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**The evolution of non-performing loans in the
European Union and the use of publicly
sponsored asset management companies
between 2007 and 2022**

PABLO ALONSO RODRÍGUEZ

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Director: Prof. Dr. D. JOSÉ LUIS CALVO GONZÁLEZ, UNED

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List of Abbreviations

AIB	Allied Irish Bank
AMC	Asset Management Company
AMCO	Asset Management Company S.p.A.
Anglo	Anglo Irish Bank
AQR	Asset Quality Review
B&B	Bradford & Bingley plc
BCBS	Basel Committee on Banking Supervision
bn	Billion
BoI	Bank of Ireland
BRRD	Bank Recovery and Resolution Directive
BU	Banking Union
CEE	Central and Eastern Europe
CESEE	Central, Eastern and South Eastern Europe
CHF	Swiss Franc
CRD	Capital Requirements Directive
CRE	Commercial Real Estate
CRR	Capital Requirements Regulation
DUTB	Druzba za upravljanje terjatev bank, d.d.
EAA	Erste Abwicklungsanstalt
EBA	European Banking Authority
EBRD	European Bank for Development and Reconstruction
EBS	Educational Building Society
EC	European Commission

ECB	European Central Bank
ECJ	European Court of Justice
EP	European Parliament
ERA	Eurozone Restructuring Agency
ESM	European Stability Mechanism
EU	European Union
EUR	Euro
FMS-WM	FMS Wertmanagement AöR
FROB	Fund for Orderly Bank Restructuring
FSB	Financial Stability Board
GFC	Global Financial Crisis 2007-2009
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
INBS	Irish National Building Society
MARK	Magyar Reorganizációs és Követeléskezelő Zrt.
mn	Million
MoU	Memorandum of Understanding
NAMA	National Asset Management Agency
NKBM	Nova Kreditna Banka Maribor
NLB	Nova Ljubljanska Banka
NPA	Non-performing assets
NPE	Non-performing exposures

NPL	Non-performing loans
NRAM	Northern Rock Asset Management
NTMA	National Treasury Management Agency
OECD	Organisation for Economic Co-operation and Development
PBB	Deutsche Pfandbriefbank AG
PGS	Public Guarantee Schemes
REV	Real Economic Value
RON	Romanian leu
RRE	Residential Real Estate
SAREB	Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria, S.A.
SGA	Societa' per la Gestione di Attivita' S.p.A.
SME	Small and Medium Enterprises
SSM	Single Supervisory Mechanism
TFEU	Treaty on the Functioning of the European Union
TP	Transfer Price
UK	United Kingdom
UKAR	UK Asset Resolution Ltd
UKFI	UK Financial Investments Limited
UKGI	UK Government Investments
US	United States
UTP	Unlikely to Pay exposures
WACC	Weighted average cost of capital

1. THE RESEARCH PROJECT AND ITS BOUNDARIES

1.1. Introduction and the object of research

In 2007, a convergence of various economic imbalances culminated in the collapse of the United States' economy. This event marked the beginning of what is commonly referred to as the subprime mortgage crisis, a direct consequence of the abrupt bursting of the housing bubble within the United States (hereinafter, also “US”). The repercussions of this crisis swiftly rippled through most of the advanced economies, sparking a series of global repercussions. These were primarily driven by pre-existing macroeconomic disparities and the excessive risk-taking behaviours exhibited by numerous financial institutions, ultimately giving rise to the Global Financial Crisis (hereinafter, also “GFC”) of 2007 and 2008.

The ensuing chain reaction was of colossal magnitude, resulting in the failure of numerous financial institutions not only within the US but also extending its reach into Germany or the United Kingdom (hereinafter, also “UK”), among others with significant exposures to US structured securities. The situation was further exacerbated by the dramatic bankruptcy filing of *Lehman Brothers*, then ranked as the fourth-largest investment bank in the US, on 15 September 2008. These two shocks served as catalysts, amplifying the severity of what would become known as the Great Recession. This economic downturn persisted from December 2007 to June 2009, standing as the most significant recession since the Great Depression of the 1930s.

The financial and economic upheaval, coupled with various underlying economic factors and unique national circumstances, gave birth to the European sovereign debt crisis. This crisis, in essence, resulted directly from the flawed design of the Eurozone and, even more critically, the existing imbalances within it, along with the substantial levels of government and private debt in several European Union (hereinafter, also “EU”) Member States. Notably, in the case of Greece, which bore the initial brunt of this crisis, it stemmed from a lack of adequate fiscal discipline, characterised by excessive spending and severe deficiencies in tax collection. This

fiscal recklessness was further compounded by the burst of the housing bubble, a shared theme in the crises experienced by various countries on the periphery of the Eurozone, including Ireland and Spain.

