, it is vital this framework should ensure effective coordination between different supervisors.

This article examines the functioning and resilience of CCPs in order to understand not only the advantages linked to centralised clearing, but also the risks this imposes on banks in their capacity as participating entities. Section 2 describes the activity on derivatives markets and the activity of CCPs at the aggregate and individual level. The aim is to ascertain the volume of the market studied in this article and its degree of concentration. Section 3 explains what a CCP is, how it is structured and the role banks play. Then, in section 4, an analysis follows of the mechanisms that enable CCPs to absorb the losses caused by a member's default, and section 5 assesses the possible recovery and resolution tools. Section 6 summarises the costs and benefits of centralised clearing, and its implications for financial stability. Finally, section 7 draws the main conclusions.

2 The activity of CCPs

2.1 THE SIZE OF THE OTC DERIVATIVES MARKET

Chart 1.1 shows the large size of the OTC financial derivatives market and describes the market's growth, in terms of notional outstanding volumes⁵, over the 1998-2017 period. It can be seen that, in outstanding balances, the size of the OTC market is much greater than that of the ETD markets, even adjusting the OTC derivatives series for possible double counting.⁶ OTC derivatives grew substantially in the years running up to the financial crisis, tripling in size from 2004 to 2008, when they attained a notional value of \$647 trillion. Since 2013, a declining trend has been seen. This trend could be explained by the shift towards centralised clearing, as the obligation to clear through a CCP progressively took root. As will later be seen, central clearing facilitates multilateral netting of positions and portfolio compression.⁷ Conversely, this declining trend is not observed in traded volumes (not affected by netting).

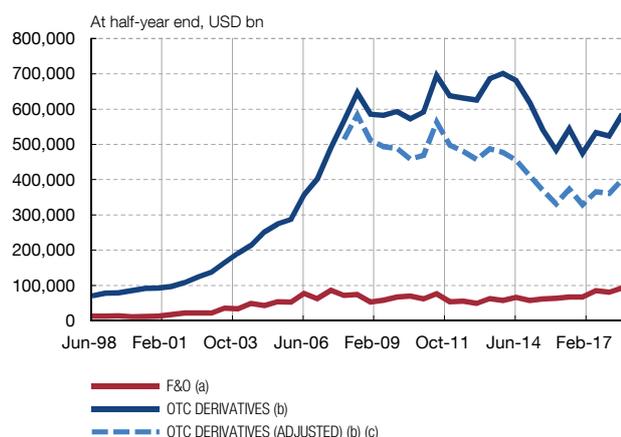
In contrast to the outstanding volumes, the activity of the OTC derivatives markets in terms of trading is somewhat smaller in size than the market for futures and options. In this

5 The outstanding volumes of OTC derivatives can be measured in two ways: by notional value or by market value. Notional value is generally the face value of the underlying asset and market value is the price at which the derivative is bought or sold (without including commission, charges or taxes). For example, in a 10-year swap for a nominal value of €100 million that receives a fixed rate of 3% per annum and pays a 3-month EURIBOR variable rate on each payment date, the notional value is €100 million and the market value is the present value of net future flows (fixed-variable).

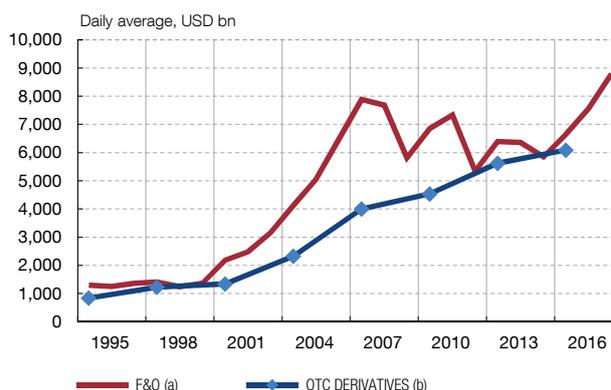
6 As explained in Annex 2, the BIS data on OTC derivatives may include double counting that affects those transactions originally traded between the banks that report to the BIS, and which are subsequently centrally cleared. The adjusted series estimates this double counting and deducts it from the original series.

7 Reducing then outstanding position. See Annex 3.

1 OUTSTANDING POSITIONS (NOTIONAL VALUE)



2 TRADING (NOTIONAL VALUE)



SOURCE: BIS (*Semiannual Derivative Statistics and Triennial Survey*).

- a Futures and options on interest rate and exchange rate traded and cleared on organised markets.
- b Includes OTC interest rate and foreign exchange derivatives and CDSs.
- c Series adjusted for possible double counting (see Annex 2).

latter market the maturity of contracts is shorter and turnover much greater. Thus, in 2016 (the last year with available information on OTC derivatives), average daily trading in OTC derivatives was \$6.1 trillion and that in futures and options \$8.8 trillion (see Chart 1.2).

Chart 2 depicts the outstanding volumes by OTC derivatives instrument, both in notional value and in market value, being the latter much lower. The largest market is, by far, that of swaps and other interest rate derivatives (IRD).^{8,9}

Both the swaps and CDS markets grew substantially in the years running up to the financial crisis, respectively increasing 2.5 and 9.5 times. After the crisis, the CDS market shrank drastically. The size of the swaps market has declined in terms of outstanding volumes since 2013. This reduction is, at least partly, due to the shift towards centralised clearing and to the subsequent netting and portfolio compression of a considerable number of positions, as mentioned above.¹⁰

2.2 CENTRALISED CLEARING ACTIVITY

The percentage of swaps and CDSs centrally cleared are shown in Chart 3. These two instruments are those which, largely, are subject to the obligation of CCP clearing.¹¹ As can be seen in the chart, the proportion of swaps and FRAs and of CDSs that are cleared through a CCP has been growing notably since the obligation for centralised clearing began to be introduced (late 2012-early 2013, see Annex 1). However, in the case of swaps, this percentage was already of some size previously. As regards other OTC derivatives, not subject to the obligation of CCP clearing, such as foreign exchange

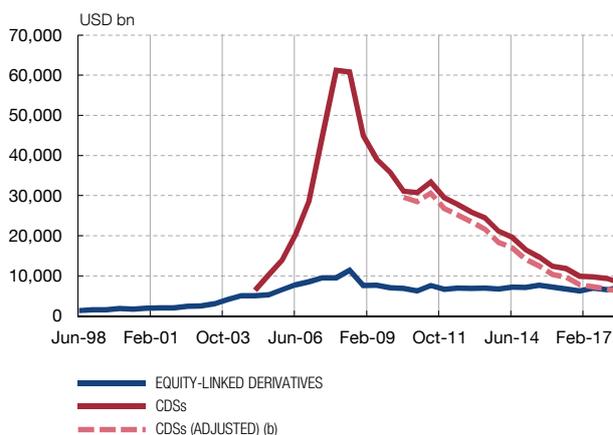
⁸ Interest rate derivatives include swaps, FRAs and options. The largest market is for swaps, followed by FRAs. The interest rate options market is much smaller.

⁹ As at December 2018, Spanish significant institutions held OTC derivatives on their balance sheets (consolidated data) for a notional amount of €10.77 trillion, 74% of which were interest rate derivatives other than options (i.e. swaps and FRAs).

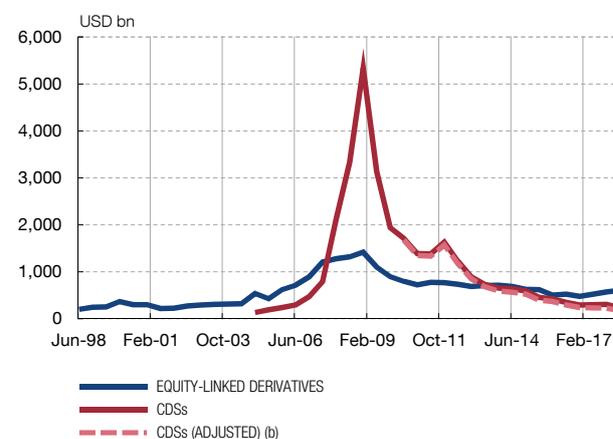
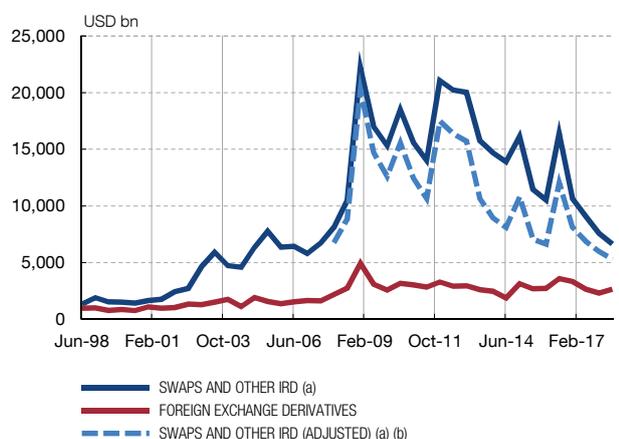
¹⁰ See Annex 3.

¹¹ Neither all swaps nor all CDSs are subject to the centralised clearing obligation. For a list of those that are, see Annex 1.

1 NOTIONAL VALUE



2 GROSS MARKET VALUE



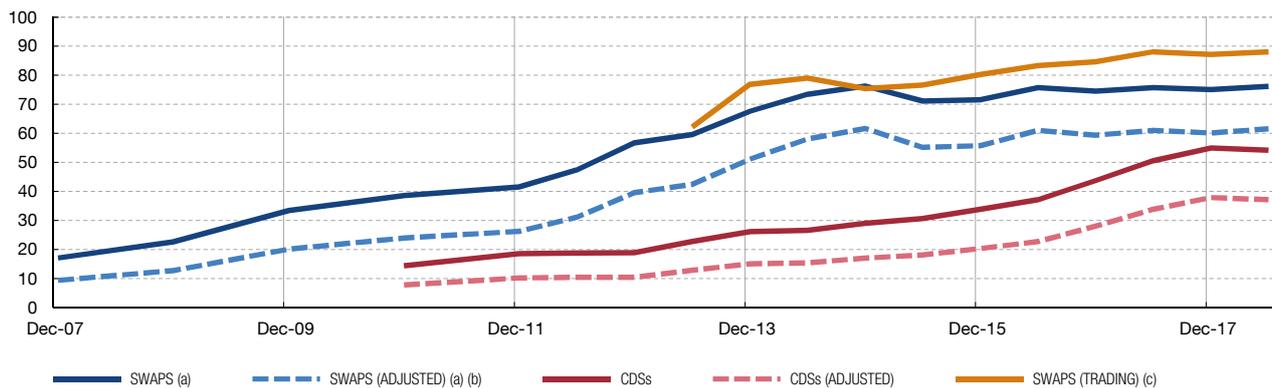
SOURCE: Prepared by the authors on the basis of data supplied by BIS (*Semiannual Derivative Statistics*).

- a Data includes FRAs and Interest Rate Options.
- b Serie adjusted by potential double counting (see Annex 2).

derivatives and equity linked derivatives, the percentage of centralised clearing is very low (5% and 0.3%, respectively, in June 2018).

In 2007, the percentage of centrally cleared swaps was 17% (9.3% in the adjusted series), while in June 2018, this proportion had risen to 76% (62% in the adjusted series). For CDS, these percentages rose from 14% in 2010 (8% in the adjusted series) to 54% in 2018 (37% in the adjusted series). This notable increase in the proportion of centrally cleared OTC derivatives (especially in the largest market, that for swaps) implies that the activity of CCPs has increased substantially.

Significantly, the percentage of centrally cleared swaps is somewhat higher than would correspond to the strict fulfilment of the obligation to clear through CCPs. Hence, ISDA (2018) indicates that, according to the information drawn from the US Commodity Futures Trading Commission (CFTC), in 2016 at least 7% of centrally cleared swaps were not subject to the obligation to clear, with this percentage standing at 3% in 2017.



SOURCE: Prepared by the authors on the basis of data supplied by ISDA and BIS (*Semiannual Derivative Statistics*).

- a Data includes FRAs. Data prior to 2016 has been estimated by applying to BIS data the rate of change of the data reported by ISDA. Since 2016, data are reported by BIS.
- b Serie adjusted by potential double counting (see Annex 2).
- c Data includes FRAs and refers to trading (source: ISDA).

2.3 THE CONCENTRATION OF CENTRALISED CLEARING ACTIVITY

Chart 4 shows the shares of activity of the different CCPs, by market segment, highlighting the fact that centralised clearing is a highly concentrated activity.¹² In the case of Europe, this concentration is apparent in the different market segments. It is very notable in that of futures and options, CDSs and, above all, in swaps, where the London CCP LCH Ltd concentrates practically all activity.¹³

The high concentration of centralised clearing in LCH Ltd also recurs at the global level. This can be seen in Chart 4.2, which shows the shares of activity, for the swaps segment, across different CCPs by currency and region. The lower share (44%) is in yen-denominated swaps, the markets in which the Japanese authorities impose certain restrictions that constrain clearing in foreign CCPs.

Globally, the centralised clearing of CDSs also shows a very high concentration (see Chart 4.3). Here it is the US CCP ICE Clear Credit that shows a high share, exceeding 70% for the CDS market as a whole, followed by the British CCP ICE Clear Europe (of the same group), with a share of 20%.

This high concentration of centralised clearing means that the increase in clearing activity (largely induced by the obligation to clear centrally) has materialised in very few entities, giving rise to a high concentration of risk and, accompanying this, to a heightening of its systemic nature.

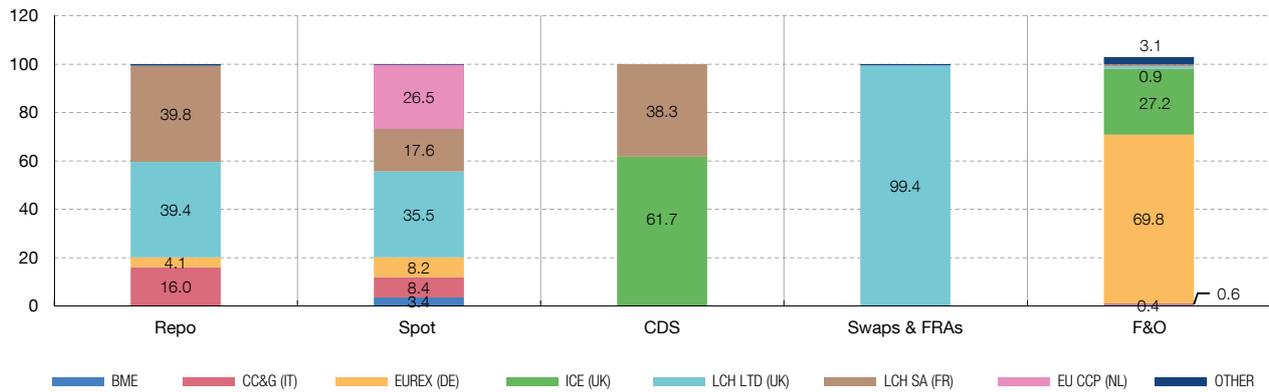
¹² This high concentration is partly due to economies of scale and to the greater possibilities of netting and contract compression offered for market participants when they concentrate their clearing activity in just a few CCPs.

¹³ In the course of 2018 a slight shift in clearing was seen from LCH Ltd towards the German CCP Eurex (as observed in Chart 4.2). This shift is attributable to Brexit, since – in the absence of a transitory period – following the UK's withdrawal from the EU and until LCH Ltd were declared a Qualified CCP, European banks would face regulatory constraints to operate or hold positions in British CCPs. Nevertheless, in December 2018 the European Commission published a decision where under it considers British CCPs equivalent for a temporary period.

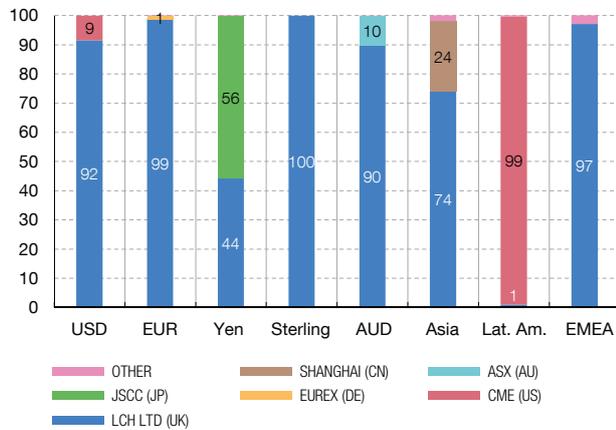
CENTRAL CLEARING BY CCP AND SEGMENT
Market shares (%)

CHART 4

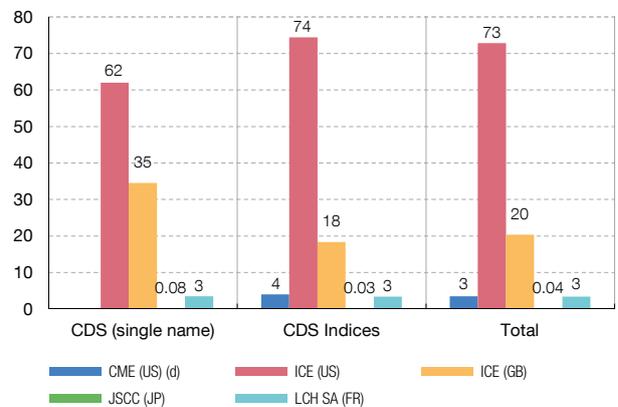
1 EUROPEAN CCPs (a)



2 GLOBAL CCPs. SWAPS AND FRAs (b)



3 GLOBAL CCPs. CDSs (c)



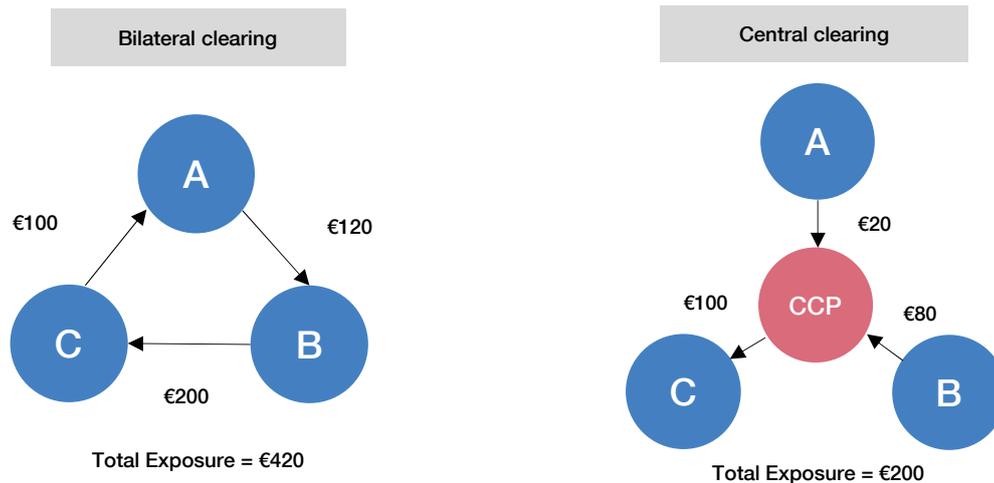
SOURCES: ECB (Chart 4.1) and Clarus FT (Chart 4.2 and Chart 4.3).

- a 2017 data.
- b 2018 data.
- c 2015-2017 data.
- d CME (US) ceased clearing the CDSs segment in 2018.

3 CCP functioning and participants

As mentioned, CCPs are entities that interpose themselves in their own name in financial instrument contracts, becoming a seller to each buyer and a buyer to each seller. When an operation is registered in a CCP it gives rise to a purchase transaction and a sale transaction, with both having the CCP as a counterparty (see Diagram 1). In this way, the open position of the CCP is zero and, if because of a member's default the position were not thus, the CCP would have to act immediately to return to the net zero position (a matched book). That said, by interposing itself, in all contracts, the CCP is exposed to counterparty risk, both with the original buyer and with the original seller.^{14,15}

14 Counterparty risk is defined as the risk of the counterparty not meeting its obligations. The obligations with a CCP are: to post and replace the initial margin; to post, where appropriate, the variation margin; and those obligations arising from the purchase or sale of the security upon maturity of the contract.
15 For a detailed description of the functioning of a CCP, see Gregory (2014).



As will later be seen, one of the main benefits that centralised clearing offers is to facilitate the netting of positions for participants (members).¹⁶ As the CCP is counterparty to all the contracts, positions of the opposite sign are automatically netted, thus reducing or eliminating the participant’s exposure, both in terms of market and of counterparty risk (see Diagram 1). Conversely, in bilateral clearing, positions of the opposite sign will reduce the participant’s exposure to market risk, but not to counterparty risk (nor the attendant obligations), unless the counterparty entity is the same in the positions being netted.¹⁷

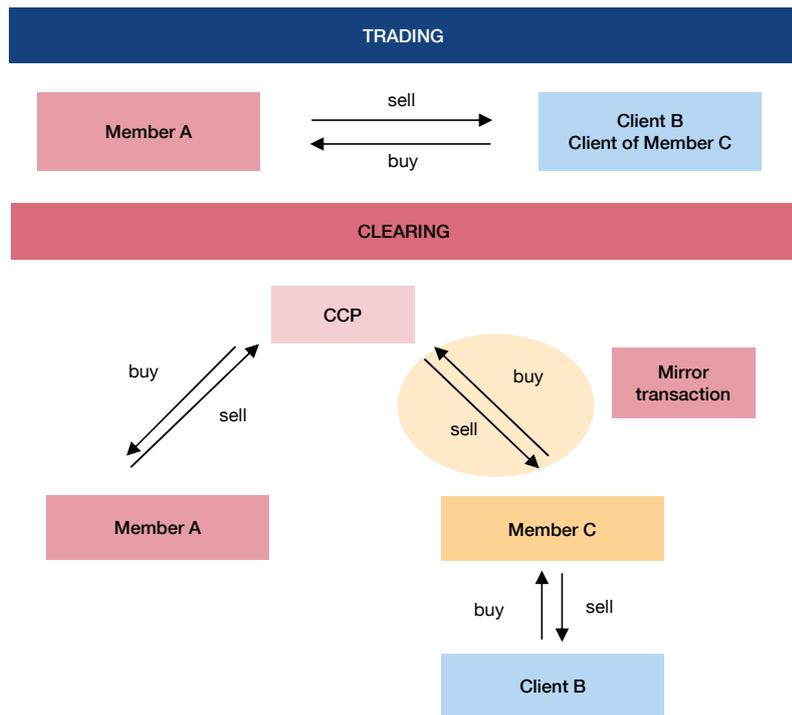
3.1 CCP PARTICIPANTS: MEMBERS AND THE ROLE OF BANKS

CCPs are closed clearing systems and only operate with those entities that are members and, through these, with entities that act as clients. To act as a member, CCPs impose a series of requirements relating, for example, to solvency and members’ operating capacity, with the aim of lessening default risk.

Most CCPs have at least two types of members: non-clearing members that operate only on their own account (through a clearing member), and clearing members that clear contracts on their own account and some also on behalf of clients. In turn, there are two models in the relationship between the client and the clearing member: the principal model (predominant in Europe), in which the clearing member acts as a counterparty to the client, performing as well a mirror transaction with the CCP (see Diagram 2); and the agency model (predominant in the United States), in which the member manages clients’ accounts and guarantees its obligations, being the CCP the counterparty to the client. There are two types of client accounts: individual accounts, in which the client’s positions are individually recorded; and omnibus accounts, in which the positions of several clients are recorded. In the case of omnibus accounts the clients’ initial margin can be posted on a gross basis (i.e. by aggregating the initial margin of each client’s position) or on a net basis (i.e. the initial margin stemming from netting the clients’ positions).

¹⁶ CCPs also provide for portfolio compression, which is a netting technique whereby two or more counterparties replace their positions with another of less notional value and the same market risk. Annex 3 describes the effect of netting and portfolio compression on the outstanding balance of one of the main CCPs.

¹⁷ In the example in Diagram 1, in the case of bilateral clearing, entity A has market risk of €20, but counterparty risk of €120 with entity B and of €100 with entity C.

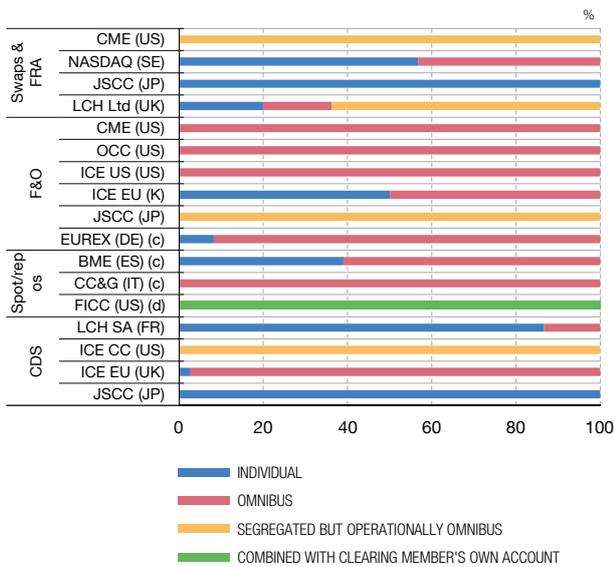


In the event of a member defaulting, the CCP will close its positions and transfer its clients' positions to another or other clearing members (this characteristic is known as the portability of client accounts). This transfer is less complex in the case of individual accounts, as it is easier to identify each customer's positions. Chart 5 shows the type of account and the initial margin posted by clearing members and clients, for a set of CCPs. It can be seen how, in a good number of CCPs (particularly those with most activity), clients' total positions exceed those of the clearing members and, omnibus accounts in which the clients' initial margin is posted on a gross basis are more frequent.

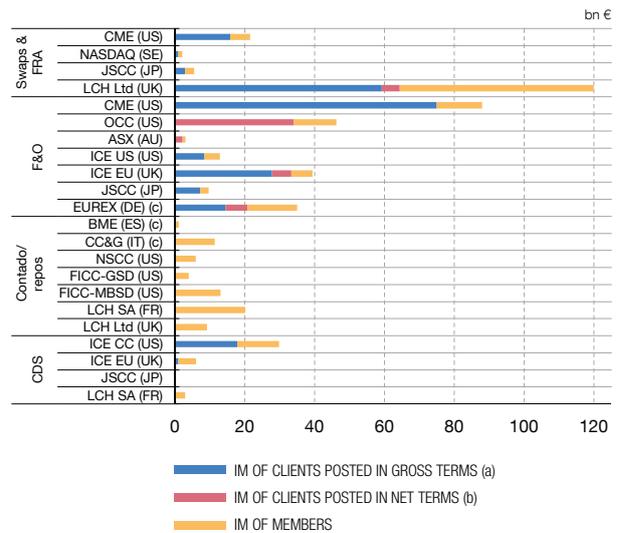
While any entity that meets the minimum requirements set by a CCP can gain member status, in practice, a high percentage are banks. Chart 6 shows, by segment of activity, the number of banks that are clearing members for a set of CCPs. With very few exceptions (especially in the futures and options segment) the substantial weight of banks as clearing members is apparent. In the particular case of the London clearing house LCH Ltd, for example, approximately 86% of participants in the swaps segment are banks. This figure is significant in that LCH Ltd concentrates practically all swaps contracts that are cleared in Europe and a very high percentage of those cleared globally. The swaps market is, moreover, the most active of the OTC derivatives markets (see Section 2).

The role of banks in centralised clearing takes on particular significance in the case of global systemically important banks (G-SIBs). Indeed, the more systemic the bank is, the greater the number of CCPs in which it is a member: Citigroup and JP Morgan, for example, clear in practically all the CCPs with most activity (see Chart 7.1). CCPs, for their part, are generally exposed to at least 10 global banks (see Chart 7.2). In Spain's case, Santander

1 TYPE OF CLIENT ACCOUNTS



2 INITIAL MARGIN POSTED BY CLIENTS AND CLEARING MEMBERS



SOURCE: CPMI-IOSCO Quantitative Disclosure, Q4 2018, published on the websites of the CCPs listed.

- a Initial margin calculated on clients' positions on a gross basis.
- b Initial margin calculated on clients' positions on a net basis.
- c For BME this refers to the repos segment, and for CC&G, the equities segment. Eurex reports jointly for all the segments (assigned to F&O since this is the segment of most activity).
- d FICC includes FICC-MBSD, FICC-GSD and NSCC, all of which belong to the DTCC group.

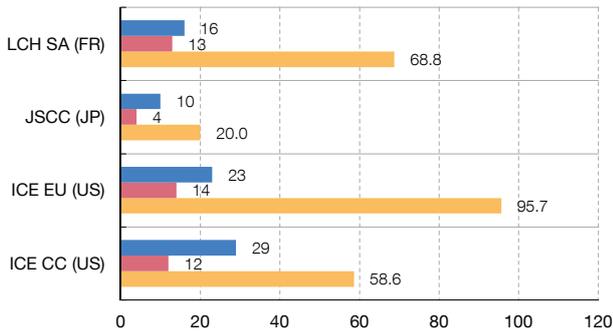
and BBVA are clearing members of 12 and 7 CCPs, respectively. In turn, the Spanish CCP BME Clearing operates with 15 large banks.

In addition to the types of clearing members, it is important to ascertain whether clearing activity is concentrated or not in a small number of participants. In this case, default by a particularly active member might result in significant losses for the CCP. Globally, this scenario appears to be the case: the 20 biggest clearing members amass 75% of clearing activity¹⁸ [see FSB (2017a)]. Given that banks are the most common members (see Chart 6), it is reasonable to think that a big portion of the most active members are banks. The degree of concentration of the positions of CCP members can also be seen in Chart 8, which shows the percentage of total initial margins posted by the five most active clearing members in each of the main CCPs. Chart 8 also shows that the concentration is even higher in the client's activity, although the number of members that clear contracts on behalf of clients is, generally, low (see Chart 6).

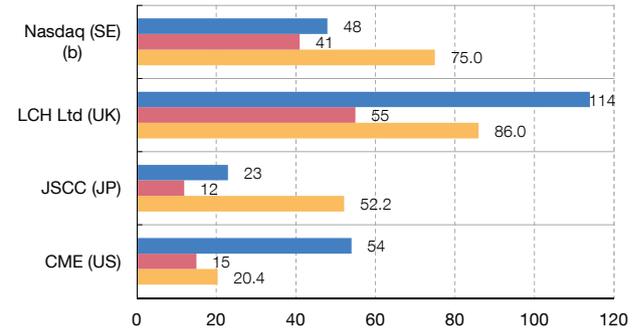
Banks' relationship to CCPs is not confined to their role as clearing members. They may also be critical services providers. Indeed, more than half of the entities providing custody settlement, liquidity provision and investment services for collateral assets are also clearing members [see FSB (2018a)]. In the specific case of LCH Ltd, most payments are settled through two G-SIBs [see Wendt (2015)]. Accordingly, the failure of one of them will affect

¹⁸ Analysis of 26 globally systemic CCPs (data as at September 2016). The degree of activity is proxied by the initial margin and the default fund. In August 2018, the FSB published an updated version of the report (October 2017 data), which confirmed the main conclusions of the 2017 report.

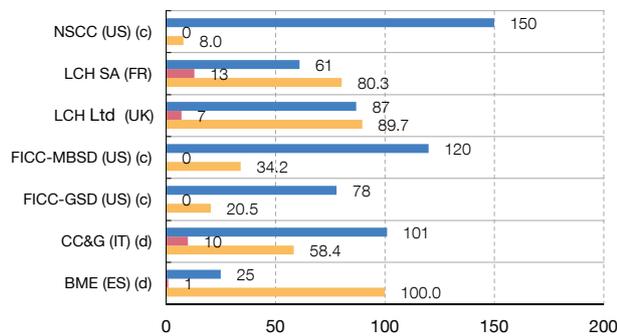
1 CDSs



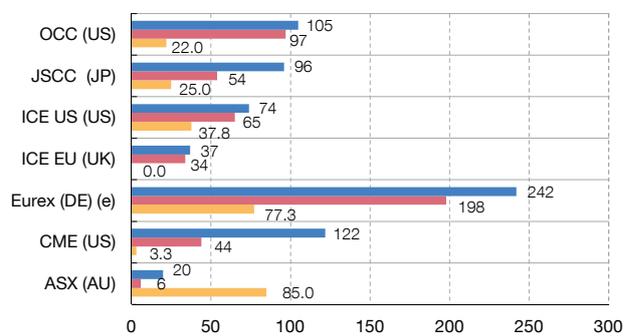
2 SWAPS Y FRAs



3 SPOT/REPOS



4 F&O



■ TOTAL NUMBER OF MEMBERS ■ MEMBERS WITH CLIENT ACCOUNTS ■ % MEMBERS THAT ARE BANKS (a)

SOURCE: CPMI-IOSCO Quantitative Disclosure, Q4 2018, available on the websites of the CCPs listed.

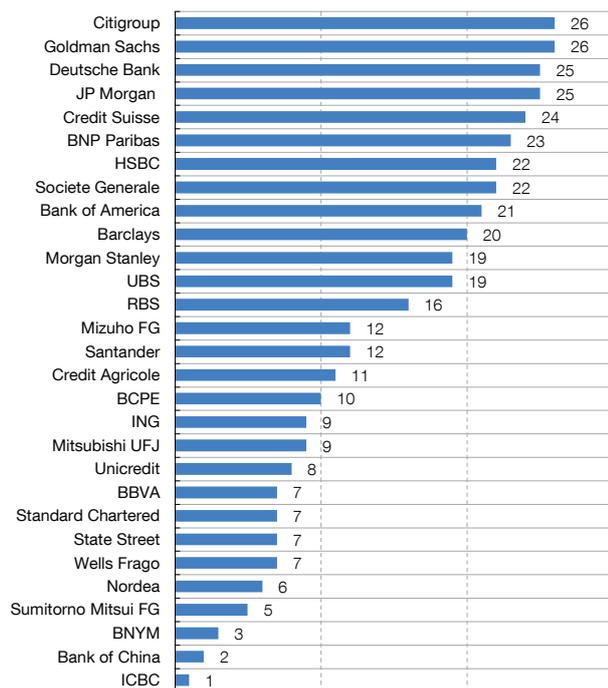
- a Does not include broker-dealers or investment companies that are subsidiaries of banks. As a result, the percentage of members belonging to banking groups is notably higher.
- b Only FRAs segment.
- c NSCC, FICC-MBSD and FICC-GSD (of the DTCC group) do not report information on the number of members that clear on behalf of client.
- d For BME this refers to the repos segment, and for CC&G, the equities segment.
- e Eurex reports jointly for all the segments. Assigned to F&O since this is the segment of most activity.

the clearing house through two channels. This multiplicity of functions increases the exposure of banks to the CCP and vice versa.

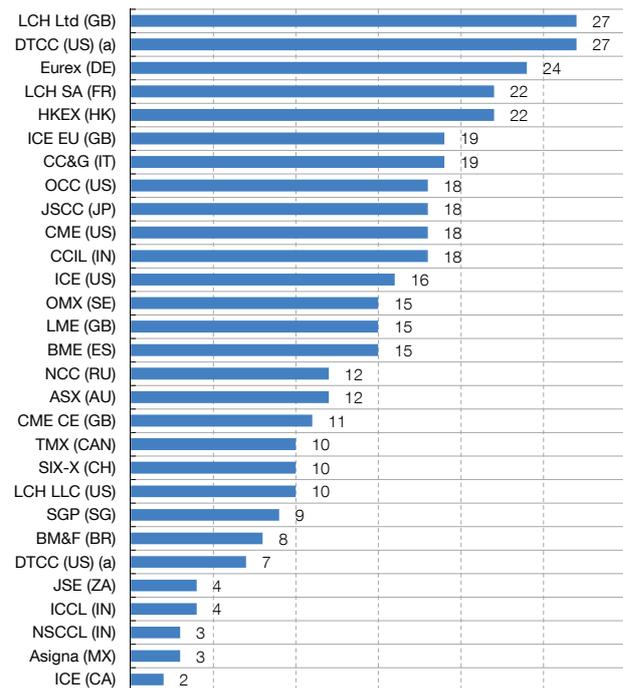
The existence of common clearing members and services providers across CCPs gives rise to a core of highly connected CCPs at the international level. It is thus important that the authorities reflect on whether current regulatory framework is suitable or not for addressing the high interdependencies between CCPs and banks. International bodies such as the FSB have indeed concentrated some of their efforts on analysing interdependencies between CCPs as a source of systemic risk [see FSB (2017a), FSB (2018a)].

Beyond their role as clearing members or services providers, banks may also be shareholders. This third dimension might derive in conflicts of interest in those cases where, to strengthen the soundness of the clearing house, more resources from members are needed. It might also increase contagion risk between banks and the clearing house.

1 NUMBER OF CCPs IN WHICH G-SIBs ARE CLEARING MEMBERS



2 NUMBER OF G-SIBs THAT ARE MEMBERS OF CCPs



SOURCE: Prepared by the authors on the basis of the information from European Commission (2016).

a Includes FICC-GSD, FICC-MBSD and NSCC.

Given banks' majority participation as clearing members and the high degree of concentration of activity (at the level of CCPs and of clearing members), in the face of a bout of tension, the tools used by CCPs or by the competent authorities to absorb losses will have a direct and likely significant impact on banks. This dimension should be borne in mind in any regulatory initiative seeking to strengthen the resilience, recovery or resolution of a CCP. Cooperation and coordination among the authorities responsible for supervising CCPs and banks is key to heading off any collateral damage arising from financial difficulties on either side.

4 Lines of defence in the face of defaults

As indicated, a CCP bears a counterparty risk both with the purchaser and with the seller of all the positions it clears. To cover this risk, the CCP has lines of defence geared exclusively to covering losses owing to the failure of one or more clearing members to meet their obligations (e.g. in replacing margins or at the date of maturity of the operations).

In general, and unlike banks, CCPs do not operate with leverage and do not issue debt. A CCP's capital is relatively small in relation to the volume it clears, as it is intended to cover risks other than that of member default. The main lines of defence in the face of losses owing to default (the biggest risk a CCP bears) are the resources contributed by the clearing members themselves: the initial margin, the variation margins and the default fund.

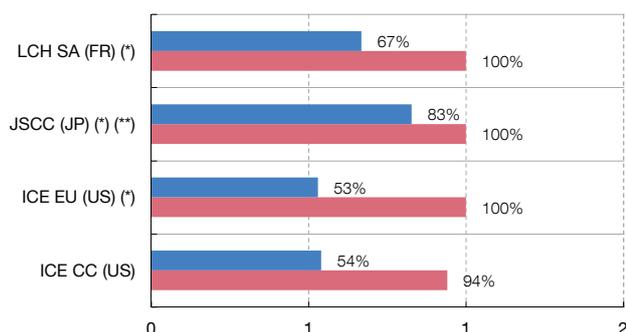
4.1 INITIAL AND VARIATION MARGIN

Firstly, CCPs require to their clearing members to post collateral to cover the future potential exposure of their position: the initial margin (IM). That is to say, the IM

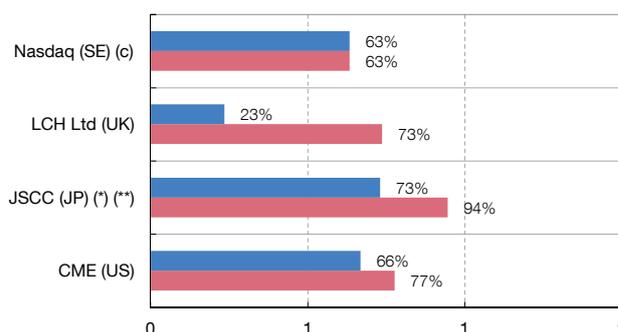
CONCENTRATION OF CLEARING MEMBERS' OWN ACTIVITY AND OF BEHALF OF CLIENTS
Initial margin posted by the 5 top clearing members (%)

CHART 8

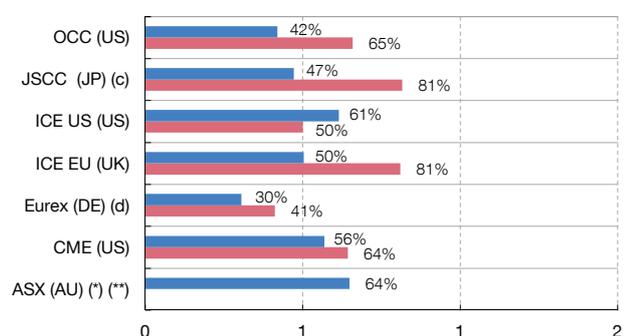
1 CDS



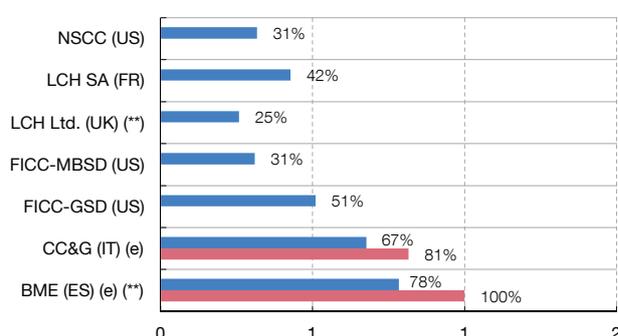
2 SWAPS



3 F&O



4 SPOT/REPOS



■ % IM POSTED BY 5 TOP MEMBERS (a) ■ % OF CLIENT ACCOUNTS' POSITIONS OF THE 5 TOP CLEARING MEMBERS (b)

SOURCE: CPMI-IOSCO Quantitative Disclosure, Q4 2018, available on the websites of the CCPs listed.

NOTES: (*) CCPs with fewer than 25 members; (**) CCPs with fewer than 10 members with client accounts.

- a % of initial margin posted by the 5 members with highest positions.
- b % of client accounts' positions of the 5 clearing members with most activity with clients. Some CCPs do not report this information or do not have client accounts.
- c Includes only FRAs.
- d Eurex reports jointly for all market segments. Assigned to F&O as this is segment with most activity.
- e For CC&G, this refers to equity spot, and for BME, repos.

attempts to cover the losses that might arise during the period since member fails (e.g. non-contribution of the variation margin) up to the time that the CCP manages to close or transfer the position. The IM is updated daily, and its calculation is a complex task requiring sophisticated systems capable of assessing whether the level of coverage is suitable. An unjustifiably low initial margin would increase the CCP's exposure to counterparty risk, and an overly high margin would discourage members from undertaking clearing.

Most CCPs use methodologies such as VaR (Value at Risk) or SPAN (Standard Portfolio Analysis of Risk). The IM thus calculated tends to be procyclical: it is very low in times of plenty and very demanding in lean times. This may be a problem given that it is precisely at times of tension that it may prove more complicated for clearing members and clients to raise liquidity in order to post the IM, thereby increasing the likelihood of defaults. Heeler and Vause (2012) estimate that, without adjustments, the procyclicality of IMs in respect of a position in an interest-rate swap may multiply twofold at times of high volatility. So as to

mitigate the procyclicality of IMs, CCP use mitigating factors in the models they employ for its calculation. However, these factors do not eliminate totally the procyclicality of margins. For instance, Faruqui, Huang and Takáts (2018) estimate that in the days following the Brexit referendum (23 June 2016) the margins calls in the centralised clearing of swaps amounted to \$27 billion, five times more than the daily average of the 12 previous months.

In addition to the IM, CCPs raise and post the variation margin (VM) daily (and even on an intraday basis). This margin is tantamount to a daily settlement of gains and losses in the position of each of the clearing members, caused by the daily movements in the value of the derivatives or assets held. Given that the CCP has a zero net position, the daily net balance of the VM for the CCP is also zero. The VM generally has to be contributed in cash. Like the IM, the VM is calculated on the basis of position in a specific segment, although some CCPs apply a cross-margin.¹⁹

4.2 DEFAULT FUND AND SKIN IN THE GAME

In addition to margins, the CCP requires its clearing members to contribute to a fund to cover losses in the event of default that go beyond the initial margin posted by the member or members defaulting. This fund, known as the default fund, means that all members are exposed to the losses generated by any other member. This therefore entails a mutualisation of risk. Hence, it is essential that members ensure that the CCP appropriately manages counterparty risk, by participating, for example, in its risks committee [see McPartland and Lewis (2017)]. In the case of banks, moreover, the Basel framework requires them to set aside, *inter alia*, capital requirements for their contribution to the default fund [see BCBS (2014)]. In this way, the contagion risk that a bank might assume by being a clearing member is recognised.

Regarding its size, the international framework recommends that, at a minimum, the fund should be enough to cover the losses that might be generated, in extreme but plausible market conditions, by the clearing member with the highest exposure [see CPSS-IOSCO (2012)].²⁰ In Europe, clearing members contribute to this fund in proportion to the size of their exposure.²¹ Their credit quality is not, therefore, taken into account. This framework has been criticised on occasion for being arbitrary [see Cont (2015)]. However, any model taking into account the probability of default of clearing members would be very complicated.

Significantly, in the event of default of a member, the CCP may demand additional funds from the non-defaulting clearing members to replenish the fund or to cover additional losses. In Europe, clearing houses cannot request additional contributions for an unlimited amount.²² The existence of this limit is pivotal to members being able to assess at all times their level of exposure. Otherwise, clearing might be very costly and ultimately prove not to be worth, particularly when undertaken on behalf of clients. On setting this limit the CCP should weigh up, for example, the advantages of having greater resources to cover losses (which plays in favour of its survival) set against the risk of contagion among members. In practice, clearing houses such as CC&G and LCH Ltd limit the obligation to replenish the fund in its

19 That is to say, they calculate and demand margins for the net aggregate amount of the positions in the different segments for which clearing services are offered [see Gregory (2014)].

20 In globally systemic CCPs, the size of the fund should be sufficient to cover the losses of the two biggest clearing members.

21 See Art. 42.2 of Regulation 648/2012 of the European Parliament and of the Council of 4 July 2012 relating to OTC derivatives, central clearing counterparties and trade repositories (EMIR).

22 See Art. 43.3 EMIR.

entirety, while others, such as BME Clearing and Eurex, allow up to double the original endowment.

Besides the contributions made by clearing members, CCPs allocate a portion of their own capital to covering the losses generated by the members. This buffer, known as “skin in the game” (SIG), encourages the clearing house to set in place prudent risk management. In the absence of this buffer, the clearing house might have incentives to request low margins, in order to lower the cost of centralised clearing and to increase its market share. In relation to its size, European regulations require clearing houses to ensure, at least, that the SIG amounts to 25% of the CCP’s minimum regulatory capital²³; however, as indicated, the capital of CCPs is small in that it is intended to cover losses other than those relating to counterparty risk.

4.3 MEASURES IN THE EVENT OF A DEFAULT: THE “WATERFALL”

In sum, to cover counterparty risk losses, CCPs have collateral (IM) provided by clearing members, contributions to the default fund and a portion of its own capital (SIG). These resources make up what is known as the “default waterfall” (see Diagram 3).

CCP internal rules establish the order in which these resources would be used. Depending on the clearing house and on the regulations applicable to it, the skin in the game will be available for use before or after the default fund. In most global CCPs and, in any event, in Europe (where it is mandatory²⁴) the SIG absorbs losses before non-defaulting members.

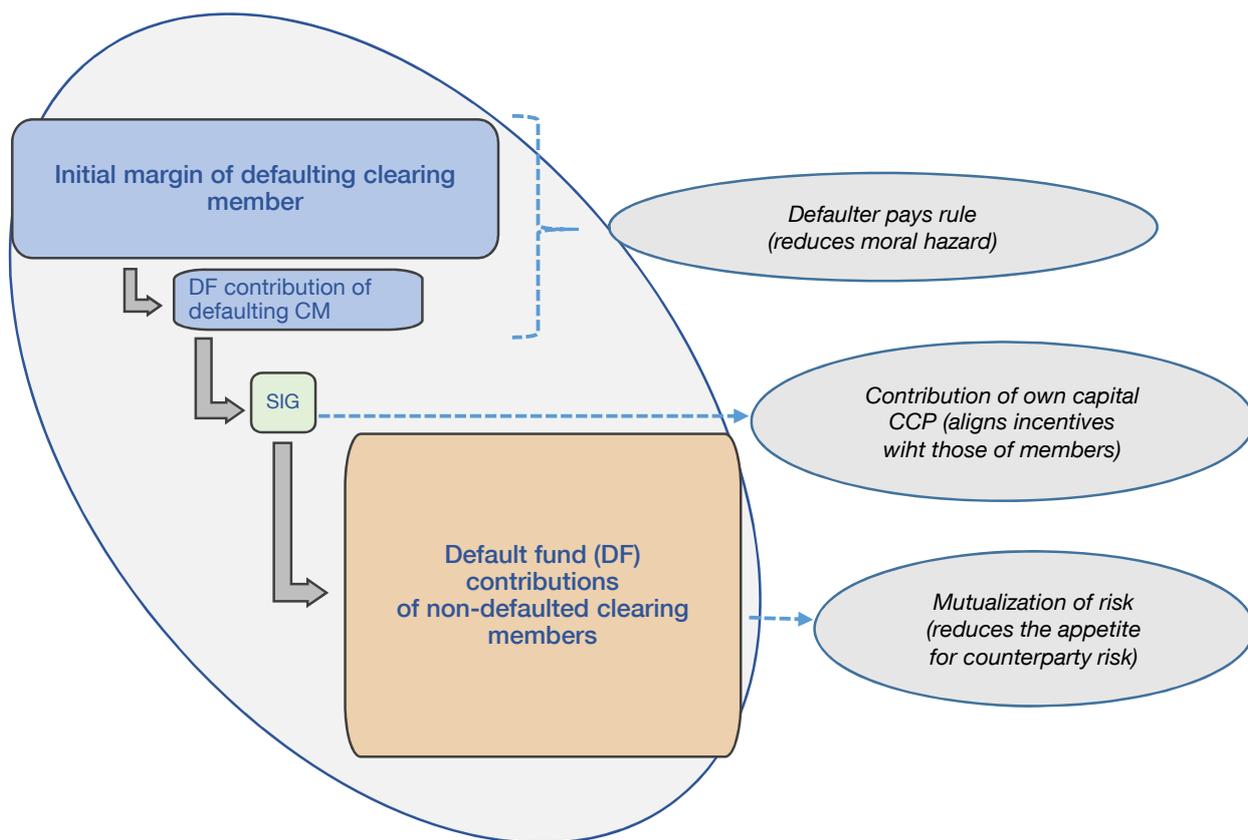
In the event of a clearing member default, for example in posting the VM or in satisfying IM calls, the CCP’s exposure becomes unbalanced while it has to meet its obligation with non-defaulting counterparties. Faced with this scenario, the clearing house will firstly liquidate the failed positions (preferably through an auction among non-defaulting members) in order to return to the matched book. Secondly, it will have to cover the loss incurred.²⁵ In that connection, the CCP will make use of the IM posted by the defaulting member and of its contribution to the default fund. Were these resources not enough, the CCP will contribute through the SIG (if this is so established in its order of ranking) and, if the losses persist, it will draw on the contributions to the default fund by the non-defaulting clearing members (see Diagram 4).

Table 1 breaks down the volume of pre-funded resources available to absorb losses for a group of CCPs. The contribution of the SIG does not, generally, exceed 5% of the contributions of the members to the default fund. The appropriate size of the SIG in order for it to be an effective risk management tool has been the subject of debate. Generally, both members and clients advocate increasing the contribution [see European Commission (2015)]. They claim, for instance, that the SIG should be equivalent to the contribution by the clearing member with the highest exposure or to a fixed percentage of the default fund [see JP Morgan Chase (2014) or BlackRock (2014)], claiming the CCP’s risk to large exposures is thus mitigated.

²³ See Art. 35.2 of Commission Delegated Regulation No. 153/2013 of 19 December 2012, supplementing Regulation 648/2012 of the European Parliament and of the Council, referring to technical standards of the Regulation on the requirements central clearing counterparties must meet.

²⁴ See Art. 45.4 EMIR.

²⁵ The losses might arise from the CCP obligation to meet its commitments with non-defaulting members and in the process of closing out the defaulting member’s positions ((e.g. the price the CCP has to pay in the auction of the positions)).



SOURCE: Prepared by authors. Relative size of each element of the waterfall is estimated using the information given by one of the main CCPs in its *CPMI-IOSCO Quantitative Disclosure* of Q4 2018.

Clearing houses, in contrast, do not consider appropriate to increase the SIG to cover risks with very little likelihood of materialising [see European Commission (2015)]. They further claim that this would affect the CCP’s risk profile, by increasing its exposure to the defaulting member at a time at which the CCP needs to be resilient [see LCH Ltd (2014)]; they argue also that it could discourage the appropriate participation of clearing members in the auctions of the defaulting member’s positions, given that there is a greater probability that the losses will be covered by the CCP.

4.4 IF A MEMBER DEFAULTS, IS THE DEFAULT WATERFALL SUFFICIENT?

It is worth asking whether the pre-funded resources available to the CCP are sufficient in the event of defaults and, otherwise, what additional tools are available to prevent the failure of the CCP.

Firstly, it should be pointed out that the defaulting member’s guarantees should suffice to cover its losses.²⁶ Theoretically, the use of additional resources will be a remote possibility.

There are few real cases allowing for the study of whether the CCP’s loss allocation and absorption mechanisms are effective. Since the 1980s, there have been some few defaults where a member’s losses exceeded the resources provided by such member [see

²⁶ In Europe, for example, to calculate initial margins CCPs must use, at least, the following confidence intervals: (a) 99.5% when OTC derivatives are involved, and (b) 99% for financial instruments other than OTC derivatives (Delegated Regulation 153/2013, Art. 24).