Consequently, doubts began to plague investors regarding the fiscal sustainability of several Eurozone Member States, raising concerns about whether these countries would be able to honour their debt obligations when they came due. This scepticism had a devastating impact not only on the Greek economy but also on numerous other countries, including Italy, Ireland, Portugal, and Spain. To address this predicament, both the EU and international organisations deemed a combination of austerity measures and the implementation of structural reforms as the most effective means of tackling the crisis.

Of course, the deterioration of the economic conditions as well as the doubts on the fiscal capacity of the sovereigns had a prompt impact on the credit institutions. This evolved into a rapid increase of the risk exposure, the tightening of credit supply and the proliferation of problematic assets endangering the viability of many European credit institutions. These were the preconditions of the rapid growth in the stock of non-performing loans (hereinafter, also “NPLs”) and the perfect scenario for an uneven deployment of lending forbearance measures among EU banks.

The sudden onset of the COVID-19 pandemic, which subsequently escalated into a global crisis, served as a rigorous test for the measures implemented in previous years by EU Member States and banks in addressing the accumulation of NPLs. As announced, this accumulation had primarily arisen from the fallout of the GFC and the European sovereign debt crisis, as well as unique circumstances specific to both countries and financial institutions. In many European countries the levels of NPLs had already diminished significantly to a comfortable position or NPL ratios below to 2% in aggregated terms. However, in others, such as Italy, Greece or Cyprus, the level of NPLs was still problematic when the COVID-19 unfolded.

In 2020, the pandemic and the containment measures implemented in response had notable adverse effects on households in the EU, particularly through increased unemployment and reduced income. Concurrently, private consumption experienced a decline, while concerns persisted regarding the overvaluation of housing prices in some Member States. Additionally, the lockdown measures adopted by several Member States to combat the pandemic posed significant threats to numerous businesses, ranging from small and medium-sized enterprises (hereinafter, also “SMEs”) to large corporations.

During this period, three critical factors emerged, which would profoundly influence the potential impact on banks' financial results, namely, (i) the duration of the lockdowns, (ii) variations in the resilience of corporate entities, and (iii) the actions taken by public authorities to mitigate the economic burdens. Consequently, the potential proliferation of NPLs was likely to emerge as a consequence of the interplay among these three elements. However, the rapid response of the European institutions and national governments attenuated this potential threat. In any event, it is still premature to conclude on this as previous crisis episodes showed that the proliferation of problematic assets typically comes with a significant lag.

Once clarified the context it is important to delineate the object of research. This dissertation covers three crisis episodes and a complete economic cycle between the GFC (and the sovereign debt crises in some EU Member States) and the COVID-19 crisis. Concretely, it examines the European banking sector from 2007 to 2022 with a multilevel approach. In this regard, it studies not only the Member States' responses to the changing economic conditions unfolded by the three crises in the national banking sectors, but also tries to shed light into the policy outreach of the European institutions and their efforts to design a comprehensive set of actions to contain the proliferation of NPLs.

The concept of non-performing and its boundaries will be covered in detail in Chapter 2. However, to set the scene it encompasses those loans, assets or exposures, depending on the scope that is taken, from which banks do not earn a

compensation for the risk incurred or it is likely that this would occur due to the lack of payment capacity of the borrower.

It covers two main circumstances: (i) lack of payments over the last 90 days (the so-called “past-due” or quantitative criterion”, and (ii) the “unlikelihood to pay” or qualitative criterion, which refers to situations where the financial capacity of the borrower is at severe risk.

The proliferation of NPLs endangers the normal functioning of the credit business of banks, which affects their profitability and their lending capacity as well as their resources in terms of the need for the reallocation of staff. At system-level when the accumulation of NPLs does not only affect a bank, but also all or most of the banks within a banking system it has a negative impact on the economic growth, investment, consumption and government debt, among others.

Furthermore, every time there has been a banking crisis in modern times, regardless of the country, one of the driving factors has been the NPLs burden on banks. This is particularly worrisome in Europe, where the capital markets have not managed to channel adequate and timely funding to the real economy in desirable amounts. Consequently, this significant dependence on banks’ funding makes especially vulnerable the European economy, as reflected during the three crisis episodes analysed in this dissertation.