PRE-FUNDED FINANCIAL RESOURCES TO COVER DEFAULTS

TABLE 1

Data in million of Euros

CCP	Segment	SIG contributed by CCP	Default fund contributed by clearing members	Initial margin (*) posted by clearing members	% SIG over pre-funded resources
		(1)	(2)	(3)	(4) = (1) / (1) + (2)
ICE CC (US)	CDS	43.67	2,333.94	12,001.87	1.84
ICE EU (UK)	CDS	43.61	888.62	5,046.49	4.68
JSCC (JP)	CDS	11.92	359.48	224.87	3.21
LCH SA (FR)	CDS	20.00	1,247.34	2,772.74	1.58
BME (ES)	Spot/repos	1.00	25.00	1,078.84	3.85
CC&G (IT)	Spot/repos	16.48	4,600.96	11,280.64	0.36
FICC-GSD (US)	Spot/repos	47.09		3,888.21	
FICC-MBSD (US)	Spot/repos	47.09		13,067.25	
LCH Ltd (UK)	Spot/repos	9.00	1,088.36	9,202.28	0.82
LCH SA (FR)	Spot/repos	7.14	1,089.17	19,984.06	0.65
NSCC (US)	Spot/repos	66.84		5,963.28	
ASX (AU)	F&O	73.98	123.30	848.50	37.50
CME (US)	F&O	87.34	3,814.92	13,030.92	2.24
Eurex (DE)	F&O	150.00	4,076.40	14,224.17	3.55
ICE EU (UK)	F&O	136.24	2,515.38	6,145.55	5.14
ICE US (US)	F&O	53.28	630.09	4,399.59	7.80
JSCC (JP)	F&O	158.92	2,299.23	2,431.18	6.47
OCC (US)	F&O	0.00	8,177.60	12,247.22	0.00
CME (US)	Swaps and FRA	131.00	3,119.66	5,761.55	4.03
JSCC (JP)	Swaps and FRA	15.89	1,439.57	2,596.65	1.09
LCH Ltd (UK)	Swaps and FRA	46.21	5,589.53	55,685.56	0.82
Nasdaq (SE)	Swaps and FRA	6.83	226.53	1,073.66	2.93

SOURCE: Prepared by the authors based on the information from *CPMI-IOSCO Quantitative Disclosure*, Q4 2018, available at CCP's websites. Foreign exchange rate as at 31 December 2018.

NOTE: (*) Initial margin of clients' accounts is not included, except if clearing members' own accounts are jointly reported.

(1) For BME data refers to repos and for CC&G refers to equity.

(2) FICC-MBSD and FICC-GSD have a shared SIG.

McPartland and Lewis (2017)], two of them recently. There are also few cases where the CCP itself has failed (see Annex 4).

In 2013, the Korean clearing house Korea Exchange (KRX) registered the failure of HanMag Securities, after sizeable losses accumulated owing to a trading algorithm error. The collateral posted by this member were not sufficient to cover the incurred losses (approximately \$39.6 million) [see McPartland and Lewis (2017)], then impacting non-defaulting members through the partial use of the default fund (the default fund amounted to \$190 million). From among the 60 clearing members, several large global banks bore a substantial portion of the loss [see Vaghela (2014)]. However, the SIG remained intact. Unlike European clearing houses, KRX internal regulations envisaged the prior use of the default fund for defaults. This singular fact drove large global banks to initiate an ongoing review of the main CCPs' default management mechanisms [see Grant (2014)]. This case highlights the importance for banks of undertaking appropriate due diligence processes, which enable them to know their level of exposure in the event of default.

In September 2018, a member of the Swedish CCP Nasdaq Clearing was unable to meet the required margin calls. In this case, the failure was caused by the highly marked price fluctuations in certain products traded in the commodities derivatives segment (Nasdaq Clearing Commodities). The losses were covered by using the CCP's SIG (€7 million) and the default fund, which had to be replenished by the clearing members in the days following the default for the amount of €108 million [see Nasdaq Clearing (2019)].

Following this episode, the CCP decided to introduce some changes, and, for example, it increased initial margins. It also temporarily endowed the SIG with €19 million, available during the three months following the default and additional to the initial SIG of €7 replenished by Nasdaq. Had a new episode been recorded, the fund would have been used immediately after the resources provided by the defaulting member [see Nasdaq Clearing (2019)].

The global financial crisis was also a test bed for the resilience of clearing houses in the face of the failure of a global bank. In 2008, the investment bank Lehman Brothers was an active player in the main equity, bond and derivatives markets. At the time of its collapse it had, for example, an outstanding position of \$9 trillion (relating to 66,390 transactions) in Swap.Clear of the London clearing house LCH Ltd [see Monnet (2010) and Gregory (2014)]. The investment bank was one of the main participants in this segment of activity, which had 20 members (all of which banks) and an overall position of around \$100 trillion (equivalent to approximately one-fifth of the total market for interest rate swaps) [see Gregory (2014)].

Once the collapse was announced, most CCPs with direct exposure to Lehman acted almost immediately. In the space of 24 hours, clearing houses such as LCH Ltd, Eurex, and Six x-Clear announced the Lehman default or the suspension of its activity²⁷; meantime, others such as HKCC allowed the bank to continue clearing under certain restrictions, before definitively announcing its suspension. Within five days, most CCPs had successfully closed out Lehman's own positions through auctions among non-defaulting members. Within 15 days, the main clearing houses finalised the transfer of the client accounts to solvent clearing members and announced that the crisis had been resolved without losses for non-defaulting members, clients or the clearing houses themselves [see CCP 12 (2009)].

Other clearing houses such as CME (US) and HKSCC (HK) were affected as well. In the case of CME, the gains in two of the segments in which Lehman Brothers had positions sufficed to offset the losses that arose in another three segments. In the case of HKSCC, losses exceeded the initial margin and the Lehman contribution to the default fund, using then HKD394 million of the non-defaulting members contribution to the default fund. Non-defaulting members had to post additional resources in order to replenish the default fund[see Gregory (2014)].

Yet overall, the collapse of Lehman Brothers reaffirmed the role of CCPs as effective mechanisms for reducing counterparty risk. The previous examples illustrate that clearing houses' default management mechanisms were functioning appropriately in practice.

27 Among the causes of a member's default are, for example, the initiation of the filing for bankruptcy or insolvency proceedings.

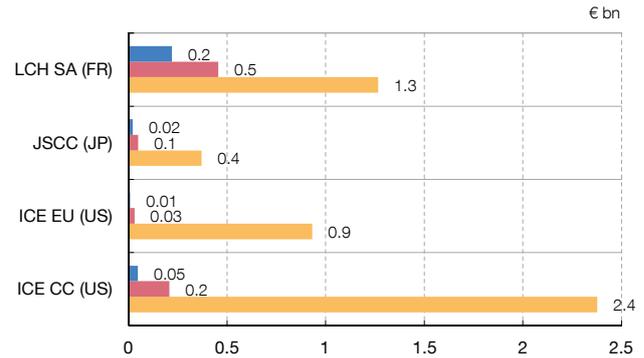
ESTIMATED LARGEST LOSS AND FINANCIAL RESOURCES BY CCP (a)

CHART 9

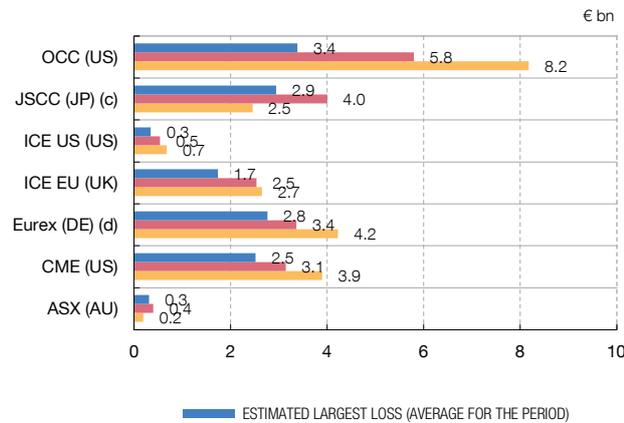
1 SWAPS AND FRAs



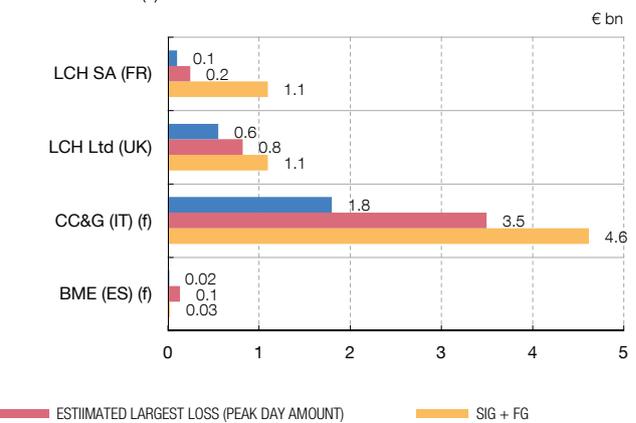
2 CDS



3 F&O



4 SPOT/REPOS (e)



ESTIMATED LARGEST LOSS (AVERAGE FOR THE PERIOD) ESTIMATED LARGEST LOSS (PEAK DAY AMOUNT) SIG + FG

SOURCE: CPMI-IOSCO Quantitative Disclosure, Q4 2018, available on the websites of the CCPs mentioned in the chart.

- a Estimated largest loss (in excess of initial margin) that would be caused by the default of any two participants in extreme but plausible market conditions. The chart reports the peak day amount in in the reported quarter and mean average over previous twelve months (Q4 of 2018). SIG = capital buffer contributed by the CCP. DF = default fund contributed by all clearing members.
- b Includes only FRAs.
- c Includes only equity-linked F&O with the exception of SIG, which also covers bonds and spot F&O.
- d Eurex reports jointly for all segments. Assigned to F&O as this is the segment with most activity.
- e Does not include US CCPs most active in spot/repos (FICC-GSD, FICC-MBSD and NSCC) as there is no information on the size of the DF.
- f For CC&G, only the equity segment is included, and for BME, the repos segment.

Quarterly, CCPs publish on their websites the *CPMI-IOSCO Quantitative Disclosure* [see CPMI-IOSCO (2015)], which contains information on the SIG, default fund, initial and variation margins, and the number of members, among other details. In particular, they report the maximum loss (not covered by the initial margin) which they estimate may cause the default of the two largest clearing members in extreme but possible market conditions (this estimate is provided in average of the previous 12 months and in its maximum value during the reporting quarter). This information, along with that on the volume of the default fund and of the SIG, provides an approach to ascertain whether the default waterfall funds would suffice to withstand a highly adverse scenario of losses.²⁸ Chart 9 shows, for the main segments of activity in the derivatives market, the maximum expected loss and the volume of resources available to cover losses by the global clearing houses most active in each segment. Generally, the default waterfall appears to be robust in the sense that SIG plus default fund contributions are larger than

²⁸ Note that the data on the default fund and on the SIG relate to the end of the quarter, while the expected losses are offered as an average and the maximum amount for the past 12 months.

the maximum estimated loss, net of initial margin, of the two largest members. This hypothesis is in line with the results of the stress tests conducted by ESMA on the European clearing houses in 2017 [see ESMA (2018)]. The ESMA exercise indicates that there is no evidence of systemic implications arising from the mutualisation of the risk; however, in the adverse conditions analysed, a small CCP would need very small additional contributions to the default fund (less than €1 million) and one of the large clearing houses would practically deplete it.

5 And if more resources are needed to cover losses?

Although such a possibility is remote, if the waterfall were not sufficient to cover losses, there are recovery and resolution plans with additional measures available to the clearing house or to the resolution authorities.

The international framework requires that clearing houses have a recovery plan detailing, *inter alia*, what tools to use and under which scenario. It further highlights the importance of considering the potential impact that the use of such instruments would have on all the participants affected. It therefore urges clearing houses to be transparent so that members may be aware of and manage *ex ante* their exposure.²⁹

Namely, a CCP can define mechanisms geared to covering losses caused by a member's default, withstanding liquidity shortages, replenishing financial resources, closing out the position of a defaulting member to return to a matched book and covering losses other than those caused by default. This section exclusively addresses the tools intended for covering default losses.

Firstly, one of the most habitual tools is the capacity to require cash calls to clearing members. These contributions may be intended both to cover residual losses and to replenish the default fund. This tool gives the CCP advantages in terms of flexibility. But it also has limitations: as committed but not pre-funded resources are involved, it is possible that clearing members may not be able to contribute or that they have incentives to close positions and operate with a more solvent clearing house (it is therefore subject to uncertainty). With the aim of ensuring that members manage their resources on the basis of this commitment, it would be recommendable for the clearing house to communicate the loss-allocation mechanism to the clearing members (e.g. proportionate to their contribution to the default fund), and to set, moreover, the maximum number of days during which the clearing members are expected to post the guarantees. In Europe's case, the regulations restrict the maximum contribution that a member can make.

Secondly, the clearing house may apply (full or partial) haircuts to the variation margins (VM) corresponding to those positions that have recorded gains while continuing to demand the payment of VM of positions with losses. That is to say, the clearing house ceases to credit in full or in part the gains of those clearing members pending payment. From the CCP's standpoint, this tool offers advantages such as immediate availability. Further, it encourages participation by certain clearing members in the auction of defaulted member's positions with a view to minimising the accumulation of losses. However, it is controversial in that it only distributes losses to a limited group of clearing members. CCPs such as LCH Ltd, JSCC and ICE Clear Europe Ltd, among others, envisage the use of this tool in their respective plans [see Gibson (2013)].

²⁹ For further details see CPMI-IOSCO (2014).

Thirdly, clearing houses could use the initial margins (IMs) of non-defaulting members, provided that the legal framework allows it. In Europe, for example, it is forbidden.³⁰ The main advantage is that it ensures access for the CCP to a most sizeable volume of resources already paid in. But its implementation would give rise to many unwanted effects. For instance, their use would entail a significant loss for clearing members, since they would have to replenish the IM in order to continue operating. That might, moreover, temporarily leave the CCP sub-collateralised. Further, it is not a tool that encourages appropriate risk management: the high cost would encourage clearing members to operate in those clearing houses with lower margins. Lastly, in the case of banks, the cost of centralised clearing would increase, since capital would have to be provided for IM. None of the main CCPs envisage this tool in their recovery/resolution plans.

All the recovery tools entail costs for participants and, unsurprisingly, there is no alignment between the preferences for one tool or another. For instance, BlackRock (2014) states that it is preferable to liquidate them than to maintain a greatly weakened CCP. Meantime, for ISDA (2013) and JP Morgan Chase (2014), the main goal should be to ensure the continuity of the clearing house.

If the recovery plan were not successful, or its implementation were to pose a danger to financial stability, the resolution of the clearing house would follow. In this phase, it is the competent authority (and not the CCP itself) that is entrusted with applying the measures deemed appropriate to ensure financial stability and the continuity of the CCP's critical functions. Significantly, unlike banks, CCPs do not generally have instruments on which to perform a bail-in.³¹ Consequently, as in the recovery phase, the financial resources available will mainly be those that clearing members can provide.

The authorities should regularly assess which tools and financial resources should reasonably be available in this phase, and whether they are sufficient. To assist the authorities in this process, the FSB has analysed the nature and quality of the financial resources and the treatment of the capital, so as to ensure that resolution is no more punitive than liquidation pursuant to ordinary insolvency proceedings [see FSB (2018b)]. In 2017, it published guidelines on resolution planning, identifying matters of significance for the design of resolution plans and strategies (e.g. the time of moving into resolution and the powers of the authorities) [see FSB (2017b)].³²

The measures available in resolution may be very similar to those described in a recovery process. However, both processes differ in their objectives. Recovery seeks to maintain the continuity of the clearing house, whereas resolution should focus on preserving financial stability, avoiding the use of public funds. For Cont (2015), the process should be based on a valuation of overall losses under different scenarios. In this connection, the effects on any institution that may be exposed should be included.

The potential impact of resolution on members emphasises the need for the process to be transparent. The resolution authority should, as far as possible, coordinate with banking supervisors in order to anticipate the impact of each measure, and thereby mitigate the risk of contagion.

30 See Art. 45.4 of EMIR.

31 Process whereby the losses are borne by the creditors: shareholders, bondholders and depositors.

32 Work is under way in Europe on a regulation on recovery and resolution of CCPs which, at the time of this article going to press, has not yet been adopted..

There are essentially two resolution alternatives. Firstly, to inject capital into the clearing house and restructure its obligations with clearing members and other participants. The challenge for this alternative is to obtain the necessary capital and, above all, the undertaking of the clearing members to continue operating through the clearing house.

Secondly, to transfer the CCP's obligations to another clearing house or to a bridge CCP. This alternative will be easier if there are institutions that offer the same products, have sufficient capacity and share common clearing members. That said, acceptance by the recipient CCP will be required, an aspect that is not ensured given that it will possibly be facing challenges of the same nature as the institution under resolution. Moreover, it will have to face highly complex processes such as the renewal of all contracts with members, access by the recipient CCP to all the information needed for the transfer of the positions and of the guarantees provided, or obstacles arising from different legal frameworks if CCPs operating in a different jurisdiction. In practice, the effectiveness of the resolution frameworks for CCPs has not been tested.

6 Benefits, costs and risks of centralised clearing

Some conclusions may be drawn from the previous sections regarding the costs and benefits of centralised clearing, and the implications for financial stability.

Centralised clearing offers, at least potentially, a series of economic and risk-mitigating benefits, both for participants and for the system as a whole. As indicated in section 3, one key benefit is that it allows multilateral netting in a legal and operational fashion, which has the potential to significantly reduce each member's aggregate exposure and, thereby, their capital requirements (if they are banks). This ease in netting positions, along with the standardisation of the contracts that are cleared, contributes to greater market liquidity.

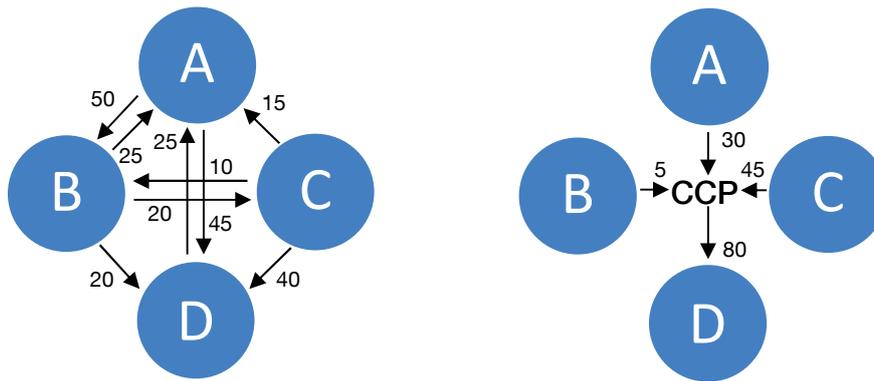
As the CCP is the counterparty to each of the positions, centralised clearing transforms the complex network of relations of a market with bilateral clearing into a simple and transparent network (see Diagram 4). This greater transparency allows market participants to better assess and manage their level of exposure thus facilitating a prudent risk management. It also makes it easier for the authorities to oversee and assess the overall risk in the system, and for the CCP to intervene swiftly if any member takes particularly large positions.

In contrast to bilateral clearing, a CCP provides a coordinated and predictable process when faced with defaults of members. Through this process, the positions of a defaulting member are closed out or replaced, thereby mitigating possible market disruption and the bouts of volatility this would entail, along with operational and legal risks.

6.1 SYSTEMIC RISK-MITIGATION

Some of the key characteristics of the functioning and structure of a CCP have the potential to reduce systemic risks in relation to a market dominated by bilateral clearing. This risk-reducing potential is what motivated, for example, the G20 authorities to promote centralised clearing.

Thus, the netting possibilities offered by centralised clearing result in less exposure for the market as a whole; and also diminished the position to be closed or replaced in the event of one or more clearing members failing, which will contribute to mitigating the impact on prices and on volatility. Further, the initial margin offers protection against default (reducing



the impact of this default) and the variation margin contributes to lessening the probability of defaults, since the losses are settled as they arise.

The fact the CCP is the counterparty to all positions places it in a better position to monitor and manage the counterparty risks associated with its exposure, and to intervene swiftly if necessary, e.g. by requiring margin calls or applying higher collateral haircuts that reduce the impact of defaults.

Moreover, the simplified network of interconnections entailed by a centralised structure of clearing and default management, with the CCP as the pivot, may reduce the potential for contagion and domino effects in the event of default. Finally, the loss mutualisation mechanisms (established in the default management process) may encourage clearing members not to take excessive risks, given that the contributions of clearing members to the default fund are proportionate to their exposures.

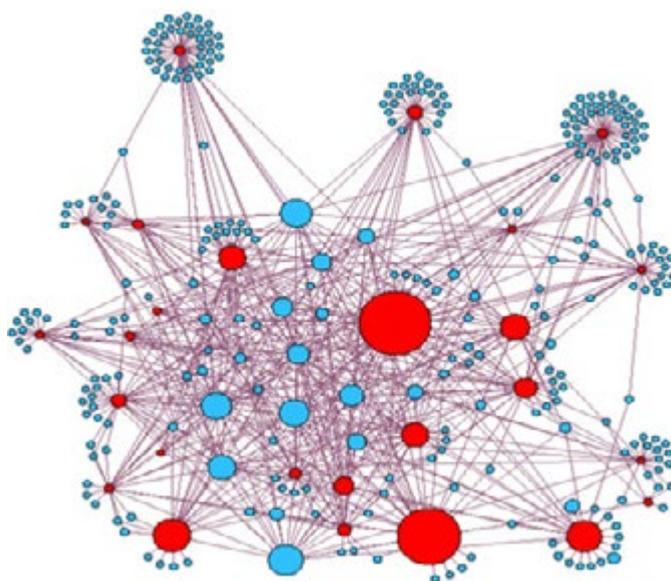
6.2 COSTS AND RISKS

Not everything is an advantage with central clearing. Participation in a CCP entails costs, in addition to posting of margins and capital requirements. The clearing members incur both fixed and variable operating costs, and collateral costs owing to the requirement to deliver highly liquid assets at short notice.

Clients also face fees, and operating and collateral costs, with these potentially be high enough to represent an entry barrier to centralised clearing. This is the case, in particular, for certain small clients or those with a highly defined directional portfolio [see FSB (2018c) and Slive *et al.* (2011)].

Participating in a CCP involves risks. The most significant is the counterparty risk vis-à-vis the CCP, and vis-à-vis all the other clearing members through possible loss mutualisation. Clients, for their part, face counterparty risk with their clearing members and, directly or indirectly (according to the model for clearing client transactions used) with the CCP [see Duffie and Zhu (2010a)].

In addition to counterparty risks (explained in previous sections), a CCP faces operational and liquidity risks. To perform its functions, a CCP needs sophisticated systems and procedures to calculate positions and initial margins, and to make the payments and charges relating to the variation margins. The possibility that such systems and procedures may not be appropriate means that the CCP faces operational risks. Indeed, the materialisation of this risk, that is not covered by the default waterfall



SOURCE: Reproduced from FSB (2018a). The nodes in red represent the CCPs, and those in blue the clearing members. The size of the nodes is proportional to that of the institution they represent.

is, potentially, one of the main causes of a CCP failing, other than that of default by a member (see Annex 4).

The liquidity risk a CCP faces arises from the large cash flows it moves, mainly as a consequence of the charges and payments entailed by the variation margin. CCPs should seek to optimise their investments, bearing in mind that they should be limited to instruments capable of being liquidated immediately (e.g. in the event of a member defaulting, the CCP should continue meeting its obligations with the other members). To mitigate this risk, the CCP should quantify daily its potential liquidity needs and pursue very prudent investment policies.³³

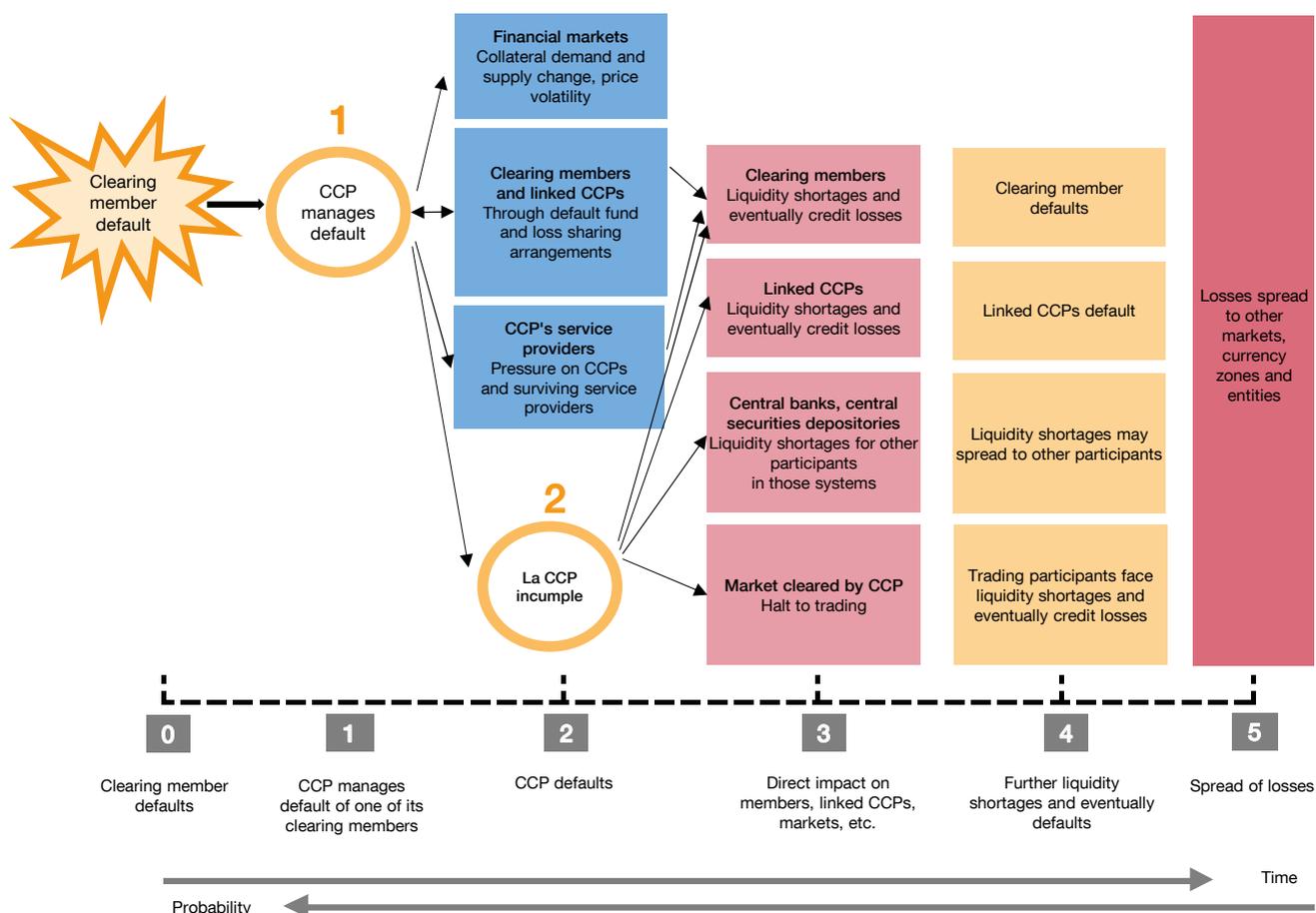
6.3 THE SYSTEMIC NATURE OF CCPS

As highlighted, the concentration of risks in CCPs means they become crucial nodes of the financial system with a most significant systemic nature. Their failure may suddenly expose their participants to severe losses, if they do not have the appropriate risk-management resources and procedures [see Duffie and Zhu (2010a)].