Among the tools implemented in the EU to tackle the excessive accumulation of NPLs, sometimes also denominated as “toxic”, “problematic”, “distressed” or “troubled” assets, in the European banks’ balance sheets this dissertation focuses on the establishment of publicly-sponsored asset management companies (hereinafter, also AMCs). As Constâncio (2017) admitted “many of these measures should not be expected to yield fruit immediately. Only AMCs (...) and securitisation can offer a quick clean-up of bank balance sheets.” For this reason, the study of the AMCs established during the period of observation is at the core of this doctoral dissertation.

For the sake of clarity the aforementioned main features of the object of research are summarised in the following table:

Table 1.1. Object of research

Element	Description
Time	2007-2022
Context	From the GFC to the COVID-19 crisis
Location	European Union
Research topic	The proliferation of NPLs in the European banking sector and the establishment of publicly-sponsored asset management companies in several Member States to tackle that phenomenon.

Source: Own elaboration.

1.2. Research questions

To cover the research topic there are four areas of particular attention that will be addressed during this doctoral dissertation.

- Which are the definitions of non-performing and forbearance practices in the EU?
- Which are the determinants of the non-performing loans and the forbearance practices?
- How did non-performing loans evolve during the period of observation (i.e. 2007-2022)?
- What led many EU Member States to sponsor the creation of asset management companies and which were the limiting factors for their establishment?

1.3. Objectives

- **General objective:** contribute to the policy as well as academic debate in the area of distressed assets as well as asset management companies by covering an extended period of observation (i.e. from 2007 to 2022) as well as by following a multilevel approach.

- **Concrete objectives:**
 - A. Study the evolution of the non-performing and forbearance concepts after the GFC: the homogenisation efforts at the EU and international level.
 - B. Identify the determinants of NPLs and the roots of forbearance practices.
 - C. Analyse the evolution of NPLs from 2007 to 2022 in the EU.
 - D. Understand the reasons for the establishment of publicly-sponsored AMCs in the EU after the GFC.
 - E. Assess the limiting factors that had an impact on the creation of those AMCs and on their characteristics.
 - F. Explore whether asset management companies are a valid tool to address high levels of distressed assets.
 - a. If this is the case, it would be key:
 - i. To identify the most relevant features of an effective asset management company (in theoretical terms).
 - ii. To explore whether those theoretical features are or were part of the real cases.

1.4. Methodological approach

This dissertation follows the comparative method, which is at the core of the research methodology in social sciences. Moreover, it facilitates a multidisciplinary approach in the economic, legal and political science dimensions of the research object, which is part of the foundations of the Doctoral programme in European Union at UNED. Indeed, in my view, the unique organisational structure of the institutions and Member States composing the European Union requires a comprehensive approach to interpret adequately any research question. Therefore, to cover the multidimensional nature of the NPLs in the European banking system

between 2007 and 2022 there is the need to compare across time and across policies developed by Member States, without underestimating the coordination efforts at the level of the EU institutions.

As important as defining the methodological approach is setting its boundaries. The comparative method is understood as one of the three main approaches within comparative analysis. The other two are the experimental and statistical methods. Lijphart (1971) defined the experimental method by its features: “In its simplest form, [it] uses two equivalent groups, one of which (the experimental group) is exposed to a stimulus while the other (the control group) is not”. In a second step, this method compares those two groups and determines that “any difference can be attributed to the stimulus”. As regards the statistical method Lijphart (1971) noted that it “entails the conceptual (mathematical) manipulation of empirically observed data-which cannot be manipulated situationally as in experimental design-in order to discover controlled relationships among variables”. Therefore, he considered the statistical method an approximation of the experimental method.

The main difference he observed was the concept of control. He considered that the statistical method was less robust than the experimental method due to the “problem of control”. In particular, he argued that “it cannot control for all other variables, merely for the other key variables that are known or suspected to exert influence”. However, he noted that “control by means of partial correlations does not allow for the effects of measurement error or unique factor components”. Nevertheless, he admitted that “the experimental method does not handle the problem of control perfectly, because the investigator can never be completely sure that his groups are actually alike in every respect”.

As regards the comparative method, Lijphart (1971) argued that the “crucial difference is that the number of cases it deals with is too small to permit systematic control by means of partial correlations”. However, he admitted that “this problem occurs in statistical operations, too; especially when one wants to control simultaneously for many variables, one quickly runs out of cases”. Therefore, he

considered that the limitation in the number of cases was simply the trigger for using the comparative method instead of the statistical one. This approach could be considered rather simplistic. Della Porta and Keating (2008) denied that the comparative method serves to supplement the small number of cases via a logical reasoning. They argued that “yet in many research designs, the choice of the comparative method is not just a second-best one imposed by the availability of data”. In this regard, they managed to shift the doctrinal debate from the number of observations and the role of control to place its focus on the “capacity to go beyond descriptive statistical measures”. Ultimately, the comparative method, allows for “an in-depth understanding of historical processes and individual motivations”. These elements are precisely the ones considered for following this method, especially as regards the study of the establishment and evolution of publicly-sponsored asset management companies in the EU from 2008 onwards.

In fact, already in 1968, Lasswell (1968) argued that “future applications of the comparative method can benefit by adhering to the requirement of contextuality. To choose the relevant setting for a disciplinary field of inquiry is to select the setting that includes all the phenomena to be investigated”. Bartlett and Vavrus (2017) admitted that the “importance exerted by context is one of the primary reasons for selecting a case study approach to research”. Laswell (1968) highlighted that “in order to discover the principal likenesses and differences to be studied, the entire context must be continually scanned”.

However, it is clear that considering the “entire context” is not only a titanic effort, but also a chimerical one as this observational feature is dependent on the accessibility of data for the study and the researcher own interests. Therefore, in the study of historical processes and individual motivations it is understandable that the subjective component emerges. As Ragin (1998) confessed “in every social scientific investigation, the selection of cases and attributes to study is dependent on the substantive and theoretical interests of the researcher and his or her intended audiences”. In this regard, he stated that “a fundamental goal of social science is

to interpret significant features of the social world and thereby advance our collective understanding of how existing social arrangements came about”.

For this, it is understandable that the tasks of representing and interpreting social phenomena is a tangible goal. Nevertheless, it has its own intrinsic limitations, as Bartlett and Vavrus (2017) stated “scholars continue to rely on a rather static, confined, and deterministic sense of context”, whereas the reality shows that “no ‘place’ is unaffected by history and politics; any specific location is influenced by economic, political, and social processes well beyond its physical and temporal boundaries”, they concluded.

Della Porta and Keating (2008) attested that “there is a well-established view in the social sciences that it should be based on variables. Yet much research is case-oriented”. Definitely, both approaches are legitimate and will be followed in this dissertation. In Chapter 3 to explore the determinants of the proliferation and, subsequent, reduction of non-performing exposures a comprehensive overview of empirical studies that justify both the macroeconomic and bank-specific determinants is presented. Moreover, in Chapter 5 the case-based comparisons are the cornerstones of the comparative analysis to be performed. As Della Porta and Keating (2008) conceded “variable-oriented studies mainly aim at establishing generalized relationships between variables, while case-oriented research seeks to understand complex units”. Therefore, depending on the approach to be followed both serve to a logical research method.

In turn, Brady, Collier and Seawright (2004) proclaimed that, in fact, “case-oriented researchers certainly think in terms of variables, but their attention is strongly focused on detailed contextual knowledge of specific cases and on how variables interact within the context of these cases”. In this regard, it is important to clarify the definition of cases, following the same authors, as “the political, social, institutional, or individual entities or phenomena about which information is collected and inferences are made”.

This dissertation covers the context of a particular point of time, i.e. the aftermath of the GFC, the one of the sovereign debt crisis or the perceived effects of the COVID-19 crisis, but at the same time has some features of comparative-historical analysis. This is because, mainly in Chapter 2, when studying the evolution of the definition of several core concepts, such as “non-performing”, “default”, “impairment”, or “forbearance” the historical dimension is also considered.

For the sake of clarity, Brady, Collier and Seawright (2004) defined this comparative-historical analysis, as a research combining: “(1) a sustained comparative analysis of a well-defined set of national cases; (2) a focus on the unfolding of causal processes over time; and (3) the use of systematic comparison to generate and/or evaluate explanations of outcomes”. As announced, this is precisely the methodological approach followed in Chapter 2 as it is the one that better serves the needs of intrinsic complexity in the search for a common or at least more homogenous definition of key concepts to facilitate the cross-banks and cross-borders comparative efforts of asset quality in the European banking sector.

As noted, even in the case-oriented method there are variables (or characteristics) to systematise the approach. Here it is crucial to focus on key variables only to avoid the danger of being confronted with an engulfed situation when the assessment departs from the core ideas and devotes significant attention to variables of marginal importance. This is precisely, the approach to be followed in Chapter 2 when comparing between the EU and BCBS definitions of non-performing exposures or forbearance.