If the losses stem from the default of a clearing member, the very characteristics of CCPs that make the financial system more resilient may also be sources of instability. Ultimately, if a CCP had to go into recovery, or worse, into resolution, a chain of defaults by clearing members might take place, with devastating effects on the entire system. The risk of the CCP failing is remote, but not impossible. The serious consequences should it occur mean that CCPs should have rigorous controls, sound risk-management mechanisms and effective supervision [see Duffie (2010b)].

CCPs can contribute to the instability of financial markets, even in the absence of a default by clearing members. In particular, margin calls may have destabilising effects. For

³³ See Articles 44.1 and 47.1 of EMIR.



SOURCE: Prepared by the authors based on the Diagram 1 in Wendt (2015).

example, at times of market tension, the margins and haircuts required may increase drastically, as a result of the high volatility in underlying assets, thereby increasing tensions in what are already fragile markets. Moreover, the search by participants for liquid and safe assets to meet margins in a very short period of time may impose liquidity tensions on markets. A significant reduction in the market value of collateral might also have destabilising effects [see Milanese (2017)].

The systemic nature of CCPs is even more evident if two factors previously highlighted in the preceding sections are taken into account: the high concentration of clearing activity in very few CCPs (see Section 2); and the interdependencies observed (see Diagram 5). In relation to interdependencies, CCPs simplify the network of interconnections, but do not eliminate them. Clearing members are exposed to one another through the default fund and, potentially, through the use of recovery or resolution tools. In turn, CCPs are linked to other CCPs through interoperability agreements – although in practice, these are not very frequent – and, above all, by common members.

In particular, as seen in previous sections, there is a close interconnection between CCPs and the banking system. First, because the major banks are clearing members of the biggest CCPs. Second, the major banks are an important source of liquidity for the CCPs, their clearing members and their clients. And third, because the payments of margins depend notably on the transfers of deposits, the custodial services and the settlement

systems provided by the major banks (see Diagram 6). This close interdependency between banks and CCPs means that CCPs are affected by banks' risks, and vice versa.

The systemic nature of CCP has broadened further, with the mandates of clearing and the imposition of other regulatory initiatives, such as capital and margins requirements in bilaterally cleared positions that encourage centralised clearing.

In short, centralised clearing can have the potential to reduce systemic risks, and to strengthen financial stability. However, it poses some elements of systemic risk which should be addressed. Acknowledging this concern, regulators have expended considerable effort in order to strengthen the soundness and resilience of CCPs. For instance, they have demanded stricter risk management; rigorous stress tests; the introduction of measures to diminish the procyclicality of margins; the imposition of capital requirements on members in order to ensure that bank capital and liquidity cover the risks associated with banking exposure to CCPs; enhanced transparency; and reinforced supervision and cooperation among the authorities involved, both at the national and cross-border levels. More recently, the approach has been to develop robust recovery and resolution regimes for CCPs in order to ensure the continuity of their critical functions and, if necessary, to have the capacity to resolve the institution in a way that prevents or limits systemic risks.

7 Conclusions

In 2009, the G20 agreed to require the centralised clearing of standardised OTC derivatives. This decision was based on the benefits attributed to CCPs. Firstly, their capacity to significantly reduce the level of exposure of members to OTC derivatives (and of the market as a whole), thanks to multilateral netting. Secondly, the simplification and transparency of a traditionally opaque market characterised by bilateral relations. Thirdly, the existence of coordinated and predictable processes for default management, enabling clearing members to be aware of their level of exposure in the best interests of prudent risk management.

However, as set out in the article, not everything is advantages. A CCP's high volume of activity and the concentration of counterparty risk might expose the system to heavy losses if the institution does not have appropriate risk-management resources and procedures. And compounding this is the high degree of interdependency with its members and services providers.

For protection from counterparty risk, CCPs have lines of defence in the form of resources provided, in the main, by clearing members (initial margin, the variation margin and contributions to the default fund in the face of defaults). The CCP assigns a buffer of its own capital (skin in the game), that promotes prudent risk-management. The limited size of this buffer has often been questioned by clearing members and clients of CCPs. Indeed, real instances of losses due to default substantiate the fact that, when collateral provided by the defaulting member is insufficient, crisis management rests on the capacity of the other clearing members to contribute.

The loss mutualisation entailed by the use of the default fund and cash calls may translate into contagion risk if the CCP does not bear in mind the potential impact of the tools on members. Accordingly, it is essential that these measures should be as transparent and predictable as possible so that participants may estimate and manage their exposure to the clearing house. Appropriate risk-management by clearing members not only minimises the probability of default; it also reduces uncertainty over the possibility of providing additional collateral.

The CCP should have appropriate risk control and management systems, so that the collected collateral drawn together as margins is enough to cover losses in an extreme but possible scenario. The real instances of default recorded to date evidence that, generally, the default waterfall is sufficient. Consequently, the probability of a CCP failing due to a member's default is small, but not zero. If the default waterfall were to prove insufficient, the CCP (unlike banks) does not have high capital or debt instruments with the capacity to absorb losses. Hence, in recovery and resolution phases, the financial resources available are once again those that clearing members are capable of contributing. In a stressed scenario, clearing members may not have sufficient liquidity to support the survival of the clearing house. Hence, it is of vital importance that the CCP is robust enough to be able to properly manage default losses with pre-funded resources to prevent the entering into recovery or resolution.

On the side of the authorities, the systemic nature of CCPs and the risk of contagion emphasise the need to know what type of institutions act as clearing members and what their level of exposure is. As the article shows, a good number of the clearing members are banks which, often also provide services to the CCP. Furthermore, the fact that banks clear in a high number of clearing houses reinforces the interconnections between CCP, despite the fact that there are few interoperability agreements. This network of interdependencies takes on particular importance in those cases in which the most active clearing members are globally systemic banks.

The high presence of banks, and the direct impact on banks, as clearing members, of all the measures available to ensure the continuity of the clearing house (both in recovery and in resolution) requires close cooperation between the competent authorities at the level of CCPs and of banks, in recognition of the fact that the risks of both institutions are closely related. Early involvement and information exchange may contribute to minimising the most serious effects that the failure of a bank or a global CCP might have on the system as a whole.

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Annex 1 The obligation to centrally clear in different jurisdictions

THE CENTRAL CLEARING OBLIGATION, BY JURISDICTION

TABLE A.1.1

Jurisdiction	Instrument	Currencies/index	Maturity	Entry into force	Scope (c)	Threshold (d)
US	Swaps IRS (fixed-variable)	USD, EUR, GBP, JPY, AUD, CAD, HKD, MXN, NOK, PLN, SGD, SEK, CHF	28 d-30 y/50 y (a)			
	Swaps (basis, variable-variable)	USD, EUR, GBP, JPY, AUD		Mar-13	Financial institutions	10 bn USD
	FRA	USD, EUR, GBP, JPY, PLN, NOK, SEK	3 d-3 y			
	OIS	USD, EUR, GBP, AUD, CAD	7 d-2 y			
	CDS (index)	iTraxx Europe, iTraxx World, CDX.NA	5 a/10 y (a)			
Japan	Swaps IRS (fixed-variable)	JPY	0 d-30 y	Nov-12		
	Swaps (basis, variable-variable)	JPY	0 d-30 y	Nov-12		
	Swaps IRS	JPY/EUR	up to 5 y/10 y (a)	Jul-14	Financial institutions	300 bn JPY
	Swaps (basis)	JPY/EUR		Jul-14		
	CDS (index)	iTraxx Japan	5 y	Nov-12		
EU	Swaps IRS (fixed-variable)	USD, EUR, GBP, JPY	28 d-30 y/50 y (a)			
	Swaps (basis, variable-variable)	USD, EUR, GBP, JPY, NOK, PLN, SEK		Jul-16 (gradually) (b)	Financial and non-financial institutions	3 bn €
	FRA	USD, EUR, GBP, NOK, PLN, SEK	3 d-3 y			
	OIS	USD, EUR, GBP	7 d-3 y/10 y (a)			
	CDS (index)	iTraxx Europe	5 y	Feb-17 (gradually) (b)		1 bn €
Australia	Swaps IRS (fixed-variable)	USD, EUR, GBP, JPY, AUD	28 d-50 y			
	Swaps (basis, variable-variable)	USD, EUR, GBP, JPY, AUD	28 d-50 y	Apr-16	Financial institutions	100 bn AUD
	FRA	USD, JPY, AUD	3 d-3 y			
	OIS	USD, EUR, GBP, AUD	7 d-2 y			
Canada	Swaps IRS (fixed-variable)	USD, GBP	28 d-30 y/50 y (a)			
	Swaps (basis, variable-variable)	USD, EUR, GBP	28 d-50 y	Apr-17	Financial institutions	1 bn CAD
	FRA	USD, EUR, GBP	7 d-2 y/3 y (a)			
	OIS	USD, EUR, CAD	3 d-3 y			
China	Swaps IRS (fixed-variable)	CNY	5 d-3 y/5 y (a)	Jul-14	Financial institutions	ND
Hong Kong	Swaps IRS (fixed-variable)	USD, EUR, GBP, JPY, HKD	28 d-10 y	Sep-16 (gradually) (b)	Financial institutions	20 bn USD
	Swaps (basis, variable-variable)	USD, EUR, GBP, JPY, HKD				
	OIS	USD, EUR, GBP, JPY	1 d-2 y			
Korea	Swaps IRS (fixed-variable)	KRW	3 m-20 y	Jun-14	Financial institutions	1 bn KRW
Mexico	Swaps IRS (fixed-variable)	MXN	56 d-30 y	Apr-16 (gradually) (b)	Financial institutions	3 bn USD
Singapore	Swaps IRS (fixed-variable)	USD, SGD	28 d-30 y/50 y (a)	Oct-18	Financial institutions	3 bn USD
Switzerland	Swaps IRS (fixed-variable)	USD, EUR, GBP, JPY	28 d-50 y			
	Swaps (basis, variable-variable)	USD, EUR, GBP, JPY	28 d-50 y			
	FRA	USD, EUR, GBP	3 d-3 y	Sep-18 (gradually) (b)	Financial institutions	ND
	OIS	USD, EUR, GBP	7 d-3 y			
	CDS (index)	iTraxx Europe	5 y			

SOURCE: Prepared by the authors based on the information reported by jurisdictions to IOSCO. Available at: <https://www.iosco.org/library/informationrepositories/zip/20180920-Information-repository-for-central-clearing-requirements.zip>.

- a Depending on the currency or index.
- b Gradual entry into force depending on the type of the entity. In the EU, June 2019 is the effective date of the requirement for positions up to 8bn euros of both financial and non-financial institutions.
- c Generally, central banks, governments, IFI and intragroup positions are exempted from central clearing obligation.
- d The central clearing obligation does not apply to outstanding positions below the threshold.

Annex 2 Bis statistics on OTC derivatives

The BIS publishes statistics on OTC derivatives half-yearly.¹ The statistics are based on information provided by 13 central banks which, in turn, obtain the information from their main banks.² The information refers to outstanding positions in notional and gross market values, and is provided for several attributes: market segment (swaps, FRAs, options, CDSs, equity derivatives and exchange rate derivatives, among others), currency, maturity and counterparty.

Counterparties are classified into three types: another participant dealer (bank); other financial institutions; and non-financial institutions, the latter being a minor part. Regarding the category “other financial institutions”, a distinction has been drawn by type of institution (i.e. other financial institutions or banks that are not in the sample and CCPs) since June 2010 (for CDSs) and since June 2016 (for other derivatives).

In the case of positions reported by participant dealers whose counterparty is another dealer (bank) in the sample, the BIS halves the total for these positions to avoid double counting, since both the seller and purchaser are reporting the same operation. However, for positions whose counterparty is a CCP, the adjustment cannot be made since it is not known whether originally (i.e. before registration in the CCP³) the counterparty was a participant bank in the sample or other institution. Hence for these positions originally traded between two participant banks there will be double counting, since the two participant banks in the sample report the same transaction, with the CCP as counterparty. Nonetheless, if it is assumed that all outstanding positions with a CCP as counterparty relate to operations originally entered into with another participant dealer, it is possible to adjust the series of the above-mentioned double counting [see BIS (2018)]. In this connection, the total position with the CCP as counterparty is divided by two.⁴

To complete the series of centrally cleared swaps prior to 2016, the rates of change obtained from the information provided by ISDA (2016) on the volumes of swaps centrally cleared for the period 2007-2016⁵ have been applied to the figures for June 2016 given by the BIS. The series thus estimated are shown in Charts 1, 2 and 3 of the text. Since it has been assumed that all the outstanding positions with the CCP as a counterparty relate to operations originally entered into by participant dealers, the series estimated will have a degree of over-adjustment. This is because it is likely that at least a small portion of the positions with a CCP as a counterparty relate to operations originally entered into by a participant bank in the sample and another institution that is not a participant dealer.

1 Additionally, the BIS publishes a statistic every three years with information on trading and with a broader sample than for its half-yearly one, and a further statistic with monthly information on trading and open interest in relation to the exchange traded derivatives (ETD) markets.

2 The representativeness of the sample is, according to the BIS, very high: 100% in the CDSs segment, 98% in that of equity derivatives, 97% in that of interest rate derivatives (swaps, FRAs, etc.), 90% in that of exchange-rate derivatives and 90% in that of commodities derivatives.

3 Following the negotiation, when a transaction is centrally cleared, the CCP becomes the buyer of the seller and the seller of the buyer. This process is known as novation.

4 The adjustment is made for swaps and CDSs, since for exchange rate and equity derivatives the centrally cleared volumes are very small.

5 This type of exercise is not necessary for CDSs, since these began to be centrally cleared in 2009, and the series with a CCP as counterparty began in 2010.

Annex 3 Netting and portfolio compression

The change from one date to another in the outstanding volume, in notional terms, held by a CCP in a specific derivatives segment is, generally, less than the volume cleared during that period owing to three factors: maturity of contracts, netting of positions and portfolio compression.

The netting of positions consists of the full or partial offset of positions, registered on behalf of a clearing member or a clearing member's client, whose characteristics are identical (e.g. in a swap: maturity, fixed rate and variable rate of reference) but of the opposite sign.

The compression of derivatives portfolios is a netting procedure or technique whereby two or more counterparties substitute positions for another one, resulting in a lower outstanding notional amount but with the same net value and, therefore, with the same market risk.¹ This service requires the authorisation of the parties concerned.^{2,3} The reduction of the notional outstanding amount lessens the regulatory capital requirement and management costs. And that is why portfolio compression is particularly attractive for banks, subject as they are to capital requirements, on their exposures and those of their clients, in CCPs.

Portfolio compression services began to be offered in 2003 by Tri-Optima, for traded and bilaterally cleared swaps. The rise in CCPs' activity has contributed to increasing portfolio compression, since centralised clearing enables the use of sophisticated techniques for identifying positions that can be compressed.⁴

Portfolio compression and the netting of positions give rise to a notable reduction in the notional outstanding amount for the market as a whole. Thus, LCH Ltd reports that, in the year from December 2017 (with a notional outstanding amount of \$252 trillion) to December 2018, contracts for a notional value of \$1,952 trillion were cleared, contracts for a value of \$612 trillion matured, and a netting and portfolio compression for a notional

1 Formally, Art. 2 of Regulation (EU) 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments (MIFIR) describes portfolio compression as follows: "a risk reduction service in which two or more counterparties wholly or partially terminate some or all of the derivatives submitted by those counterparties for inclusion in the portfolio compression and replace the terminated derivatives with another derivative, whose combined notional value is less than the combined notional value of the terminated derivatives."

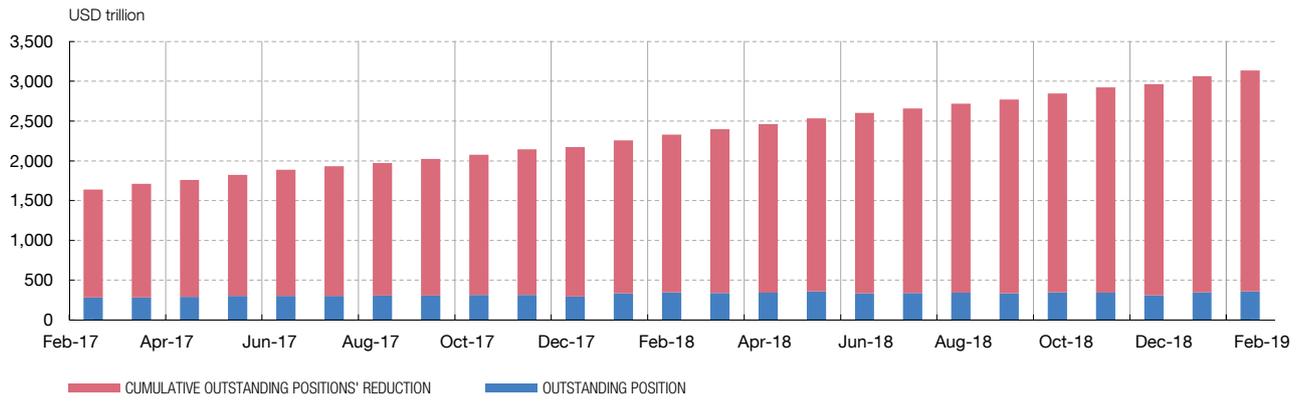
2 Example: banks X and Y bilaterally trade, not necessarily on the same date, two swaps: swap A with maturity of 10 years and a notional value of 100 M €, for which X pays variable Euribor 6M and receives 3% fixed, while Y pays fixed and receives variable, and swap B with maturity of 9.8 years and a notional value of 90 M €, for which Y pays variable Euribor 6M and receives 2.9% fixed and X pays fixed and receives variable. Further to authorisation by the parties, the CCP compresses the positions, replacing swaps A and B with swap C with maturity of 10 years and a nominal value of 10 M €, for which X pays variable Euribor 6 M and receives 3% fixed, and Y pays 3% fixed 3% and receives variable. Each of the parties has reduced its outstanding position from 190 M € to 10 M €. (Example taken from the Eurex booklet "Eurex Clearing netting and compression" June 2015).

3 Usually, CCPs also offer unilateral portfolio compression services, i.e. affecting only the positions of one participant. This is the case of the "rate blending" service, which requires positions of the opposite sign in swaps with different fixed rates and notional value, but the same reference variable rate and payment dates. The resulting position has a lower notional value and the same flows as the initial positions as a whole, with a blended rate (a combined fixed rate between the two initial rates), i.e. the same market risk. Example: bank X has a position in swaps for 10 M €, for which it pays 4% fixed and receives variable Euribor 6M, and a position in swaps for a notional value of 8 M €, for which it pays variable Euribor 6M and receives 3% fixed. These two swaps are replaced by one with a notional value of 2 M €, for which X pays 8% fixed and receives variable Euribor 6M.

4 See Schrimpf (2015).

OUTSTANDING POSITION AND REDUCTION DUE TO NETTING AND PORTFOLIO COMPRESSION

CHART A3.1



SOURCE: LCH SwapClear, *Monthly Statistics* (March 2019).

value of \$1,383 trillion, resulting in a notional outstanding amount as at December 2018 of \$309 trillion. Chart A3.1 describes the monthly changes in reductions due to netting and compression and in the outstanding position of LCH Ltd.

Annex 4 Cases of failure of CCPs and main defaults of clearing members

The failure of a CCP is a remote event. However, in recent decades, there have been cases in which, faced with a stressed scenario on the financial markets, inadequate risk-management practices have led to the insolvency of a CCP. This Annex details the basic characteristics of some of these events.

In 1974, the French CCP Caisse de Liquidation collapsed after a period of high volatility in sugar futures prices. Under this scenario, the CCP did not require of its clearing members new contributions to the initial margin that would reflect the increase in the expected loss derived from the high market volatility. Further, the clearing house was highly exposed to a single entity (Nataf Trading House). After recording default losses, the CCP required contributions of new resources of its members (margin calls), which were not met in all cases. The situation worsened (to the extent of leading to liquidation) owing to the lack of transparency in loss-allocation among the clearing members [see Gregory (2014), Kiff (2019)].

In 1983, the CCP Kuala Lumpur Commodity Clearing House went into liquidation following the collapse of the palm oil futures market. Six members, with high exposure to the clearing house, failed to meet their payment obligations and the CCP requested new contributions of the other members to cover these losses. As in the previous case, the CCP had not required new contributions to the initial margin. In fact, the government accused the CCP of inactivity in the period from the time at which the first signs of difficulties on the futures market were recorded, to the first default arising [see Gregory (2014), Kiff (2019)].

In 1987, Hong Kong Futures Exchange Clearing Corporation failed following the global crash in stock markets. The temporary closure of the Hong Kong stock exchange fuelled the mistrust of market participants regarding the sufficiency of financial resources available to cover losses, and the capacity of clearing members to make new contributions, if needed. Once the default losses were recorded, the CCP had to request additional contributions from shareholders and clearing members, which were not sufficient. Once again, among the causes behind the failure of the institution were the absence of appropriate margins-calculation policies (the CCP also failed to update the initial margin). Moreover, the CCP was not exposed to the losses arising from default, that is, there was not SIG [see Gregory (2014)].

The 1987 stock market crash also posed serious difficulties for the US CCPs Chicago Mercantile Exchange (CME) and The Options Clearing Corporation (OCC), owing to several clearing members defaulting on posting the variation margin. Both CCPs avoided collapse thanks to emergency loans. Table A4.1 summarises the most significant cases of CCPs with one or several members defaulting (some have been explained in the article).

CLEARING MEMBERS DEFAULTS, BY CCP
TABLE A4.1

Year	CCP	Amount of losses caused by defaults	Were the financial resources contributed by clearing members sufficient?
1985	Comex Clearing Association	\$ 9 millions	NO
1987	The Options Clearing Corporation	\$8.6 million	NO (the CCP requested an emergency loan)
1987	Chicago Mercantil Exchange (CME)	n/d	NO (the CCP requested an emergency loan)
1989	New Zealand Futures and Options Exchange	GBP 1 million	NO
1991	LCH Ltd	GBP 900,000	YES
1995	SIMEX	n/a	YEs (exceeded by \$86 million)
2000	New York Clearing Corporation (NYCC)	n/a	NO (the CCP contributed \$4 million to protect clients from losses)
2008	LCH Ltd	n/a	YEs (positions were auctioned succesfully)
2008	Hong Kong Exchange and Clearing (HKSCC)	n/a	NO
2008	Chicago Mercantil Exchange (CME)	n/a	YES
2013	Korea Exchange CCP	\$39.6 million	NO
2016	LCH Ltd	n/a	YES
2018	Nasdaq Clearing	n/a	NO

SOURCE: Prepared by the authors based on the information available in McPartland and Lewis (2017), Gregory (2014) and Nasdaq Clearing (2019).

NOTE: n/a shows that precise figures are not available.

PRESENTATION OF THE HIGH-LEVEL CONFERENCE
“THE NEW BANK PROVISIONING STANDARDS: IMPLEMENTATION CHALLENGES
AND FINANCIAL STABILITY IMPLICATIONS”

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PRESENTATION OF THE HIGH-LEVEL CONFERENCE
“THE NEW BANK PROVISIONING STANDARDS: IMPLEMENTATION CHALLENGES
AND FINANCIAL STABILITY IMPLICATIONS”

The Conference on the new bank provisioning standards, jointly organised by the Banco de España, the Centro de Estudios Monetarios y Financieros (CEMFI) and the Financial Stability Institute of the Bank for International Settlements, was held at the Banco de España’s headquarters in Madrid on 18-19 October 2018.

The Conference was opened by Pablo Hernández de Cos, Governor of the Banco de España, and the keynote speaker was Steven Maijor, Chair of the European Securities and Markets Authority. It was structured around five sessions followed by open discussions. Chairs and panellists were leading international figures from academia, the banking industry, and accounting, auditing and supervisory institutions.¹

Governor Hernández de Cos highlighted “...the relevance of the conference, given the importance of the correct measurement of credit risk. In this regard, the correct calculation of provisions plays a crucial role in the way banks manage appropriately their credit risk. A consistent level of provisions according to the risk profile of each bank will prevent any undesired impact on solvency levels, which would be the final resource to absorb any loss arising from the ordinary activity of banks that has not been eliminated before by the correct application of provisions. In addition, appropriate macroprudential tools in the hands of policy-makers might help reduce the volatility of credit and business cycles... Learning from the implications and interactions between the new provisioning standards and other types of regulations to which banks are subject – most notably financial market regulations and micro- and macro-prudential regulations – will prove a perfect topic for the final panel of the conference. In this regard, the Banco de España experience² with the setting-up of so-called dynamic provisioning,³ which shares many characteristics with the current countercyclical capital buffer and is close to the concept of the expected loss model, serves as a good example of how closely linked provisioning standards, capital and macroprudential policies are. From a financial stability perspective, the fact that supervisors are given macroprudential tools should allow us to deal better with lending expansions and contractions in order to protect the economy from financial excesses.”

Steven Maijor, in his speech entitled “Better to be good and on time than perfect and late: replacing incurred loss by expected loss”, stated that “...the change of the impairment model from the incurred loss to the expected loss marks a new paradigm. In my view, this change, at least partially, addresses the long acknowledged deficiency of accounting standards (“too little too late”) that manifested itself during the recent financial crisis and thus responds to the G20 mandate. This new paradigm allows earlier

1 The programme is available at https://www.bde.es/f/webbde/INF/MenuHorizontal/SobreElBanco/Conferencias/2018/Agenda_Oct2018.pdf.

2 See J. Saurina and C. Trucharte (2017), *The Countercyclical Provisions of the Banco de España 2000-2016*, for an account of the history of the dynamic provisions in Spain, their impact and lessons drawn for prudential policy.

3 See G. Jiménez, S. Ongena, J. L. Peydró, and J. Saurina (2017), “Macroprudential Policy, Countercyclical Bank Capital Buffers, and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments”, *Journal of Political Economy*, 125(6), for a thorough quantitative analysis of the countercyclical impact of dynamic provisions in Spain. A broader discussion of the interaction of dynamic provisions with monetary, fiscal and regulatory policy is in Á. Estrada and J. Saurina (2016), “Spanish Boom-Bust and Macroprudential Policy”, *Financial Stability Review*, No. 30, Banco de España.

recognition of losses and considers a broader range of forward-looking information in accounting provisions. However, the new provisioning model makes accounting for credit loss provisions more complex and introduces an additional layer of management judgment as well as discretion in estimating the forward-looking expected credit losses. This increased complexity and reliance on judgments will pose additional challenges in assessing objectively the provisioning approaches by external auditors but also by banking supervisors and accounting enforcers.”

Here is a short summary of the main issues presented in the five panels.

Session 1 was chaired by Fernando Restoy, and the panellists were Anne Beatty, Ohio State University, Amaro Gomes, International Accounting Standards Board, and Dina M. Maher, Federal Reserve Bank of New York. The panel focused on the evolution of the standards from the incurred loss to the expected loss approach. It offered a perspective on the process that led to the new standards, covering issues such as why and how the provisioning model has changed, the pros and cons of the alternative approaches, and the rationale for the differences between IFRS 9 and the incoming US GAAP.

Session 2 was chaired by Rafael Repullo, and the panellists were Juan Carlos García Céspedes, BBVA, Manuele Iorio, Price Waterhouse Coopers, and Stephen G. Ryan, Stern School of Business. The panel focused on the modelling challenges for the banking industry associated with the new standards, covering issues such as the differences and relationship between the models needed to compute the new provisions and the models already in use for regulatory purposes or for internal credit risk management, technical aspects that still need to be developed, data gaps, and the special challenges for small lenders or for specific market segments.

Session 3 was chaired by José María Roldán, Spanish Banking Association, and the panellists were Adam Farkas, European Banking Authority, Manuel Pérez de Castro, Banco Santander, and Raihan Zamil, Bank for International Settlements. The panel focused on model complexity and supervisory capabilities, including compliance costs, the extent to which banking organisations are prepared to reliably report under the new standards, the implications of model complexity for the accuracy and comparability of financial statements across institutions and over time, and the implications for internal organisation, risk management, product pricing, as well as for auditors and market and prudential supervisors.

Session 4 was chaired by Jesús Saurina, and the panellists were Claudio Borio, Bank for International Settlements, Pablo Pérez, Financial Stability Board, and Javier Suárez, CEMFI. The panel discussed the time dimension of bank provisioning standards from the perspective of financial stability, with special focus on their potential contribution to procyclicality. Will the expected credit loss approaches behind the new standards help reduce the cyclicality of bank profits, bank capital and credit supply? Are there aspects of the new standards requiring a potential adjustment at the micro- or macro-prudential level?

Session 5 was chaired by Ana María Martínez-Pina, Spanish Stock Exchange Commission, and the panellists were Germán López Espinosa, Universidad de Navarra, Alison Scott, Bank of England, and Fernando Vargas, Banco de España. The panel featured an interesting debate on the interactions between the new provisioning standards and the wealth of regulations banks are subject to. Topics discussed included the role of disclosures regarding the measurement of credit losses, whether auditors would be able to validate

the models used by banks, would bank capital be significantly affected by the new provisions, and should regulatory capital requirements be revised in any form to accommodate the new provisions.

This issue of the *Financial Stability Review* contains two contributions from the Conference by Claudio Borio and Juan Carlos García Céspedes, along with the perspective offered by Jorge Pallarés Sanchidrián and Carlos José Rodríguez García, micro-prudential supervisors from the Banco de España.

NEW LOAN PROVISIONING STANDARDS AND PROCYCLICALITY

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This article is the exclusive responsibility of the author and does not necessarily reflect the opinion of the Banco de España or the Eurosystem or the institution to which the author belongs.

Abstract

The adoption of the new expected credit loss provisioning standard – IFRS 9 – is a landmark. What are its implications for financial stability? While the new standard is likely to mitigate the procyclicality of the financial system to some extent relative to the previous, incurred loss model, it falls short by a significant margin of what one would like from a financial stability perspective. This points to broader inevitable tensions between accounting and prudential regulation, and calls for the active use of backstops (or so-called prudential filters) to preserve stability. Experience with the operation of the alternative dynamic (countercyclical) credit loss provisioning scheme adopted by the Banco de España points to some strengths and weaknesses in the broader macroprudential frameworks in which such arrangements are embedded.

1 Introduction

The adoption of the new expected credit loss (ECL) provisioning standard – IFRS 9 – is a landmark. It represents the end-point of a long – in some respects extraordinary – journey that started around 2000, with the emergence of more systematic concerns about the “procyclicality” of the financial system. It was these concerns that prompted the development of the conceptual underpinnings of macroprudential frameworks and the subsequent implementation of those frameworks post-Great Financial Crisis (GFC). To be sure, the adoption of the new accounting standard was not intended to address procyclicality per se; rather, it aimed to align the approach with the more forward-looking nature of fair value accounting generally. Even so, the change did follow an explicit request by the G20 and the Financial Stability Board in the context of how to deal with procyclicality.

The Banco de España has been a pioneer in this area, with its early adoption in 2000 of countercyclical (or dynamic) provisions [Saurina and Trucharte (2017)].

In what follows, I would like to broaden the focus a bit and address three questions. First, how far do the new provisioning standards address the procyclicality in credit loss provisioning? Second, what does this tell us about the tensions between accounting and prudential regulation and about potential remedies? And finally, have macroprudential frameworks fulfilled the expectations of their advocates, of whom I have been one [Borio (2003)]?

Let me anticipate the three answers. First, the new standards are likely to mitigate procyclicality to some extent relative to the previous, incurred loss model, but from a financial stability perspective they fall short by a significant margin of what one would like to see. Second, the tensions between accounting and prudential regulation are inevitable, calling for the active use of backstops (or so-called prudential filters). Finally, we need to be realistic about what macroprudential frameworks can do on their own: they are more effective in strengthening the financial system’s resilience than in taming procyclicality – or the financial cycle.

Let me take each point in turn.

2 New ECL provisioning standards and procyclicality

To understand how far the new ECL provisioning standard addresses procyclicality, it is useful to say a few words about the nature of the problem and how the Banco de España’s dynamic provisions tackled it. One can then compare the new standard with that benchmark.

Procyclicality denotes the financial system's tendency to generate financial booms and busts and, more specifically, those mechanisms that feed onto themselves to amplify financial fluctuations [Borio et al. (2001)]. At the core of those mechanisms is the self-reinforcing interaction between funding constraints, asset prices and risk-taking. For instance, during expansions funding constraints become looser, asset prices soar, risk-taking increases, triggering a vicious circle until the process becomes unsustainable and, at some point, that risk-taking reverses. As a result, booms generate busts.

Procyclicality arises for two reasons. One is that incentives to take on risk are procyclical. Think, for instance, of herding, just to mention one. The other is that, above all, measures of risk are procyclical, because the inputs are. During booms, asset prices soar, inflating collateral values, credit spreads narrow, volatility declines (it is inversely related to asset prices), correlations decline, reducing the volatility of portfolio returns and profits and free cash flows increase. During busts, these relationships reverse.

Put differently, procyclicality fundamentally changes the conception of risk [Crockett (2001)]. Risk is not low in booms and high in busts – the previous conception; but it builds up in booms and materialises in busts. The bust is a consequence of the boom that precedes it.

Of course, some procyclicality is inevitable and inherent in economic activity. But, unless restrained, procyclicality can give rise to outsize financial fluctuations, or financial cycles, that are typically at the heart of financial instability.

The previous incurred loss model of credit provisioning – IAS 39 – was clearly procyclical [Borio and Lowe (2001)]. In general, provisions could be made only when a loss impairment event or events had taken place. In the former terminology, they could be taken only when risk materialised. As a result, losses over the life of the credit exposure were underestimated during the boom. The scheme did not recognise those embedded in the portfolio.

The Banco de España's dynamic provisioning scheme tackled this problem head-on [Saurina and Trucharte (2017)]. To simplify: at inception, the provisions on a loan would be equal to the average loss made on similar loans during previous recessions. Those provisions would be released automatically as losses materialised.

One could, of course, take issue with some aspects of the scheme. For instance, it did not account explicitly for loan pricing, which should already incorporate an expected-loss element [Borio and Lowe (2001)]. And there was some inevitable arbitrariness in the selection of benchmarks for the size of the provisions. In fact, the chosen recession year – 1993 – turned out to underestimate by a very large margin the losses during the GFC. But the scheme had the great merit of being truly countercyclical, of being simple and, in particular, of having an automatic release mechanism. The importance of this last feature should not be underestimated. One should recall that it has proved exceedingly difficult to design a similar automatic release trigger for the countercyclical capital buffer. I was intimately involved in the process and, believe me, we did try! In the end, the Basel Committee on Banking Supervision could only produce general guidelines. This left plenty of room for discretion, making life harder for supervisors.

Against this benchmark, the new ECL forward-looking scheme falls short by a significant margin. Granted, the scheme correctly seeks to identify the losses embedded in the portfolio in good times: this is an important step forward. But its impact on procyclicality is much weaker. For one, the scheme leaves ample room for firms' discretion. They will still have a strong incentive to underprovision, especially in good times, and it will not be easy for auditors to correct this – just as it has not been easy for prudential authorities to address the biases embedded in banks' internal risk models. In addition, and above all, the scheme remains point-in-time. That is, it does not have the *in-built* look-back, mean-reverting element at the core of the Banco de España's dynamic provisioning scheme. Firms are simply asked to forecast losses over a particular horizon given available information, without the restriction of using the average or stress loss incurred over past cycles. As a result, provisions are still subject to the typically strong procyclicality of risk assessments.

Thus, compared with the incurred loss standard, the most we can expect from the new one is that it will bring forward some of the provisioning. Work done at the BIS, published in our Quarterly Review, confirms this intuition [Cohen and Edwards (2017)]. Better loss recognition in good times is very welcome. And if the scheme is properly implemented, recognition of higher losses in good times means recognition of smaller losses in bad times, ie less procyclicality. The extent, though, is to be seen and deserves close study. It will clearly depend, among other things, on the implementation details, not least the models used to forecast losses.

3 Accounting and prudential regulation: uncomfortable bedfellows

This naturally takes me to my second point – the uneasy relationship between accounting, on the one hand, and prudential regulation, on the other. We can call them two “uncomfortable bedfellows” [Borio and Tsatsaronis (2004)]. And in fact, the same is true of the relationship between accounting and sound risk management [Borio and Tsatsaronis (2006)].

The tensions between accounting and prudential regulation started to become irreconcilable once accounting shifted away from the “prudence” principle in order to provide a “true and fair” picture of a firm's condition. We could have a long discussion about what “true and fair” really means and about how far the principles really do that. Think, for instance, of the well known debate around “income smoothing” in the context of dynamic provisions [Borio and Lowe (2001)]. But there is little doubt that accounting standards are not always consistent with the requirements of financial stability. The incurred loss model example, and the acute procyclicality induced by fair value accounting more generally, are testimony to this.

A similar tension arises between accounting and sound risk management. Let me just quote from a famous firm's internal risk management manual:

“Reported earnings follow the rules and principles of accounting. The results do not always create measures consistent with underlying economics. However, corporate management's performance is generally measured by accounting income, not underlying economics. Risk management strategies are therefore directed at accounting rather than economic performance.”

This quotation happens to be from Enron's operating manual – and we all know what happened to that firm! But I suspect it could equally come from that of any other firm. Whether we like it or not, accounting drives incentives and hence behaviour – in fact, it

is designed to do precisely that. A kind of Heisenberg's uncertainty principle is at work here: how we *measure* valuations ends up *influencing* valuations, as agents respond to them – again, think of procyclicality. It is here that micro meets macro: what firms take as given in the small, such as market prices, is influenced by their collective behaviour. Measurement cannot be neutral: it affects what is being measured [Borio and Tsatsaronis (2006)]. Accounting doesn't just record facts, it alters those facts.

How can the tension between accounting and prudential regulation best be managed? I think it would be unrealistic to have accounting standard setters take financial stability into account: that is not their objective. Nor do I think they could be persuaded to re-adopt the principle of prudence. Except where bank supervisors have authority over accounting standards for banks and are prepared to override accounting standard setters, this is not a feasible option. That, of course, is what the Banco de España did with its dynamic provisions. And it is what a number of prudential authorities in Asia and Latin America are still doing [Restoy and Zamil (2017)]. The cost of doing so, however, is to clash head-on with the accounting profession, as it would get in the way of what they want and what they are mandated to achieve.

Short of that, prudential authorities have three options.

One is to argue with accounting standard setters on their own terms. Forward-looking provisioning principles are one such example. But, as noted, they do not go far enough from a financial stability perspective.

A second option is to persuade accounting authorities to require that firms disclose more risk information, notably information about the degree of uncertainty surrounding valuations. I argued for this many years ago [Borio and Tsatsaronis (2004, 2006)], and I am glad to see that standards have moved in that direction, in particular IFRS 7. But again, this is not enough for financial stability: the investors and depositors that should enforce market discipline are subject to the same measurement and incentive problems of the institutions they are supposed to restrain.

A third option is to adopt prudential backstops or filters to offset accounting valuations – a practice that has been in place for some time now. These measures can compensate for some of the shortcomings of accounting provisions by adjusting regulatory capital, possibly complemented with restrictions on dividend payments. To my mind, these filters are indeed indispensable.

The real issue is how to calibrate and structure them. There is a wide range of possibilities, from simply deriving adjustments based on information that contains a mean-reverting element, such as financial cycle indicators, to adopting the same type of adjustment embedded in the Banco de España's dynamic provisions – in effect, a simple through-the-cycle filter. With colleagues, we plan to look into this issue in more depth.

The advantage of such prudential filters is that they *decouple* accounting from regulatory valuations, allowing each authority to pursue its preferred objective [Borio and Tsatsaronis (2004)]. This advantage should not be underestimated. The disadvantage is the other side of the coin, ie the filters are less effective in enforcing market discipline on banks than changing accounting standards themselves. This is because they do not affect the bottom line earnings figures analysts and markets focus on.

4 Macprudential frameworks

Finally, some reflections on macroprudential frameworks, of which backstops for ECLs are just one element.

As an early strong advocate of such frameworks, I was very happy when they were adopted following the GFC. This has represented real progress.

But now the pendulum may have swung too far. There is a widespread belief that macroprudential frameworks are *the* solution to procyclicality. My personal assessment is that they are *part* of the solution, but not the *whole* solution. They unquestionably strengthen the financial system's resilience, as they reinforce its defences to face financial cycle busts. But they are less effective in restraining financial booms in the first place.

There is considerable evidence to that effect. In particular, the active deployment of macroprudential tools in some countries, mainly emerging market economies, has not prevented the emergence of the familiar signs of the build-up of dangerous financial imbalances – typically, cumulative credit growth and asset price increases, notably property prices, in excess of historical benchmarks. These elements are the basis of the early warning indicators that worked pretty well pre-GFC [Borio and Drehmann (2009)]. The Spanish experience with dynamic provisions confirms this assessment: according to the Banco de España's own analysis, dynamic provisions have not succeeded in restraining credit growth significantly [Saurina and Trucharte (2017)]. Admittedly, other measures, such as maximum loan-to-value ratios and debt service-to-income ratios, have a larger impact. But this does not alter the overall conclusion.

In my view, tackling the financial cycle requires a more holistic policy framework, which in addition to sound prudential standards also involves monetary and fiscal policy, and even structural policies. This is what we at the BIS call a “macro-financial stability framework”. We discussed these issues at some length in the latest BIS Annual Economic Report [Bank for International Settlements (2018)], and I examined them further in my remarks at our last Annual General Meeting [Borio (2018)].

In other words, there is a material risk that unrealistic expectations of what macroprudential frameworks can deliver on their own stands in the way of desirable adjustments in monetary and fiscal policies. I think we have seen signs of this danger materialising.

Of course, my assessment could be overly pessimistic. Only time will tell. Let's hope it will not take another crisis to find out.

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PROVISIONING MODELS VS. PRUDENTIAL MODELS

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Abstract

This article discusses the interaction of and relationship between accounting and capital rules. In 2018 accounting rules adopted IFRS9, changing the way provisions are calculated from an “incurred losses” to an “expected credit losses” paradigm (ECL).

Following a broad description of provisioning and prudential models, the author analyses in greater detail how IFRS9 affects average capital requirements and their cyclicity.

The conclusion is that under current capital requirement rules and the IFRS9 framework, both average capital requirements and their cyclicity will probably increase.

Additionally, the author examines the foundations of current capital formulas that were developed under the incurred loss provisioning system.

If it is true that ECL is a better predictor than the previous provisions mechanism, supervisors and regulators should conclude that a review of the capital requirement framework is needed in order to include this reduction in unexpected losses in the capital requirement calculation.

On the other hand, if ECL does not prove to be a better predictor for real losses than the previous provisioning methodology, accounting regulators should rethink the ECL concept.

1 Introduction

Recently accounting rules have adopted IFRS9, changing the way provisions are calculated from an “incurred losses” paradigm to a “conditional expected loss” paradigm.

The global financial crisis brought to the light the limitations of the incurred loss approach, summarized in the sentence “too little, too late”.

Consequently the G20 required accounting standard setters to define approaches to recognise credit losses which would be more forward looking, trying to include information about the (current and future) macroeconomic environment. In other words, the G20 was calling for the adoption of expected credit loss approaches for the computation of credit losses.

As Antonio Sánchez Serrano (2018) “Financial stability consequences of the expected credit loss model in IFRS9” says:

“Following the G20 mandate, there has been a move from incurred loss approaches for the recognition of credit losses to expected credit loss approaches. Since 1 January 2018, European banks follow the approach defined by IFRS 9, according to which, exposures are allocated to three stages depending on their relative credit risk. Overall, the timelier and fuller recognition of credit losses is expected to bring substantial benefits to financial stability¹.”

¹ If the reader is interested in understanding how works IFRS 9, there are some useful introductory documents included in the references' chapter like “IFRS 9, Financial Instruments Understanding the basics, PWC”, “IFRS 9 and expected loss provisioning - Executive Summary (December 2017). FSI Descriptive”, “In depth IFRS 9 impairment: significant increase in credit risk (December 2017), PWC” or Pilar Barrios and Paula Papp “FRS 9: A new model for expected loss provisions for credit risk” (January 2017).

“However, IFRS 9 is not going to be applied with perfect foresight. On the contrary, expected credit loss models would be able to anticipate downturns only shortly before their occurrence. At the onset, a system-wide sizable increase in provisions associated with expected credit losses can be expected, which may have undesired procyclical effects via banks’ profits and regulatory capital.”

“The paradigm shift in accounting for credit losses may call for a policy reflection on [...] the interaction with the current regulatory framework.»

The debate about the pro-cyclicality of IFRS9 is on the table and policymakers must understand the interaction between cyclicity, new provisions’ rules and capital requirements’ models.

More detailed information about cyclicity can be found in some references as “Jorge Abad and Javier Suárez (July 2017) - Assessing the cyclical implications of IFRS 9 – a recursive model” or “Harry Huizinga and Luc Laeven (May 2018) - The Procyclicality of Banking: Evidence from the Euro Area”.

This article is mainly focused on a particular facet of the cyclicity issue; the interaction between IFRS9 and capital (prudential) requirements, trying to analyze 3 basic questions:

- If IFRS9 will affect the average capital requirement level.
- If IFRS9 will affect the volatility of the capital requirement.
- If Basel II capital requirement formulas should be changed or adapted to take into account IFRS9.

The conclusion of section 7 seems to support the idea that the interaction between current capital requirement rules and IFRS9 will increase both, the average capital requirement and the cyclicity of the capital requirement².

Other relevant articles included in the references’ section are:

- Basel Committee on Banking Supervision (July 2005). “An Explanatory Note on the Basel II IRB Risk Weight Functions”; where the reader can understand the foundation of the capital requirements formula under internal models.
- “Expected credit loss approaches in Europe and the United States: differences from a financial stability perspective” (January 2019). European Systemic risk Board (ESRB); where the reader can learn about the different approaches followed by Europe and US on accounting provisioning.
- Jorge Abad and Javier Suárez (July 2017) “Assessing the cyclical implications of IFRS 9 – a recursive model” Occasional Paper Series No 12. European Systemic risk Board (ESRB), where authors simulate the behavior of a Financial

² As this paper is not a research article based on empirical work, you must be careful about the conclusions. This article does not expect to demonstrate that IFRS9 increases cyclicity with no doubt; however, it offers some hints that could be useful for future empirical papers.

Institution under a IFRS9 provisioning paradigm and show how capital cyclicality increases under different scenarios.

2 Provisioning models vs. prudential models

Recently, accounting rules have changed the way provisions are estimated. The previous accounting paradigm was based on the concept of “incurred losses”. Now, with the new changes implemented by IFRS9, the approach has changed from “incurred losses” to “Expected Losses”.

Expected losses (EL) are a new concept in accounting. However, in prudential regulation, expected losses are a key component in the capital requirement calculation.

From the implementation of Basel II regulation, Financial Entities can use internal models for calculating their credit risk capital requirements. The theoretical foundation of these internal models relies on the concept of unexpected credit loss.

A bank needs capital in order to cover unexpected losses.

From a prudential point of view, the role of provisions is to cover what is expected to happen however the role of capital is to cover what is unexpected to happen (but can happen).

It must be noted that this prudential point of view of provisions is different from the accounting point of view.

Before IFRS9 implementation, the role of provisions was to cover what has happened (that is, to cover incurred losses). This view has been recently modified with the new IFRS9 regulation. Under IFRS9 the role of provisions is to cover what is expected to happen.

Later we will see that, amazingly, what is expected to happen can be different from a prudential point or from an accounting point of view.

It could seem strange that accounting rules and prudential rules could differ given they deal about very similar concepts (at least theoretically), however, it must be noted that objectives of Prudential Regulation and accounting are quite different.

On the one hand “accounting regulation” is focused on the “value of assets” trying to give an unbiased view of that value to investors and other stakeholders. In that sense accounting is interested in estimating the level of loss associated to each loan in the Bank’s portfolio, given the current conditions but also future expected conditions³.

However, on the other hand, “prudential regulation” tries to establish and define backstops to achieve safest financial systems. In this sense, prudential regulation is focused on the “prudential value of assets” and how to guarantee that the amount of capital is enough to cover the prudential (stressed) value of assets under an adverse scenario.

³ This is one of the biggest characteristics of IFRS9. IFRS9 provisions consider the future expected evolution of the economy. IFRS9 is not only considering the current situation but it also tries to guess what is expected for the future.

Prudential regulation is not only interested in the current or expected level of loss but is also interested in the potential future level of loss under an adverse scenario (technically, prudential regulation tries to estimate a loss distribution percentile).

Although accounting and prudential regulations seem to use similar concepts (EL), their aim is clearly different.

3 Measuring the Expected Loss

In this section we will see that there are different definitions or approaches to measure the expected loss.

3.1 CONDITIONAL OR UNCONDITIONAL

First of all we will define two different concepts of expected losses, conditional expected loss vs. unconditional expected loss.

- Conditional expected loss is the expected level of loss given the macroeconomic state of the economy.
- Unconditional expected loss is the expected level of loss without taking into account the macroeconomic state of the economy.

Unconditional expected losses can be thought as the average of the conditional expected loss over all possible macroeconomic states.

Historically, prudential regulation has preferred unconditional models (later we will discuss on this more deeply).

In its explanatory note on the Basel II IRB Risk Weight Functions (July 2005), the Basel Committee on Banking Supervision defines capital as the loss surprise over the unconditional expected loss. On the other hand accounting regulation (IFRS9) has preferred to focus on conditional models.

3.2 TIME HORIZON

Also expected losses can be different depending on the “time horizon”. Typically there are two principal possibilities; “one year expected losses” vs. “lifetime expected losses”:

- One year expected loss is the expected level of loss for the next year.
- Lifetime expected loss is the expected level of loss considering the residual maturity of a loan or portfolio.

3.3 MIXING CONDITIONALITY AND TIME HORIZON

As the reader can imagine, both axis can be mixed so we can obtain 4 different concepts of expected losses:

One year unconditional EL

Lifetime unconditional EL

One year conditional EL

Lifetime conditional EL

As we will see later, IFRS9 uses conditional EL and, depending on the portfolio stage (1, 2 or 3), it uses one year EL (for Stage 1) or lifetime EL (for Stages 2 or 3).

On the other hand, Capital regulation uses unconditional EL⁴ and one year time horizon for non-defaulted assets or lifetime for defaulted assets.

Technical jargon also uses the name “Point In Time EL (PIT EL)” for conditional expected losses and the name “Through The Cycle EL (TTC EL)” for unconditional expected losses.

4 How is expected loss measured? IFRS9 vs. Capital models

As we have said in the previous section, Capital models and IFRS9 models use different approaches in order to measure expected losses.

Provisioning (IFRS9) models are based on conditional expected losses (for both PD's and LGD's) however capital models are based on a mixture of unconditional expected PD's (TTC) and stressed LGD's (unconditional “stressed” expected loss).

But also time horizons are different.

In order to estimate the adequate level of provisions, accounting models (IFRS9) have defined expected credit loss (ECL) as:

- Stage 1: “one year expected losses, using conditional PD's and LGD's”.
- Stage 2: “lifetime expected losses, using conditional PD's and LGD's”.
- Stage 3: “lifetime expected loss using conditional LGD's (PD=100%)”.

On the other hand, prudential regulation uses its own definition of Expected Loss (Capital EL):

- Non-defaulted assets: “one year expected losses using TTC PD's but Downturn LGD's⁵”.
- Defaulted assets: “lifetime expected loss BE (best estimate) plus additional unexpected losses (PD=100%)”.

It is important to note that segmentation is also different. IFRS9 uses “stages (1, 2 or 3)” but capital rules uses “defaulted vs. non-defaulted”, with the additional problem that there is no guarantee for a perfect match between both segmentations.

Normally Stage 1 assets are non-defaulted assets, Stage 3 assets are defaulted assets, but Stage 2 can be composed by both, defaulted and non-defaulted.

Next table shows a summary of the different approaches⁶. In order to facilitate the discussion, the table assumes that non-defaulted assets are Stage 1 plus Stage 2, and defaulted assets are equal to Stage 3 assets.

4 To be precise, capital regulation uses the concept of “downturn EL”, that is, an EL calculated using an unconditional PD and a downturn LGD.

5 Downturn LGD means “expected LGD under an adverse macroeconomic scenario” so Downturn LGD is basically a conditional expected LGD.

6 The discussion is mostly based on PD and LGD, however same issues apply to CCF (credit conversion factor).

		Stage 1	Stage 2	Stage 3
		Non Defaulted		Defaulted
Provisions	Time Horizon	One year	Lifetime	Lifetime
	PD's	Conditional	Conditional	100%
	LGD's	Conditional	Conditional	Conditional
Capital EL	Time Horizon	One year	One year	Lifetime
	PD's	TTC	TTC	100%
	LGD's	Downturn	Downturn	Best estimate + Unexpected

SOURCE: Own elaboration.

5 What does Unexpected Loss mean?

From the implementation of Basel II regulation, Financial Entities can use internal models for credit risk capital requirements (subject to the supervisor's approval).

The theoretical foundation of these internal models relies on the concept of unexpected credit loss (for a portfolio of loans).

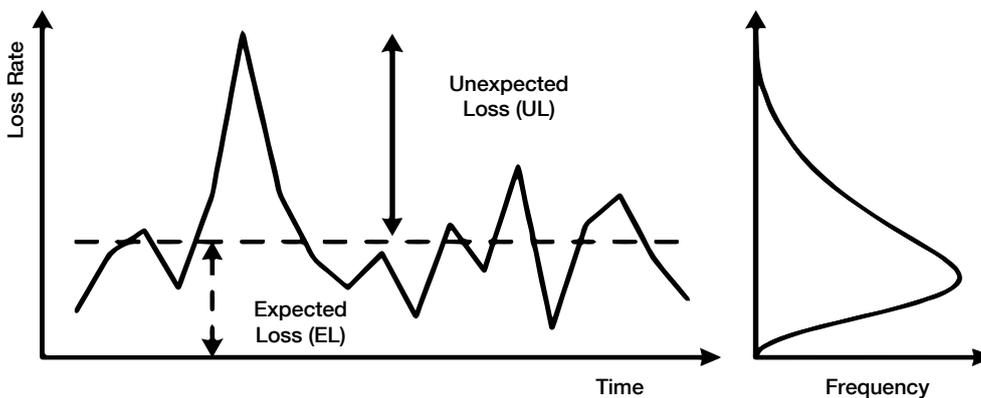
A bank needs capital in order to cover unexpected losses.