It is also important to identify cases that could be comparable. Brady, Collier and Seawright (2004) defined this comparable term as “similar in a large number of important characteristics which one wants to treat as constants, but dissimilar as far as those variables are concerned which one wants to relate to each other”.

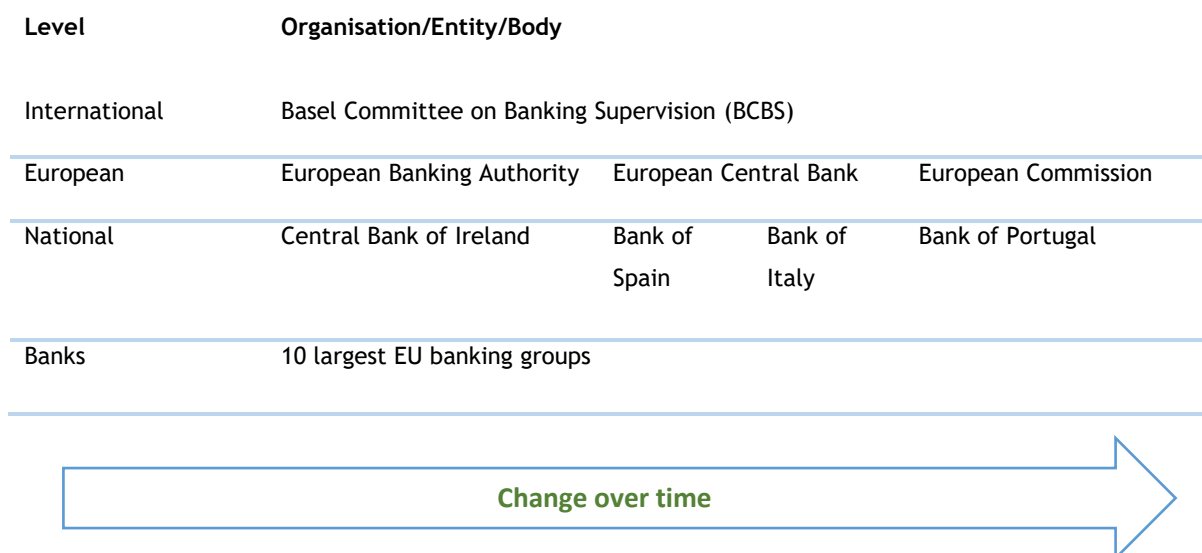
This approach is meant for the Chapter 5, when paying special attention to a subgroup of asset management companies established in the EU between 2008 and 2015. They have an important characteristic in common, which is the key role of the

public authorities with regard to its inception via a special legislation and even significant participation in their ownership structure. Moreover, once their comparable characteristics are clear we could also focus on the differences or distinctive features among them. This approach will be particularly relevant for the most similar asset management companies in terms of nature, namely: NAMA, SAREB and DUTB. Therefore, using the categories the European Commission defined in its *AMC Blueprint* a deep dive will be performed by examining the distinctive features of the aforementioned three AMCs in Chapter 5.

This dissertation aims to contribute to the policy as well as academic debate in the area of distressed assets as well as asset management companies. For this, a multilevel and comprehensive approach is envisaged. In this regard, Bartlett and Vavrus (2017) highlighted the importance of the comparative case study approach, which “attends simultaneously to global, national, and local dimensions of case-based research”.

In the following diagrams two examples are provided of how this approach will be operationalised in this dissertation.


Figure 1.1. Visual representation of the multilevel approach for Chapter 2



Source: Own elaboration.

Figure 1.2. Visual representation of the multilevel approach for Chapter 5

Level	Organisation/Entity/Body		
International guidelines	International Monetary Fund	European Bank for Development and Reconstruction	BCBS
European rules	State Aid rules	Recovery and resolution rules	National accounting rules
National legislation	UK, Germany, Ireland, Lithuania	Spain, Slovenia,	Hungary, Italy
Asset Management Companies	UKAR, FMS-WM, EAA, NAMA,	SAREB, DUTB,	MARK, AMCO



Source: Own elaboration.

This comprehensive approach comes from the need to systematise the existing phenomena and ongoing processes. Definitely, it constitutes a crucial feature of any comparison. In fact, Bartlett and Vavrus (2017) defined the “comparison” concept as “one that constantly compares and contrasts phenomena and processes in one locale with what has happened in other places and historical moments”. As Collier (1991) argued “comparison sharpens our powers of description and can be an invaluable stimulus to concept formation (...) It places its emphasis on interpretive understanding”. This comparison could be performed in both horizontal and vertical axes. The former refers to “how similar policies may unfold in different locations”, whereas the latter “insists on simultaneous attention to and across multiple scales”, according to Bartlett and Vavrus (2017).