From a prudential point of view, the role of provisions is to cover what is expected to happen but the role of capital is to cover what is unexpected to happen (but can happen).

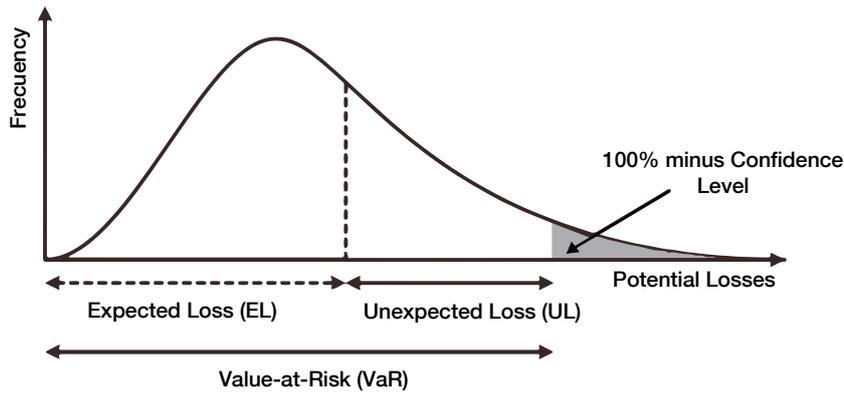
Next paragraphs and charts, are extracted from the document "An Explanatory Note on the Basel II IRB Risk Weight Functions", July 2005 Basel Committee on Banking Supervision.

EXPECTED LOSS, UNEXPECTED LOSS AND LOSS DISTRIBUTION

FIGURE 1



SOURCE: BIS.



SOURCE: BIS.

“... As explained above, banks are expected in general to cover their Expected Losses on an ongoing basis, e.g. by provisions and write-offs, because it represents another cost component of the lending business. The Unexpected Loss, on the contrary, relates to potentially large losses that occur rather seldomly. According to this concept, capital would only be needed for absorbing Unexpected Losses.”

“Nevertheless, it has to be made sure that banks do indeed build enough provisions against EL. Up to the Third Consultative Paper of the Basel Committee, banks had thus been required to include EL in the risk weighted assets as well. Provisions set aside for credit losses could be counted against the EL portion of the risk weighted assets - as such only reducing the risk weighted assets by the amount of provisions actually built. In Figure 2 above, this would have meant to hold capital for the entire distance between the VaR and the origin (less provisions).”

“... In the end, it was decided to follow the UL concept and to require banks to hold capital against UL only. However, in order to preserve a prudent level of overall funds, banks have to demonstrate that they build adequate provisions against EL. In above Figure 2, the risk weights now relate to the distance between the VaR and the EL only.”

From the previous paragraphs, it seems clear that Basel II prudential regulation assumes an unconditional expected loss and tries to measure the volatility of losses around the expected loss (see Figure 1)

The difference between the expected loss and a given percentile of the loss distribution is the minimum level of capital a financial institution must hold (see Figure 2).

Basel II uses “Asymptotic Single Risk Factor (ASRF) Models”, in order to estimate an analytical formula for the percentile of the credit loss distribution.

Fixing the confidence level (99,9%) and the level of assets correlations, capital requirement formulas can be deduced.

Next formula shows (a simplified version of) the Basell II risk weight functions, where explicitly it can be seen that the capital requirement is the credit loss percentile minus the unconditional one year expected loss:

Conditional PD (conditional on a single factor with probability of 0,1%)

$$\text{Capital Requirement} = \text{LGD}_{\text{DT}} \cdot \text{N} \left[\overbrace{\left((1-R)^2 - 0.5 \cdot \text{G}(\text{PD}) + (R / (1-R))^{0.5} \cdot \text{G}(0.999) \right)}^{\text{Conditional PD (conditional on a single factor with probability of 0,1%)}} \right] - \underbrace{\text{PD} \cdot \text{LGD}_{\text{DT}}}_{\text{Unconditional Expected loss with DT LGD}}$$

Unconditional PD

Or in a more condensed form:

$$\begin{aligned} \text{Capital Requirement} &= \text{LGD}_{\text{DT}} \cdot f(\text{PD}, R, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} = \\ &= \text{LGD}_{\text{DT}} \cdot f(\text{PD}, R, 0, 999) - \text{Capital EL} \end{aligned}$$

This approach assumes that Capital EL is adequately covered by credit provisions, however in order to guarantee this, Basel II require banks to compare their level of provisions with the expected loss⁷.

If it is not the case and the level of provisions is lower than Capital EL⁸, banks must cover this shortfall with capital.

Interestingly, in the case of a surplus of provisions vs. Capital EL, there is an asymmetry in capital regulation and this does not mean a capital surplus.

$$\begin{aligned} \text{CET1 Requirement} &= \left[\text{LGD}_{\text{DT}} \cdot f(\text{PD}, R, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} \right] + \\ &+ \text{Max} (0, \text{PD} \cdot \text{LGD}_{\text{DT}} - \text{Provision}) \end{aligned}$$

or

$$\begin{aligned} \text{CET1 Requirement} &= \left[\text{LGD}_{\text{DT}} \cdot f(\text{PD}, R, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} \right] + \\ &+ \text{Max} (0, \text{Capital EL} - \text{ECL}) \end{aligned}$$

Under Basel II, Capital requirement depends on:

- Confidence level (99,9%): fixed by the regulator.
- Correlation: fixed by the regulator.
- PD: The higher the PD, the higher the capital requirement⁹.
- LGD_{DT}: The higher the downturn LGD, the higher the capital requirement.
- The provisions shortfall (ECL vs. capital EL):
 - When capital EL > ECL: CET1 must be adjusted (reduced).
 - When capital EL < ECL: CET1 is not adjusted.

⁷ In fact this comparison must be done separately for defaulted and for non-defaulted assets.

⁸ Actually, remember that Capital EL is a kind of stressed EL, equal to PD x Downturn LGD. We can call "Capital EL" to this "stressed EL" calculated using a downturn LGD instead the average LGD.

⁹ This is true for low levels of PD. If PD is high enough (≥50%), capital requirements are decreasing in PD. If capital is identified as loss surprise, is PD is high there is little surprise, in fact if PD=100% there is no surprise at all.

6 Definition of default

An interesting issue that arises when analyzing accounting rules and capital rules is the definition of default (DoD) issue.

As we have seen, for capital requirement purposes there are only two possible “stages”, assets can be defaulted or non-defaulted and the Definition of Default (DoD) is established by the supervisor/regulator.

However, for accounting purposes, there are 3 possible stages:

- Stage 1 is where credit risk has not increased significantly since initial recognition. For financial assets in stage 1, entities are required to recognize one year ECL.
- Stage 2 is where credit risk has increased significantly since initial recognition. For financial assets in Stage 2 entities are required to recognize lifetime ECL.
- Stage 3 is where the financial asset is credit impaired. The concept of impairment must be aligned with the internal credit risk management. For financial assets in stage 3, entities are required to recognize lifetime ECL.

Recently, in order to homogenize DoD, European supervisors and regulators (ECB and EBA) have developed detailed rules (materiality thresholds, days past due counting rules, cures, treatment of forbearance).

An interesting question is how the definition of default impacts on Expected and on Unexpected Losses and, in a second step, how DoD can alter capital requirements.

Surprisingly, as we will see, a more conservative definition of default does not automatically mean a higher capital requirement.

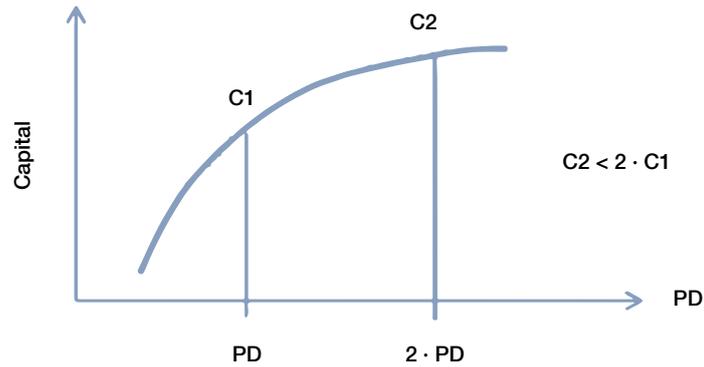
Clearly credit loss does not depend on the definition of default. Credit loss is the loss suffered because a client/counterparty does not comply with its contractual obligations and this loss is independent of the “definition of default”. Given that credit loss does not depend on DoD, also EL does not depend on the DoD.

DoD basically permits to separate the effect of default between PD and LGD:

- A more conservative DoD means a higher level of PD and, at the same time, a lower level of LGD.
- On the other hand a less conservative DoD means a lower level of PD and, at the same time, a higher level of LGD.

But, independently of the DoD, the product of PD times LGD will keep constant.

The same discussion could be applied to the unexpected credit loss, to change the DoD should not affect the unexpected credit loss.



SOURCE: Own elaboration.

However, things are different when we talk about the capital requirement formula:

$$\text{CET1 Requirement} = [LGD_{DT} \cdot f(PD, R, 0, 999) - PD \cdot LGD_{DT}] + \text{Max}(0, \text{Capital EL} - \text{ECL})$$

It must be noted that $f(PD, R, 0, 999)$ is a concave function on PD but Capital requirement formula is linear on LGD.

- If LGD doubles, then Capital requirement also doubles.
- If PD doubles, then capital requirement is less than the double.

As it can be seen in Figure 3.

In summary:

- A more conservative DoD implies higher levels of PD.
- A more conservative DoD implies lower levels of LGD.
- A more conservative DoD should not affect EL.
- A more conservative definition of default implies lower levels of Capital requirement.

Given that the Capital requirement (under Basel II) depends on the DoD, supervisors, in order to guarantee level playing field are strongly committed to assure that Financial Entities use the same DoD.

In this sense, for example, in Europe regulators/supervisors are publishing very detailed rules and guides about the definition of default.

7 Some thoughts about capital EL and ECL cyclicity

There is a debate about if IFRS9 will increase or not profit & loss cyclicity. Very close to this debate, there is another additional debate about how IFRS9 will interact with capital requirements and if finally capital requirements under IFRS9 provisioning rules will be more (or not) cyclical than it previously was (under incurred losses paradigm).

Perhaps it is worth to think about “how the real world is”, independently of “how the real world is translated into an accounting entry”.

Maybe the reader agrees with the statements below:

- Real Credit Losses are cyclical (meaning that there are periods of high level of credit losses and periods of low level of credit losses).
- Real Credit Losses do not depend on accounting rules (meaning that real credit losses are generated by defaulted loans independently of the level of allowances or how these allowances are estimated).

On the other hand, if we remember the capital (CET1) requirement formula under IFRS9 rules,

$$\text{CET1 Requirement} = \left[\text{LGD}_{\text{DT}} \cdot f(\text{PD}, \text{R}, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} \right] + \text{Max}(0, \text{PD} \cdot \text{LGD}_{\text{DT}} - \text{ECL})$$

Or

$$\text{CET1 Requirement} = \left[\text{LGD}_{\text{DT}} \cdot f(\text{PD}, \text{R}, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} \right] + \text{Max}(0, \text{Capital EL} - \text{ECL})$$

In the previous equation we see clearly how IFRS9 interacts with capital.

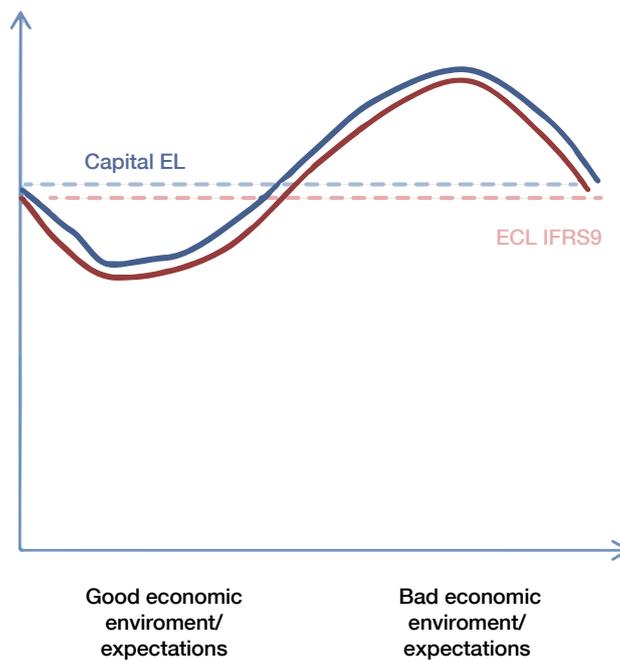
The second part of the previous equation is an “asymmetric” adjustment that depends on the difference between the level of provisions driven by IFRS9 rules (ECL) and the EL used in capital calculation (Capital EL).

ECL:

- Based on conditional PD’s.
- Time horizon: 1Y (Stage 1) or lifetime (Stage 2 and 3).

Capital EL:

- Based on unconditional PD’s (Trough the cycle).
- Time horizon: 1Y (for non defaulted assets) or lifetime (for defaulted assets) or if we assume that the definition of default is equal to the Stage 3, 1Y (Stage 1 and 2) or lifetime (Stage 3).



SOURCE: Own elaboration.

7.1 DIFFERENCES ON DYNAMIC EVOLUTION BETWEEN "CAPITAL EL" AND "IFRS9 ECL"

Assuming a common definition of default for both, capital regulation and IFRS9, basically there are 3 possible situations:

- "Defaulted/Stage 3" assets.
- "Non defaulted/Stage 2" assets.
- "Non defaulted/Stage 1" assets.

Next three sections will analyse the probable evolution of Capital EL and ECL for the previous 3 assets' status and under different macroeconomic scenarios.

7.1.1 "Defaulted/Stage 3" assets

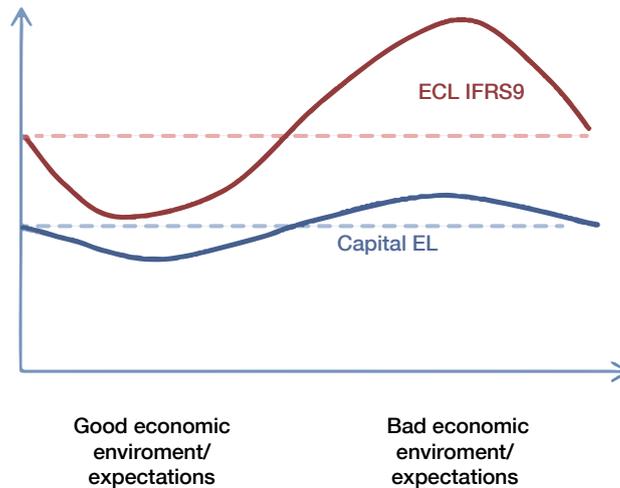
In this case, both, Capital EL and ECL are "lifetime losses".

Capital EL will evolve depending on two basic drivers, the amount of defaulted assets (or stage 3) and the evolution of the "Downturn LGD".

IFRS9 ECL will also evolve depending on two basic drivers, the amount of Stage 3 assets (or defaulted assets) and the evolution of "conditional LGD", in general "Downturn LGD" will be higher than "conditional LGD", especially in good times, so ECL will be in general lower than Capital EL.

Anyway, the main driver for the evolution of both, capital EL and ECL will be the amount of defaulted/Stage 3 assets, that clearly is a very cyclical variable. For good times, the amount of defaulted or Stage 3 assets will be low, however, in bad times defaulted/stage 3 assets will increase significantly.

Figure 4 illustrates the typical shape of the evolution of the Capital and ECL through the cycle.



SOURCE: Own elaboration.

7.1.2 “Non defaulted/Stage 2” assets

In this case, Capital EL is a one year EL, however, ECL for Stage 2 assets is a lifetime loss.

Capital EL will evolve depending on three drivers, the amount of Stage 2 assets, the evolution of “one year PD through the cycle” and the evolution of “Downturn LGD”.

Both elements, 1 Year PD TTC and Downturn LGD, should be quite stable over time, so main driver of the evolution of capital EL should be, as previously said, the amount of (Stage 2) assets that, again, should be very cyclical. In bad times, the amount of stage 2 assets should increase materially.

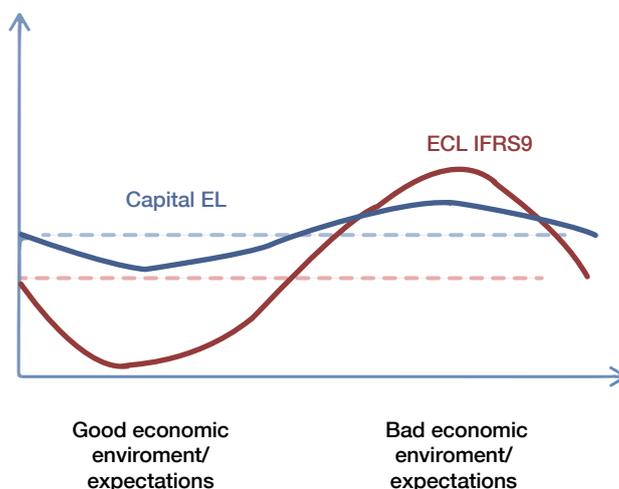
On the other hand, IFRS9 ECL will evolve also depending on 3 drivers, the amount of Stage 3 assets, the evolution of the “lifetime PD” and the evolution of LGD.

ECL should be in general higher than EL because:

- Amount of Stage 3 assets is equal for both.
- Downturn LGD should be in general higher than LGD.
- However, 1 year PD should be in general much lower than lifetime PD. Only for short term portfolios (typically less than 1 year) and in good times, conditional lifetime PD could be lower than PD TTC.

The combination of the three previous elements will drive the evolution of capital EL and ECL evolution, and, if assets average residual maturity is large enough, lifetime PD will make the difference.

Figure 5 illustrates how Capital EL and ECL evolution could evolve through the cycle:



SOURCE: Own elaboration.

- In good times, it should be expected a slightly higher ECL than EL (basically because ECL is lifetime and capital EL is one year).
- In bad times clearly ECL should be considerably higher than EL due to both, lifetime horizon and the use of conditional PD's for ECL vs. 1 year TTC PDs for Capital EL.

7.1.3 “Non Defaulted/Stage 1” assets

In this case, both, EL and ECL are one year losses, however EL uses TTC PD's and stressed LGD and ECL uses PIT PD's and LGD's.

In this case, the cyclicality driven by the amount of Stage 1 assets should be much lower than in the previous two cases, and in fact it should be countercyclical (in bad times the amount of stage 1 loans would decrease).

Under this framework it should be expected that in good times ECL should be lower than Capital EL and, on the other hand, in bad times ECL should be higher than Capital EL as Figure 6 shows.

7.1.4 Mixing all segments

Adding all previous effects into one picture:

ECL VS. CAPITAL EL

TABLE 2

	Good times	Bad times
Stage 1	Shortfall	Similar
Stage 2	Surplus	Surplus
Stage 3	Shortfall	Similar
All portfolios	Slight shortfall	Surplus (Stage 2)

SOURCE: Own elaboration.

It can be expected that in good times, the difference between ECL and Capital EL, at aggregate level, should not be very material (with Capital EL perhaps slightly higher than ECL). However, in bad times, ECL should show a surplus when compared to Capital EL¹⁰.

However, remembering the capital formula, the factor that takes into account the difference between Capital EL and ECL is highly asymmetric:

$$\text{CET1 Requirement} = \left[\text{LGD}_{\text{DT}} \cdot f(\text{PD}, \text{R}, 0, 999) - \text{PD} \cdot \text{LGD}_{\text{DT}} \right] + \text{Max}(0, \text{Capital EL} - \text{ECL})$$

This means that:

- In good Times: It should be expected a slightly shortfall:
 - The level of provisions is lower than the Capital EL.
 - The shortfall is adjusted in capital increasing the capital requirement.
- In bad Times: It should be expected a Surplus:
 - The level of provisions is higher than the Capital EL (affecting P&L).
 - The surplus is not adjusted in capital (there is no reduction in capital requirements).

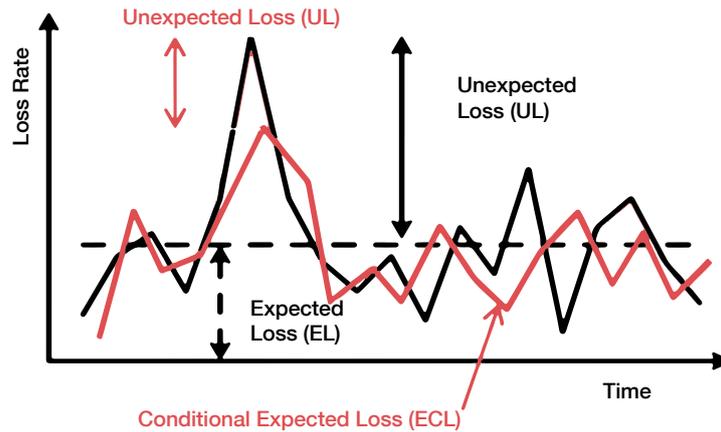
This means that under the current capital rules and using IFRS9 framework for provisioning:

- a) In average (averaging good and bad times), capital requirement would increase, because ECL does not match exactly with Capital EL and the capital adjustment that takes into account this mismatch is asymmetric.
- b) But also, Capital requirement would be more volatile, for example, all other things equal, and given that IFRS9 provisions are based on conditional estimations, a future expected change in macroeconomic scenarios would affect “now” the level of provisions (increasing or decreasing ECL) and consequently would affect capital ratios, positively or negatively, increasing volatility.

8 Should IFRS9 provisioning framework affect capital requirements?

As we have discussed previously, Basel 2 models were basically designed for estimating the unexpected loss, considering that the expected loss should be well covered by provisions. Capital is basically the unexpected loss, understanding this unexpected loss as the difference between the “real loss” and the (unconditional) expected loss.

¹⁰ If we analyse the difference between Capital EL and ECL through the cycle (averaging good and bad times), ECL should be higher than Capital EL because in stage 2 ECL is lifetime but Capital EL is 1 year.



SOURCE: BIS and own elaboration.

However, under IFRS9 things are quite different. ECL is estimated as a conditional EL, so this means that IFRS9 tries to estimate the future level of losses (one year or lifetime) given the current (and future) macroeconomic scenarios.

Figure 7 illustrates a theoretical evolution of the three concepts, the EL, the ECL and the “real loss”.

In this case, we see as ECL changes over time, trying to “predict” the future level of real losses.

If we consider that ECL is a better predictor for the real level losses than it is the unconditional EL, it should be expected that the red line fits real losses (black line) better than the dashed line (dashed line is flat given it is an unconditional EL that does not take into account any future expectation).

In this is the case, the unexpected loss calculated as the difference between the red line (ECL) and the black line, should be lower than the unexpected loss calculated as the difference between the dashed line and the black line.

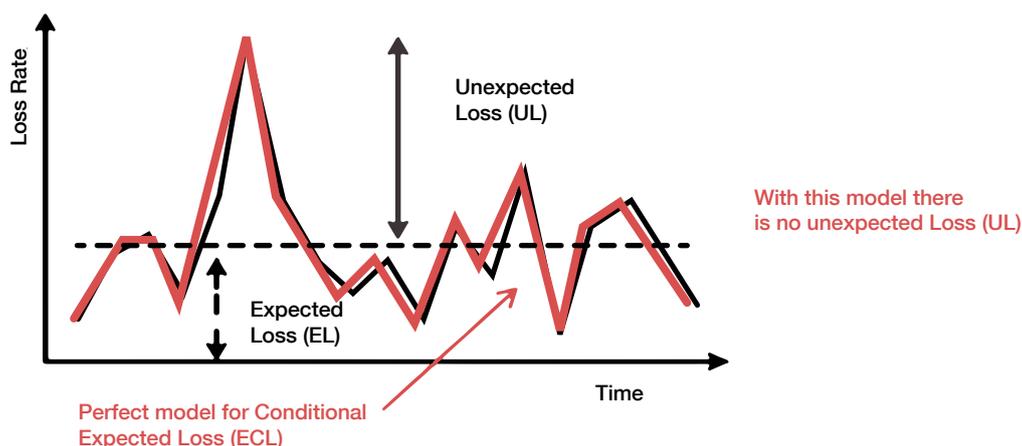
So, if provisions are based on “conditional expected losses” (red line) makes little sense to estimate unexpected losses comparing the percentile of the loss distribution with an EL based on a mixture of unconditional PD’s and DT LGD’s (Capital EL).

Perhaps the idea can be better understood if we analyze what happens in the limit.

Imagine a “perfect” IFRS9 model, where ECL would be a “perfect” predictor of real credit losses (one year or lifetime depending on the portfolio).

In this case, Banks would not need capital to cover unexpected credit losses. Credit losses would be perfectly covered by the amount of provisions because credit losses are no longer random.

Figure 8 shows in the limit, what would happen under an error free ECL model.



SOURCE: BIS and own elaboration.

In this case, all cyclical effects would be captured via P&L but there would be no need to maintain a credit risk capital requirement¹¹.

Obviously, It can be argued that there is no such thing as an “error free model”. That is true, however, it can be also argued that a conditional EL model should be at least equal (or better) than an unconditional EL model so under IFRS9, credit risk capital requirements should be lower than under an unconditional EL model for provisioning¹².

As a summary, under IFRS9 paradigm:

- Provisions are equal to ECL where ECL is basically a conditional expected loss (with different time horizons depending on the “stage”).
- If we consider that capital requirement should cover “loss surprises”, then capital requirement should be calculated as the difference between the real loss and the ECL (instead being calculated as the difference between the real loss and the unconditional expected loss).
- If ECL is better forecast for futures real losses (than incurred losses or unconditional expected losses), the level of “loss surprises” should decrease and, consequently, the level of capital requirement should also decrease.
- As results of previous points, from a theoretical point of view, changing provision rules from incurred losses to conditional expected losses should affect the Basel II capital formula itself.
- Additionally, the asymmetric adjustment included in the Basel II capital formula, that takes into account the difference between provisions and Capital EL, causes, on the one hand, additional cyclical effects and, on the other hand,

¹¹ Obviously, there are other risks not covered by ECL that can generate unexpected losses that would require a capital buffer (business risk, model risk, market risk, operational risk...).

¹² Perhaps, a IFRS9 backtesting exercise would be a useful tool in order to determine the ECL forecast capacity. The higher the ECL forecast capacity, the lower the capital requirement.

increases, in average, capital requirements if we compare the previous provisioning model (incurred losses).

9 Some words about modelling and management challenges

In order to estimate different parameters needed for ECL or Capital EL calculation (principally conditional or unconditional PD's, LGD's) Financial Institutions face some common challenges. Most of them relate to historical data, mostly lack of historical data or historical data biased:

- The historical databases used to estimate PD's are composed of loans that have been approved by the Entity's risk policies (bias).
- A similar issue appears when estimating LGD's, all the defaulted loans have passed the Entity's workout process (bias).
- Risk policies are not static, they evolve in time, introducing additional bias. A historical change in risk policies can affect the validity of the database.
- Also regulation evolves, affecting risk parameters (for example bankruptcy laws, definition of default...)
- In summary: Risk parameters (PD's, LGD's, CCF's) are estimated based on historical information obtained from changing portfolios, policies, practices, rules, laws...

Previous issues also difficult models backtesting and, if that weren't enough, historical data is additionally affected by economic cycles making backtesting even more difficult.

A classic claim of supervisors is about the use of this credit models also for management purposes. Clearly, If a provisioning or a capital model is also used for management purposes, that adds an additional comfort layer to the supervisors.

There are different uses of these type of models for managements, among them:

- Loan approval: Are the PD's and LGD's used in order to decide loan approval?
- Loan pricing: Are expected losses took into account in order to decide the loan price (credit spread)?
- Workout strategies: Do workout strategies take into account expected LGD in order to define processes, priorities, workflows...?
- Capital planning: When deciding the capital ratio target, does the entity take into account portfolio's risk parameters?
- Stress test: How is stress test built? Is the stress test taking into account conditional expected losses in a consistent way and aligned with other conditional expected loss models like ECL?

All this questions are clearly relevant for both, supervisors and supervised entities.

However there are several practical problems for using this type of models in management.

As we have seen, capital models and provision models are different, so the first question is which one should we use?

On the other hand, and specially dealing with capital models, these models are subject to a very detailed set of conditions, including conservative (or prudential if you prefer) adjustments that makes difficult their use for managing purposes. Should Financial Entities use those “conservative” parameters defined by the supervisor for management? If the answer to this question is yes, how financial entities should adapt their management models in order to include those conservative parameters?

Finally, management practices can evolve very quickly, for example new scoring models based on big data analysis. However, capital models need the supervisor’s prior approval.

What happens when the supervisor is deciding the approval of a model for capital purposes but, at the same time the entity is already using that model for loan approval/pricing?

Or even worse, what happens when the supervisor does not approve a model capital calculation but that model is used for management?

Can management models and supervisory models be different? How to align both worlds?

These are critical questions with no easy answers that already are generating frictions among supervisors and financial entities.

10 Conclusions

Recently accounting regulation about provisions have changed deeply replacing the “old” incurred loss model by a “new” expected credit loss (ECL model), however, at the same time, capital regulation¹³ has basically remained unchanged.

This article shows some of the interactions between prudential and accounting regulations, bringing to light some inconsistencies derived from changing provisions rules but at the same time, maintaining the original capital requirement framework.

The ideas and examples presented in this article should question the impact of IFRS9 on capital requirements, at least in two lines:

- a) The asymmetric characteristic of the capital requirement formula combined with the higher cyclicity over the capital EL implies that in average, capital requirements probably will increase.
- b) The additional cyclicity of IFRS9 will also probably increases capital requirements procyclicality.

This article does not expect to demonstrate previous two points with no doubt; however, it offers some hints that could be useful for futures empirical papers.

One interesting line of future empirical research could be to analyze if under IFRS9 the unexpected losses have been reduced (when comparing with incurred losses framework). If it is true that ECL is a better predictor than the previous provisions mechanism, supervisors and regulators should conclude that a review of the capital requirement

¹³ Capital requirement formulas remain unchanged from the introduction of internal models.

framework is necessary in order to include this reduction in unexpected losses in the capital requirement calculation.

If, on the other hand, ECL happens to be worse as a predictor for real losses than the previous provisions methodology, accounting regulators should probably rethink the ECL concept.

What, from a theoretical point of view sounds strange, it is to maintain two models that seems to present inconsistencies between them. The capital model, assuming that the best prediction for credit losses is the unconditional expected loss and, the accounting model, that considers it is possible to better estimate credit losses based on conditional expectations.

Undoubtedly, the debate about the procyclicality of IFRS9 will continue, much focused on the direct effect of IFRS9 on P&L, but there is also an additional debate about how capital requirement rules should be affected by the new provisions paradigm.

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UNVEILING THE EXPECTED LOSS MODEL IN IFRS 9 AND CIRCULAR 4/2017

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This article is the exclusive responsibility of the authors and does not necessarily reflect the opinion of the Banco de España or the Eurosystem.

Abstract

As a result of the Great Financial Crisis, the G-20 requested that the accounting standard setters change the model for estimation of credit losses (or “provisions”). Following this mandate, the “expected loss” model replaced the “incurred loss” model in order to favor a more timely and adequate estimation of credit losses. We explain that, from a conceptual perspective, the expected loss model may help to achieve this goal because it requires credit losses to be recognized from the origination of the transaction and the level of provisions to be increased when the credit quality of the transaction worsens but it has not defaulted. The scant data available so far seem to confirm these conceptual insights. Some criticisms of the expected loss model allude to its pro-cyclicality, without considering that an efficient accounting standard should not repress volatility, by giving a false image of stability, as the incurred loss model did. The expected loss model allows for greater subjectivity in its application, but this subjectivity must be understood in a positive manner so as to anticipate more accurately future credit losses, not leaving room for earnings management practices. We campaign for an adequate implementation of the standard as an essential tool to achieve the objectives of all stakeholders (preparers, auditors, regulators and supervisors).

1 Introduction

In the undertow of the global financial crisis in 2008, G-20 leaders asked for to change the “incurred loss model” in International Accounting Standard 39 (IAS 39), which they criticized as a “too little and too late” recognition of credit losses. To overcome this inefficiency, International Financial Reporting Standard 9 (IFRS 9) introduced a new accounting impairment framework based on an “expected loss” model.

1.1 OBJECTIVE OF THE ACCOUNTING INFORMATION

Financial reports seek to provide useful information to a large number of users, investors being the primary users. In this regard, it is crucial to underpin the objective, usefulness and limitations of financial reporting gathered under the IFRS Conceptual Framework.

For accounting standard setters, as commented by Hoogervorst (2017), their primary goal is to develop standards that bring transparency, accountability and efficiency to financial markets. In doing so, they encourage not only trust and growth, but they also support the long-term financial stability of the global economy. However, fostering financial stability is not the primary aim of accounting standards. It is primarily the remit of prudential regulators and supervisors, whose task is to safeguard the solvency of the financial system.

1.2 INCURRED LOSS MODEL DEFICIENCIES

It could be argued that the incurred loss model led to adverse effects on the relevance of financial information and on financial stability. These adverse effects are a manifestation of “the great turkey problem” posed by Taleb (2012).¹ A turkey is fed regularly by a butcher; every day that passes, the turkey confirms “with increased statistical confidence” that the grain is delivered by the butcher in due course; until a day before Christmas Eve² when the butcher not only does not feed the turkey but dispatches it to the poultry store. The turkey uses evidence, ignores Christmas Eve, and makes future projections based on the past.

“The great turkey problem” illustrates critical deficiencies in risk management practices, the most important deficiency is the fragility of the modelling of non-linear damaging

¹ Nassim Nicholas Taleb is famous for developing the “Black Swan” Theory.

² In Taleb’s (2012) example the crucial day is Thanksgiving. The authors have used Christmas Eve to make it easier to understand by readers outside the USA.

phenomena relying only on historical information: volatility is smoothed to create the illusion of stability (not real stability) with devastating consequences when the repressed volatility is released. In short, the danger arises from the belief that the system is safe derived from an unbridled confidence in models based on historical data, which exclude events that have not occurred yet and compress volatility.

From the accounting point of view, it became clear that the incurred loss model gave too much leeway to banks to postpone recognizing inevitable loan losses for too long. Nevertheless, as Giner and Mora (2016) pointed out, some voices argued that during the recent financial crisis the “too little and too late” problem could have been avoided, at least partly, if the incurred loss model had been applied much more vigorously.

1.3 OVERCOMING DEFICIENCIES

The principal standard setters – the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) – fulfilled the mandate from the G-20 and issued respectively: IFRS 9 in July 2014 and ASC 326 in June 2016. In the European context, IFRS 9 was incorporated into the European Union (EU) regulatory framework in November 2016 (“endorsed” in the EU jargon) and became mandatory from 1 January 2018 onwards. Whilst the American standard is expected to come into force on 15 December 2019 for “SEC filers” (institutions that are required to make regular submissions of financial information to the Securities and Exchange Commission) and on 15 December 2020 for other institutions.

IFRS 9 supersedes IAS 39 and amends it in two fundamental areas: the classification criteria for measurement purposes of financial assets and the introduction of an expected credit loss approach for the estimation of credit losses. In this context, following Hoogervorst (2018), IFRS 9 should have a preventative effect, because it will lead to a much quicker crystallization of loan losses and will contribute to an improvement of credit quality control systems in the banking industry. Besides, timely loan loss recognition will promote more prudent dividend distribution and remuneration policies.

1.4 THE SPANISH CONTEXT

According to Regulation (EC) 1606/2002, all issuers of listed securities, regardless of their sector of activity, must apply the IFRSs endorsed by the EU (IFRS-EU) in the preparation of their public consolidated accounts. This Regulation leaves it to the discretion of each Member State to choose from the following options for the preparation of the consolidated accounts of the unlisted entities and the individual accounts:

- require the application of IFRS-EU;
- develop a national accounting standard or National GAAP (Generally Accepted Accounting Principles); or
- allow entities to choose between the above two options consistently.

In Spain, under Article 43 bis of the Commercial Code, unlisted groups can choose between the two options (IFRS-EU or National GAAP) for the consolidated accounts; and, for the individual accounts, the sectoral accounting standard setter has developed a national accounting framework.

The Banco de España, in the exercise of its competences as a sectoral standard setter bestowed by Law 5/2014, issues mandatory accounting standards (“Circulars”) with the scope discussed above. Since 2004, given the adoption of IFRS by the EU, the Banco de

	Consolidated accounts	Individual accounts
LISTED	Mandatory IFRS	Member State discretion: – Mandatory IFRS – Option IFRS or National GAAP – Mandatory National Gaap
NON-LISTED	Member State discretion: – Mandatory IFRS – Option IFRS or National Gaap – Mandatory National Gaap	Member State discretion: – Mandatory IFRS – Option IFRS or National Gaap – Mandatory National Gaap

Spanish option for individual accounts (listed and non-listed): Mandatory National GAAP.
 Spanish option for consolidated accounts (non-listed): Voluntary IFRS or National GAAP.
 Commercial Code approved by Spanish Parliament.

SOURCE: Authors' own elaboration.

España has followed a strategy based on aligning its accounting standards with the IFRS as adopted by the EU (IFRS-EU). Thus, by applying Spanish standards, international standards will also be applied.

Pursuant to the principle of effectiveness, by aligning Spanish GAAP for credit institutions with IFRS-EU, the Banco de España avoids the burden arising from the co-existence of two different accounting frameworks which are applicable to the same credit institution.

Furthermore, the application of compatible accounting frameworks at both individual and consolidated level makes it easier for the users of financial reporting, including the Banco de España, as well as the European Central Bank (ECB) and the European Banking Authority (EBA), to analyze and understand credit institutions' financial position and performance.

Finally, this strategy of alignment with IFRS-EU allows accounting developments at EU level to be incorporated promptly into Spanish GAAP for credit institutions. In this way, the quality of the Spanish GAAPs for credit institutions is comparable to that of the "benchmark" European Framework.

In the area of estimation of credit losses, the Circular, specifically Annex 9, incorporates additional guidance aimed at increasing the consistency of outcomes across Spanish institutions.

1.5 STRUCTURE OF THE ARTICLE

The next section includes a general scheme of the valuation of financial assets in IFRS 9 and Annex 9. Section 3 describes the classification of assets for the estimation of credit losses, debunking some critics with regard to the possible pro-cyclicality of the standard. Section 4 explains how to estimate expected credit losses and some principles for fostering proper implementation. Section 5 concludes and suggests areas of future research.

2 Valuation of financial assets

IFRS 9 contains major changes to the classification for measurement of financial assets in comparison with IAS 39. In these new valuation requirements, the measurement basis depends on the institution's business model for managing groups of financial assets and the contractual cash flow characteristics of the latter. The more principles-based approach of IFRS 9 requires the careful use of judgment in its application, which could lead to discretionary application.

2.1 CLASSIFICATION OF FINANCIAL ASSETS FOR VALUATION

Therefore, financial assets must be classified in the following "portfolios":

- Amortised cost (AC) applies to "plain vanilla" debt instruments (e.g. loans and bonds) for which an entity has a business model to hold the financial asset to collect the contractual cash flows; to be eligible for classification in this portfolio, the contractual cash flows of the debt instrument must be Solely Payments of Principal and Interest (SPPI) on the principal amount outstanding consistent with a basic lending arrangement.
- Fair value through other comprehensive income (FVOCI) applies to "plain vanilla" (SPPI) debt instruments that are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets.
- Fair value through profit or loss (FVPL) applies to financial instruments for which the entity's business model is different to those described above such as when the financial assets are held for trading or managed on a fair value basis.

Figure 2 shows the relationship between these different portfolios and their impairment model.

2.2 FINANCIAL ASSETS SUBJECT TO IMPAIRMENT

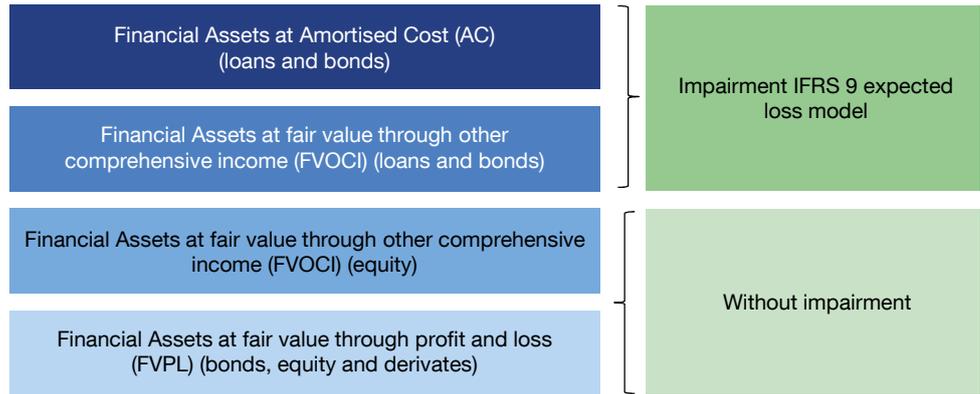
As reflected in the table above, impairment is recorded on traditional banking assets (loans and bonds) following an expected loss model according to IFRS 9 requirements. In general terms, the vast majority of banks' financial assets will be subject to impairment [according to European Banking Authority (2018) about 80% of them are measured at amortised cost], to a greater or lesser extent depending on the institutions' business model.

This scheme is shared by the principal international standard setters (IASB and FASB), but with important dissimilarities that stem from the different business models of American and European banks. In Europe, the practice is for banks to keep originated loans on their books until maturity (originate-to-hold model), so their preference is for matching the cost of credit with the interest income over the expected life of the loan. By contrast American banks generally securitize and sell their originated loans in a short period of time (originate-to-distribute model), so the FASB's main goal is to ensure that allowances are recorded immediately, as pointed out by Giner and Mora (2016).

The different business models affect the share of financial assets under the impairment framework. More than 80% of European banks' financial assets are measured at amortised cost whereas American banks maintain 60% of their assets in this portfolio, according to Chae *et al.* (2018).

2.3 INITIAL IMPACT OF IFRS 9

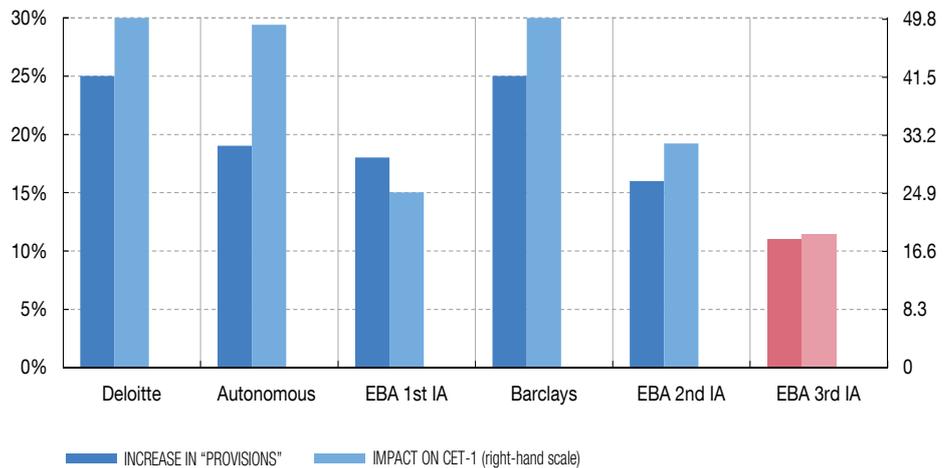
Before the standard came into force, there were warnings from some quarters that, on first-time application a system-wide sizable increase in provisions associated with expected credit losses could be anticipated [see, among others, Deloitte (2016), Autonomous (2016), Barclays (2017) and European Banking Authority (2016 and 2017)].



SOURCE: Authors' own elaboration.

IFRS 9 FIRST IMPACT

FIGURE 3



SOURCE: Author's own elaboration.

This may have undesired pro-cyclical effects via banks' profits and regulatory capital. It is pertinent to note that the first two impact assessments (IA) performed by the EBA (before IFRS 9 came into force) were based on estimates provided by the banks themselves, whilst the third IA [European Banking Authority (2018)]³ is based on 2018 data reported by banks to competent authorities (COREP and FINREP templates) and supplemented by public disclosures where possible.

The fear of a deep impact has proved wrong, especially, with regard to the increase in "provisions", as indicated in Figure 3. According to the European Banking Authority (2018)

³ For European Banking Authority (2017) and European Banking AuthorityA (2018), we have taken into account the results shown by IRB entities in order to facilitate comparison with the rest of the surveys where the sample included mainly IRB banks.

the increase in “provisions” as at day-one (1 January 2018) was on simple average 11%.⁴ The reported negative day-one impact on CET-1 was on simple average 19 bps, in this case, lower than the EBA 2nd IA (2017) of 32 bps.⁵

Another argument that reinforces our message lies in the use of the transitional arrangements issued under Article 473 of Regulation (EU) 575/2013 on prudential requirements for credit institutions and investment firms (CRR). Many credit institutions have not resorted to using the CRR transitional arrangements concerning IFRS 9 impairment. Specifically, the majority of large institutions – in the EBA sample (57%) – are not using transitional arrangements [EBA 3rd IA (2018)].

3 Classification of exposures for the estimation of credit losses

As pointed out by Giner and Mora (2016), there were differences during the drafting period between the principal accounting regulators (IASB and FASB), in line with those discussed in Section 2.2. The IASB insisted on the importance of reflecting the relationship between pricing and expected credit losses, while the FASB focused on developing a high level of allowances for expected losses, which is more aligned with the objectives of prudential supervisors.

Figure 4 provides a brief explanation of impairment recognition under IFRS 9 for credit losses and interest revenue on financial assets depending on their credit risk.

3.1 CLASSIFICATION OF EXPOSURES BY CREDIT RISK

For these purposes, financial assets are allocated to three credit risk categories that are widely known as “stages” (although this term is not used in the standard).⁶ Depending on the stage to which transactions are allocated, credit losses and interest income are calculated differently:

- “Stage 1”. At origination, institutions shall recognize – for all exposures – a loss allowance for an amount equal to 12-month expected credit losses (12-month ECL). This applies to financial assets without a significant increase in credit risk since initial recognition or that have low credit risk at the balance sheet date. The 12-month ECL are the estimated cash shortfalls during the life of the exposure derived from default events which may occur in the 12 months following the balance sheet date. That is, the 12-month ECL is the product resulting from multiplying the probability of default over a 12-month horizon by the severity of the loss in default. The 12-month ECL are defined as the future losses associated with the probability of default in the next 12 months (not the cash shortfalls expected in the next 12 months). Interest revenues are accrued over the gross carrying amount of the exposure.
- “Stage 2”. This is when there is a significant increase in the credit risk (SICR) of the exposure but default has not yet occurred. Examples of events that indicate a SICR could be significant are negative changes in: i) internal credit risk indicators (e.g. “scoring”), ii) external credit risk indicators (“rating”), iii) the probability of default; furthermore, the existence of amounts past-due shall be a backstop (rebuttable presumption) for classification under stage 2. In these cases, institutions recognize a loss allowance at an amount equal to lifetime

⁴ In European Banking Authority (2018) the simple average for all the banks in the sample was 9%, while the negative impact on CET-1 for all the banks in the sample was 47 bps.

⁵ In European Banking Authority (2017), the negative impact on CET-1 for all the banks in the sample was 42 bps.

⁶ Together with this general approach that requires the allocation in “stages”, IFRS 9 also incorporates a specific approach for Purchased or Originated Credit Impaired (POCIs) financial assets.

	STAGE 1	STAGE 2	STAGE 3
Impairment recognition	12 month expected credit losses	Lifetime expected credit losses	Lifetime expected credit losses
Interest revenue	Effective interest rate on gross carrying amount	Effective interest rate on gross carrying amount	Effective interest rate on amortised cost

Purchased or originated credit impaired financial assets: entities shall recognise as impairment cumulative charges in lifetime expected credit losses since initial recognition. Interest accrual with credit-adjusted effective interest rate to the amortised cost on gross carrying amount.

SOURCE: Authors' own elaboration.

expected credit losses. This amount should include the estimated cash shortfalls during the life of the exposure derived from default events which may occur over its residual life until maturity. That is, the Lifetime ECL is the product resulting from multiplying the probability of default over a horizon equal to the life of the exposure by the severity of the loss in default. Interest revenues are accrued over the gross carrying amount of the exposure.

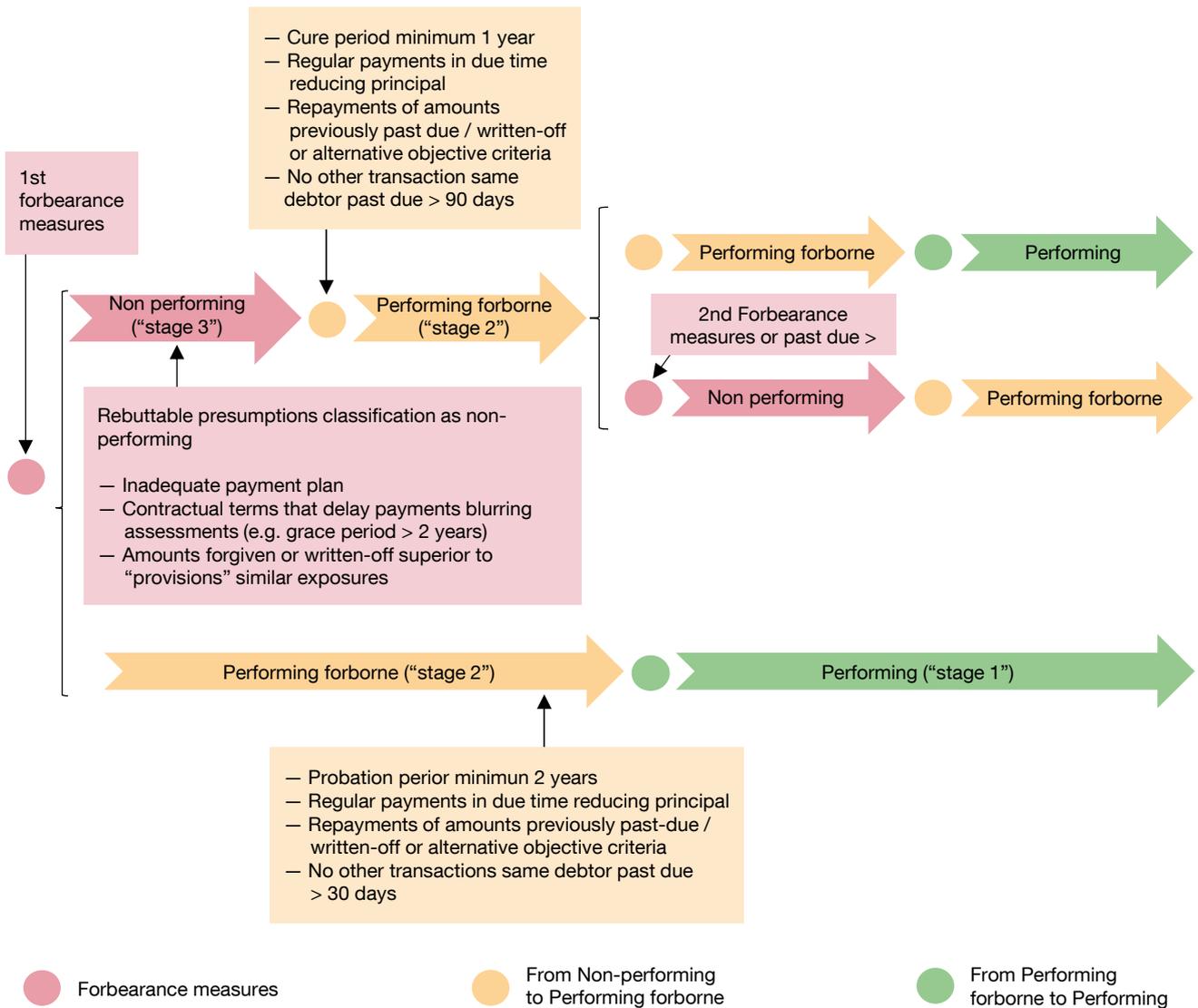
- “Stage 3”. When a default event occurs, institutions shall recognize a loss allowance for the amount of the estimated cash shortfalls during the life of the exposure. That is, in these cases the Lifetime ECL is equal to the severity of the loss in default. Interest revenues are accrued over the (net) carrying amount (that is, the gross carrying amount minus the loss allowance) of the exposure.

As Bellini (2019) mentions, the definition of significant increase in credit risk since initial recognition plays a key role throughout the entire IFRS 9 process. SICR is the trigger on which the impairment recognition pivots and the event that allows a leap from the twelve-month expected credit loss to the lifetime expected credit loss. It is of vital importance that the institutions develop consistent policies in the recognition of the events, which give rise to both the significant increase of credit risk and the default. These events may include quantitative and qualitative indicators.

3.2 IMPLEMENTATION IN SPAIN.
ANNEX 9

Meanwhile, generally in the context of Spanish individual financial statements, Annex 9 goes beyond IFRS 9 in the development of credit risk categorization and, under the umbrella of the international standard, includes more detailed factors for classification into and out of the different stages. Some of these factors have been developed with regard to the EBA definitions for supervisory reporting aims (forborne and non-performing exposures). These definitions are also used by the ECB and the EBA in their supervisory analysis.

To ensure that IFRS 9 is properly implemented, Annex 9 defines modifications under financial difficulties of the debtors and credit impaired financial assets based on the EBA definitions of forborne and non-performing exposures. The intention is to achieve a timely classification (e.g. forborne exposures must be classified under either stage 2 or stage 3, but never under stage 1). To apply Annex 9 correctly, it is necessary to respect the “cure”



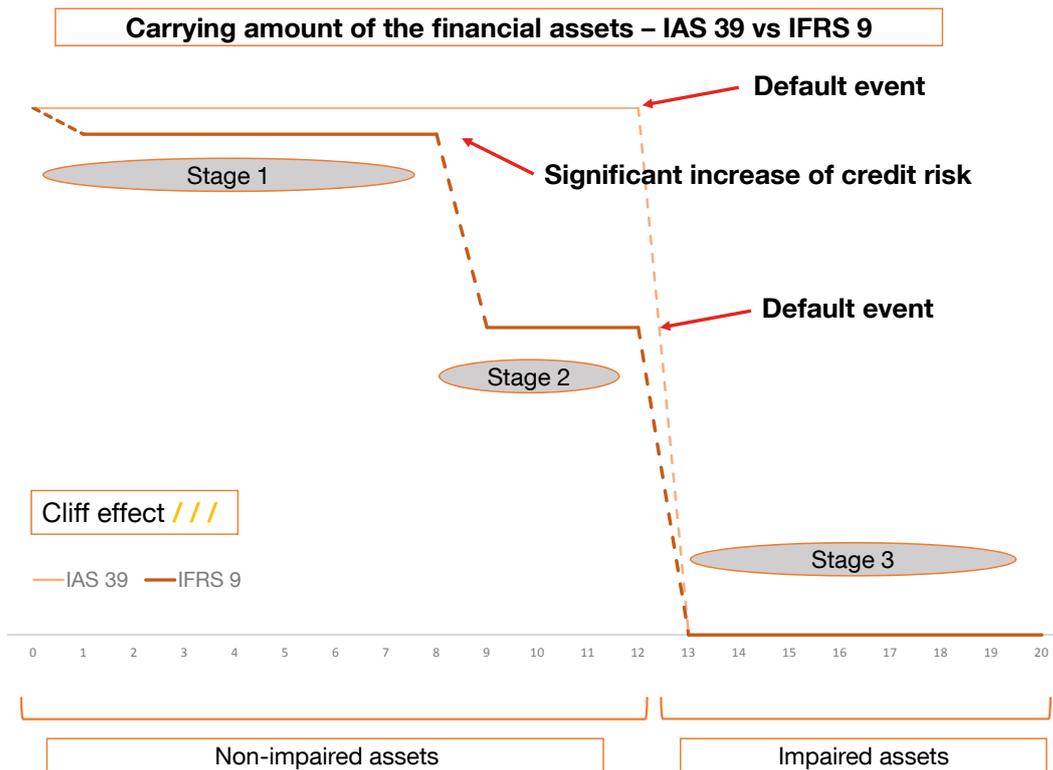
SOURCE: Authors' own elaboration.

and "probation" periods established for forborne exposures (illustrated in the figure below), which specify the period of time required to confirm an improvement in the payment behavior of a borrower who has experienced financial difficulties.

With these definitions, Annex 9 seeks a consistent and uniform implementation within the expected loss model framework at all the institutions and an alignment with supervisory definitions that pursue simplification and a lower risk of material misstatements.

3.3 IDENTIFICATION OF SIGNIFICANT INCREASES IN CREDIT RISK

A frequent criticism of IFRS 9, among others by Sánchez Serrano (2018), is that this standard is not going to be applied with perfect foresight but, on the contrary, expected credit loss models would be able to anticipate downturns in the economic cycle only shortly before they occur. To clarify how IFRS 9 works, it is necessary to make clear that in order to move assets from stage 1 to stage 2 is not required to anticipate downturns but to identify assets whose credit risk premium is mispriced because their credit risk has significantly increased since origination.



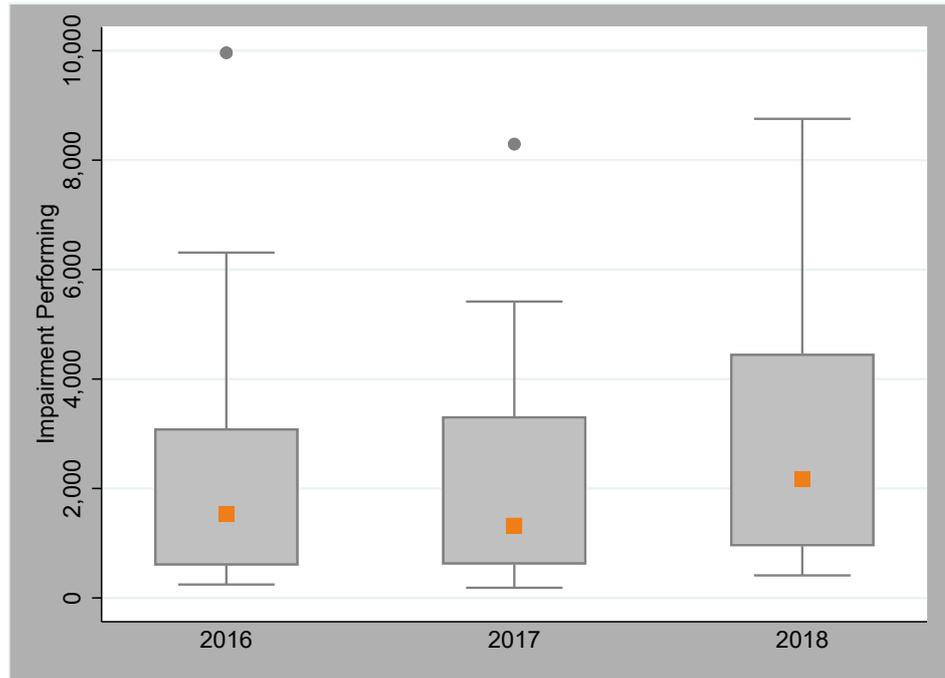
SOURCE: Authors' own elaboration.

Thus, proper implementation of IFRS 9 does not require anticipating downturns, a task in which economists and macro-prudential supervisors have had few (dismal) successes. However, it does require measuring assets' credit risk to identify those with currently mispriced credit risk premia. Credit institutions are in a better position to successfully complete this latter task. In practice, stage 2 assets are identified by using indicators of significant increases in credit risk and backstops (e.g. amount more than 30 days past due, forbearance granted), as discussed above.

It should be acknowledged that the "cliff effect" when moving to stage 3 is much greater than when moving from stage 1 to stage 2. The "cliff effect" when moving to default status leads to "repressed" cyclicality under the IAS 39 incurred loss model (which was released during the financial crisis with devastating effects on the real economy).

In comparison with stage 2, the expected credit losses to be recognized in stage 3 would be larger because, in stage 3, accounting default has already occurred (risk of default equals 1) whereas, in stage 2, the transaction has not defaulted yet (risk of default lower than 1).

Figure 6 shows how the gross carrying amount of the loan – used theoretically as an example – begins at the same level at origination and ends at the same level after the default event has arisen under both IAS 39 and IFRS 9. However, under IFRS 9, this movement is divided into several stages, depending on the credit quality of the transaction, which anticipates the impact of the credit losses on the statement and allows for a more accurate valuation. This would reduce the likelihood of recording an abrupt impact on profit or loss just when a downturn arises that further worsens the situation of the entity.



SOURCE: Authors' own elaboration.

In accordance with the results shown in European Banking Authority (2018), the increase in provisions is mainly linked to performing financial assets (basically stage 1 and stage 2 assets) for which provisions increased by up to 94% (on simple average); on the other hand, the provisions of stage 3 assets showed an almost zero increase (on simple average). Furthermore, as illustrated in the figure below, the level of provisions for performing assets is higher under IFRS 9 than it was in previous years under IAS 39 and the institutions with lower provisioning levels have increased them. In general terms, institutions record more provisions, earlier and slightly more homogeneously under IFRS 9 – as seen in Figure 7⁷ – in comparison with IAS 39, under which the provisions for performing assets were very low at some institutions.

3.4 IMPAIRMENT RECOGNITION AND INTEREST ACCRUAL

The three-stage approach of IFRS 9 seeks to balance, on the one hand, maintaining the link between the recognition of interest income and the level of credit losses (stage 1) and, on the other, the recognition of higher levels of credit losses when there is a signal that the credit risk premium has been significantly underestimated at origination (stage 2 and stage 3).

For stage 1 assets, the interest income recognized in the statement of profit or loss is the product resulting from multiplying the gross carrying amount (before deducting accumulated credit losses) by the effective interest rate (that is calculated at origination taking into account the contractual cash flows of the transaction). As a result, during a given financial year, there is a certain correlation between the credit risk premium recognized as a part of the interest income calculated using the effective interest rate and credit losses (“12-month ECL”). For stage 2 assets, as they are mispriced (because credit risk has increased significantly since origination), the interest income recognized does not

⁷ The sample used for this figure comprises the 14 largest European banks with data reported in 2018 Q3. Even though the sample covers a large percentage of Total Assets in the European financial system, the results cannot be interpreted in a general way and should be taken with caution.

change but the level of credit losses increases (“Lifetime ECL”). Stage 3 assets are not only mispriced but also defaulted and, consequently, they require bigger allowances and the interest income is reduced.

This link between the recognition of interest income and the level of credit losses is severed in the FASB standard, as discussed above.

4 Methodologies for the estimation of credit losses

4.1 MODELLING EXPECTED CREDIT LOSSES

For the estimation of expected credit losses, IFRS 9 requires credit institutions to reflect a broad range of relevant information, including historical, current and forward-looking information. It also requires that the outcome shall be neither an estimate of a worst-case scenario nor an estimate of the best-case scenario.

To implement the requirements, banks typically consider different macroeconomic scenarios, which are weighted in terms of the related probabilities. In any case, IASB staff have clarified graphically that IFRS 9 does not require either that you must use multiple scenarios or that you must use three scenarios; in fact, the “key message” from IASB staff is that you should “consider” multiple scenarios but may not always have to “use” them [IFRS Foundation (2016)].

4.2 ANNEX 9: A LEAP FORWARD

Under IFRS 9, credit losses are assessed either individually or collectively. Annex 9 provides criteria to decide whether credit losses are to be determined by individual estimations (that require analytical information to be factored in) or by collective estimations (using statistical models). Individual estimations are performed using present value techniques in which the idiosyncratic cash flows of the transaction are discounted at its effective interest rate (EIR); whereas collective estimations are done using statistical parameters (often PD/LGD models) calculated using the cash flows of a homogenous group of transactions. In Annex 9, individual estimations are required where the transaction has unique characteristics; particularly, where there is an analytical signal of an increase in credit risk or a default event, as well as when there are not enough data for modelling statistical parameters.

In the application of the principle of proportionality, Annex 9 provides statistical risk parameters (so-called “alternative solutions”) that could be used for collective estimations of credit losses for transactions booked in Spain. “Alternative solutions” are used typically by smaller or less complex institutions to overcome the challenges associated with the implementation of IFRS 9. Both European Banking Authority (2017) and European Central Bank (2017) highlighted that smaller credit institutions found it more challenging to make progress in the implementation of IFRS 9; Annex 9 helps these institutions to overcome these challenges by providing a “ready-to-use” model for the collective estimation of credit losses. “Alternative solutions” could also serve as benchmarks for credit losses of transactions in Spain estimated collectively using internal methodologies.

Annex 9 provides collateral valuation criteria for the estimation of credit losses establishing the frequency with which the collateral should be re-valued and the techniques eligible for valuing it. For real estate collateral, the eligible techniques are full appraisals and Automated Valuation Methods (AVM) that consider the specific characteristics of the property. The guiding principle behind the Annex 9 criteria is that more full (and more frequent) appraisals are required for transactions with lower credit quality.

Furthermore, Annex 9 provides a framework for developing benchmarking (comparison of an institution’s own estimations with those of its peer group) and backtesting practices (comparison between estimated and actual losses).

4.3 FORWARD-LOOKING INFORMATION

Forward-looking information is a type of information to be considered in the estimation process. Naturally, it is neither the sole nor the most significant input. Rather, for the incorporation of forward-looking information, an approach should be followed in which historical information is adjusted using macroeconomic forecasts.

In collective estimations, the incorporation of forecasts of macroeconomic variables could contribute to mitigating the pro-cyclical effects observed in the risk parameters (e.g. PD/LGD) calculated using statistical models (they are bigger in the worst part of the economic cycle) by taking into account the upswing in future periods.

Furthermore, it should be acknowledged that the estimation of credit losses under IFRS 9 is not only a statistical exercise but also an analytical one. In the individual estimations the assessment of the idiosyncratic characteristics of the transaction or the debtor is determinant for the outcome and decreases the degree of dependence on the evolution of the economy. For instance, the PD or the probability of cure in individual estimations could be calculated following a Bayesian approach in which the prior PD or probability of cure based on historical information is adjusted using current information (a new indicator of credit risk) that is not linked to changes in the economic cycle.

4.4 PROPER IMPLEMENTATION IS THE KEY

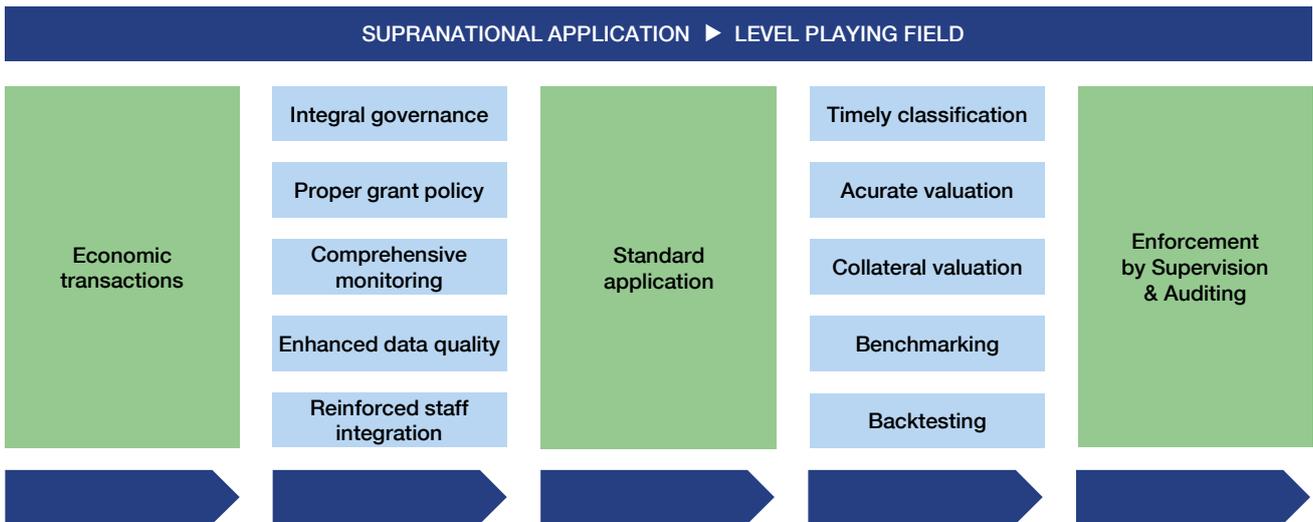
After analyzing the estimation of credit losses under both IFRS 9 and Annex 9, it is appropriate to state that the application of both standards requires the use of judgment in the expected loss assessment process. This could potentially affect its consistent application across institutions, which could result in a lack of comparability of their financial statements. Therefore, as the European Banking Authority (2017) noted, the existence of supervisory guidance emphasizes the importance of the high quality, robust and consistent application of IFRS 9, and may help to promote consistent policies and practices.

In line with Barth and Landsman (2010), the extent to which loan loss provisioning is pro-cyclical, natural or amplified, and provides useful information will depend on how provisions are determined in practice, and not only on the content of the standard.

According to Bholat *et al.* (2018), it is poor lending, rather than accounting or reporting, that causes financial crises. They insist on the idea that the timely recognition of problem loans and credit losses in conjunction with proper transparency is critical to averting and mitigating crises. Therefore, the design of early warning systems in the shape of an adequate recognition of expected losses in good times is generally agreed by policymakers to contribute to greater bank resilience and to mitigate the impact of crises. For their part, Bushman and Williams (2012) report that discretionary provisioning in the form of earnings smoothing dampens disciplinary pressure on risk-taking, reduces bank transparency and inhibits monitoring by outsiders.

These authors comment that discretion over credit loss provisioning can have real beneficial or negative consequences for the discipline of bank risk-taking, depending specifically on how managers exploit available discretion to shape credit loss provisions. Once again, the term “discretion” *per se* does not necessarily imply negative consequences. While discretionary smoothing via loan loss provisions (implicit forward-lookingness) dampens discipline over bank risk-taking, explicit forward-lookingness that captures the extent to which current provisions anticipate future deteriorations in the loan portfolio enhances discipline.

Proper implementation necessarily includes actions at different levels, as shown in Figure 8.



SOURCE: Authors' own elaboration.

First, prior to the application of the standard, institutions will have had to enhance governance of the process, including comprehensive monitoring with the participation of the internal audit department. One of the keys to reducing future shocks when turbulence arises is to establish solid procedures and criteria for loan origination. A relaxation of credit standards during upswings leads to the recognition of greater losses during recessions [among others, Jiménez and Saurina (2005), Bouvatier and Lepetit (2008) and Porcuna (2018)]. It is also of capital importance to enhance data quality, as this is one of the biggest challenges in the implementation of IFRS 9 [Deloitte (2018)]. These procedures and criteria must be consistent with the institution's risk appetite.

Second, once the standard has been applied, as we have commented throughout the article, it should be acknowledged that it is based on principles which have to be applied consistently. An adequate classification of the portfolios, according to the bank business model, shall contribute to a more accurate valuation. In this context, a timely categorization of the assets based on their credit risk (the so-called "staging") and a robust valuation of the expected credit losses shall help to avoid undue abrupt impacts on the financial statements. It is also crucial to properly assess collateral value to avoid future surprises. Lastly, benchmarking exercises shall compare practices at different institutions across the whole market, in order to identify outlying practices, while the backtesting analysis helps boost confidence in the process and in the reliability of the estimates.

The third element is enforcement. We believe that the expected loss model shall be appropriately enforced within the banking industry. In this regard, further work is still needed to increase the consistency of outcomes through benchmarking exercises as well as to guide the institutions' backtesting of estimated losses compared with actual losses.

The effectiveness of the new standards will depend not only on how banks implement them, but also on the contributions of enforcers and other stakeholders, as stated by Cohen and Edwards (2017).

As for the auditors, Bouvatier, Lepetit, and Strober (2014) found a negative relationship between the quality of their work and the income smoothing practices on loan loss provisioning. This result suggests that auditors can avoid discretionary practices and reduce management bias in the estimations. In this regard, the international audit standard setter (International Auditing and Assurance Standards Board – IAASB –) has recently revised its standard on the audit of accounting estimates (ISA 540), principally induced by the change in the credit loss provisioning model.

The recent paper by Gebhardt and Novotny-Farkas (2018) which examines the role of supervisors in the financial reporting quality of banks is very interesting. They mention some previous studies [see Costello *et al.* (2016), Bischof *et al.* (2016) and Nicoletti (2017)], who describe the benefits of supervisory intervention for financial reporting transparency, and the association between regulatory leniency and the lower likelihood of income-decreasing restatements. Furthermore, most significantly, Nicoletti (2017) finds that supervisory scrutiny and external audits are positively associated with credit loss provision timeliness. The last finding bolsters our previous idea of the need for cooperation between auditors, enforcers and other stakeholders to strengthen the enforcement in respect of banks' accounting practices.

Naturally, a homogeneous application of these measures across the different jurisdictions shall be essential to ensure a level playing field. Gebhardt and Novotny-Farkas (2018) highlight the importance of the recent efforts of supranational banking organizations (Basel Committee on Banking Supervision and EBA) to ensure consistent practices in the implementation of the newly introduced expected loss approach under IFRS 9.

5 Conclusions and future research

The Great Financial Crisis changed the way credit institutions should estimate their provisions for financial assets. Thus, IFRS 9 supersedes IAS 39 by introducing some relevant changes which have made the headlines in financial sector regulation in recent years. A model based on incurred losses (IAS 39) has given way to a model based on expected losses (IFRS 9).

IFRS 9 requires a more timely and gradual recognition of credit losses, it promotes the early recognition of credit losses and contributes to improved credit quality control systems. It avoids the “false” stability and the negative effects of the constrained credit losses abruptly released under the IAS 39 incurred loss model when economic turmoil is acknowledged.

IFRS 9 reduces divergence in accounting practices in comparison with IAS 39, with regard to the methodologies for the estimation of credit losses in performing exposures. The more structured scheme with three “stages” allows more homogeneity and comparability in the standard application of IFRS 9 because it provides a clearer framework for the provisioning of exposures that are not in default (stage 3). IFRS 9 requires the recognition of 12-month expected credit losses from loan origination (stage 1 exposures) and introduces the need for lifetime expected credit losses when a significant increase in credit risk occurs before the default event (stage 2 exposures).

Classification of financial assets for the estimation of provisions pivots on the identification of significant increases in credit risk at the level of the exposure since its origination. Therefore, for a timely classification by stages is not necessary anticipating economic downturns. Contrary to the opinion of certain critics of IFRS 9, perfect foresight of future economic conditions can contribute positively to – but is not a prerequisite for – the proper

implementation of IFRS 9. What is required is an assessment of the credit risk at the level of the exposure, such as monitoring changes in PDs, credit ratings, credit scoring, days past due or whether forbearance has been granted. Credit institutions which function properly should be able to perform this kind of monitoring.

The timely identification of stage 2 assets (with significant increases in credit risk but not in accounting default) helps to avoid giving a false impression of stability which is then followed by the sudden recognition of credit losses in downturns that abruptly impacts the statement of profit or loss and complicates an already difficult situation.

The scarce data available confirm the conceptual insights mentioned above. Under IFRS 9, the overall level of provisions of large EU credit institutions has increased significantly (11% on average), the level of provisions for performing exposures (mainly stage 1 and 2 assets) has almost doubled on average and the institutions with lower levels of provisions for performing exposures have increased them.

To take advantage of the IFRS 9 expected loss model, and complying with this standard, Annex 9 of Circular 04/2017 of Banco de España includes: i) definitions of modifications under financial difficulties and credit-impaired exposures, following EBA definitions of forbore and non-performing exposures, to increase comparability and to contribute to a timely classification (e.g. forbore exposures shall be classified in stage 2 during the “probation” period); ii) in the application of the principle of proportionality, risk parameters (so-called “alternative solutions”) that could be used by typically small or less complex institutions for collective estimations to overcome the challenges of developing IFRS 9 models; iii) a framework for developing benchmarking and backtesting practices; as well as iv) collateral valuation criteria for the estimation of credit losses.

The merits of an accounting standard should be assessed in terms of proper implementation and whether such implementation is feasible for the institutions. In this regard, as a result of IFRS 9 and Annex 9, the estimation of credit losses is better integrated into management as now the involvement of different areas and levels within credit institutions’ structures is required.

Implementing IFRS 9 properly is essential and helps to avoid inefficiencies and undesired effects. The expected loss model allows greater subjectivity in its application but precisely this subjectivity may prevent credit loss estimations from being pro-cyclical without giving room for earning management. The expert judgment required in the individual estimations of provisions or in the consideration of forward-looking information may decrease the extent to which the estimations are dependent on changes in the economic cycle.

Further work is still needed from preparers, auditors, regulators and supervisors to increase the consistency of the outcomes of the IFRS 9 estimation of credit losses across institutions because significant steps of this iterative process depend on subjective assessments. The more stakeholders focus on the proper application of IFRS 9, the greater the benefit for the financial system in general. Possible avenues for achieving this are benchmarking exercises as well as guiding the institutions’ backtesting of estimated losses against actual losses.

As more data become available, it will be very interesting to analyze further how institutions are implementing the standard. For this purpose, it will be essential to observe how the factors for the identification of significant increases in credit risk are used (stage 2 classification).

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ABBREVIATIONS

€	Euro
AIAF	Asociación de Intermediarios de Activos Financieros (Association of Securities Dealers)
ABCP	Asset-backed commercial paper
ATA	Average total assets
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BLS	Bank Lending Survey
bn	Billions
bp	Basis points
BRRD	Bank Recovery and Resolution Directive
CBE	Banco de España Circular
CBSO	Banco de España Central Balance Sheet Data Office
CCyB	Countercyclical capital buffer
CCR	Banco de España Central Credit Register
CDO	Collateralised debt obligation
CDS	Credit Default Swap
CEBS	Committee of European Banking Supervisors
CEIOPS	Committee of European Insurance and Occupational Pensions Supervisors
CET1	Common equity Tier 1 capital
CIs	Credit institutions
CNMV	Comisión Nacional del Mercado de Valores (National Securities Market Commission)
CPSS	Basel Committee on Payment and Settlement Systems
DIs	Deposit institutions
EAD	Exposure at default
EBA	European Banking Authority
ECB	European Central Bank
EFSF	European Financial Stability Facility
EMU	Economic and Monetary Union
EONIA	Euro overnight index average
EPA	Official Spanish Labour Force Survey
ESFS	European System of Financial Supervisors
ESM	European Stability Mechanism
ESRB	European Systemic Risk Board
EU	European Union
FASB	Financial Accounting Standards Board
FLESB	Forward-Looking Exercise on Spanish Banks
FROB	Fund for the Orderly Restructuring of the Banking Sector
FSA	Financial Services Authority
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSF	Financial Stability Forum
FSR	Financial Stability Report
FVC	Financial vehicle corporation
GAAP	Generally Accepted Accounting Principles
GDI	Gross disposable income
GDP	Gross domestic product
GHOS	Group of Central Bank Governors and Heads of Supervision
G-SIIs	Global systemically important institutions
GVA	Gross value added
GVAmP	Gross value added at market prices
IASB	International Accounting Standards Board
ICO	Instituto de Crédito Oficial (Official Credit Institute)
ID	Data obtained from individual financial statements
IFRSs	International Financial Reporting Standards
IMF	International Monetary Fund
INE	Instituto Nacional de Estadística (National Statistics Office)
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association
JST	Joint Supervisory Team
LGD	Loss given default
LTROs	Longer-term refinancing operations
LTV	Loan-to-value ratio (amount lent divided by the appraised value of the real estate used as collateral)
m	Millions
MiFID	Markets in Financial Instruments Directive
MMFs	Money market funds

MREL	Minimum Requirement for own funds and Eligible Liabilities
NPISHs	Non-profit institutions serving households
NPLs	Non-performing loans
OFIs	Other financial intermediaries
OMT	Outright Monetary Transactions
OTC	Over the counter
PD	Probability of default
PER	Price earnings ratio
pp	Percentage points
RDL	Royal Decree-Law
ROA	Return on assets
ROE	Return on equity
RWA	Risk-weighted assets
SCIs	Specialised credit institutions
SMEs	Small and medium-sized enterprises
SIV	Structured investment vehicle
SPV	Special purpose vehicle
SRI	Systemic Risk Indicator
SSM	Single Supervisory Mechanism
TA	Total assets
TARP	Troubled Asset Relief Program
TLTROs	Targeted Longer-term Refinancing Operations
VaR	Value at risk
WTO	World Trade Organisation

ISO COUNTRY CODES

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BE	Belgium
BG	Bulgaria
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CY	Cyprus
CZ	Czech Republic
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MX	Mexico
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