As regards the horizontal axis this dissertation touches upon the so-called “homologous horizontal comparisons”, which Bartlett and Vavrus (2017) defined as an “analysis with a corresponding position at the same scale (e.g., two schools or two hospitals in one city)”. In Chapter 5 of this dissertation this approach is aimed to be followed when describing and, ultimately, comparing two asset management

companies established in Germany to deal with problematic assets as a result of the GFC, namely: EAA and FMS-WM.

However, the bulk of the methodological approach for this dissertation is what those authors denominated “heterologous horizontal comparisons”, defined as “where the entities are categorically distinct but hold a position more or less at the same scale (such as a school, a clinic, and a community center in one town)”. In this dissertation, the “town” is the publicly-sponsored asset management companies and the “school”, “clinic”, etc. are the asset management companies established in a number of Member States during a limited period of time.

The vertical axis of comparison is also present in this dissertation. It places “simultaneous attention to and across multiple scales”, as defined by Bartlett and Vavrus (2017), who clarified this definition as “temporary, shifting alliances or networks of people, objects, and ideas; researchers examine how assemblages are amassed, organized, challenged”. In Chapter 5 of this dissertation we will use this approach to compare the theoretical framework which defines the key features of successful asset management companies to its uneven implementation in practical terms in the European context due to existing limitations.

However, there is an ultimate component that should not be disregard, the so-called “transversal comparison”, which historically “situates the processes or relations under consideration and traces the creative appropriation of (...) policies and practices across time and space”, according to Bartlett and Vavrus (2017). In fact, the approach to be followed in Chapter 5 does not disregard horizontal and transversal elements, which are, as a matter of fact, for instance, advocated by the Slovenian authorities when designing its own asset management company. They acknowledged that they mirrored the cases of NAMA in Ireland and SAREB in Spain and, at the same time, tried to learn from past experiences of an asset management company established to deal with problematic assets in the previous banking crisis in the country. Moreover, even Chapter 4 of this dissertation will follow this

comprehensive approach, as it aims to cover both the asset quality metrics across banking systems of the EU Member States and its evolution over time.

To conclude, in this dissertation the object of study, distressed assets and publicly-sponsored asset management companies are compared across space, the EU, and time, from 2007 to 2022. There will be a clear need to focus on the key elements of these phenomena to determine the paramount elements that will lead to the concluding remarks and lessons learnt of this research project. The comparative method approach should also serve to identify best practices and to test how the theoretical elements of effective asset management companies have been implemented in practical terms in the EU during the period of observation.

There is the need to overcome obstacles driven by different economic, social and political considerations across Member States as well as the specific responses of the EU institutions to the three cases that affected the EU during this time, namely: the GFC, the sovereign debt crisis and the COVID-19 crisis.

Moreover, there is another layer of complexity which comes from the fact that the definitions of key concepts, such as “non-performing” or “forbearance” have not been traditionally comparable across banks in Europe and, sometimes, even within the same country. For this, it is crucial to start by an approximation to this lack of homogenous definitions in the EU, and internationally, and study the evolution of those concepts over time, driven by the European and international bodies.

1.5. Structure of this research project and justification

The remainder of this dissertation is presented below to have a clear understanding not only of the content of this dissertation, but also it should serve as a justification of where the various key elements to tackle the object of study and the research objectives will be displayed.

Table 1.2. Interplay between research sub-topics and objectives

Chapter	Sub-topic	Objectives
2	Identification, definition and evolution of the most relevant concepts in the area of asset quality.	A

3	Review of the existing literature on non-performing and forbearance determinants.	B
4	Quantitative evolution of NPL and other relevant metrics from the GFC to the COVID-19 crisis.	C
5	Study of the publicly-owned or sponsored asset management companies.	D, E and F
6	Concluding remarks and areas for future research attention.	All

Source: Own elaboration.

This dissertation considers that only a comprehensive approach to discuss the evolution of the NPLs in the EU between 2007 and 2022 as well as the establishment of publicly-sponsored AMCs during this timespan could capture their multidimensional characteristics. Consequently, compared to other studies a multidisciplinary approach is followed to cover adequately legal, financial and economic considerations as well as a political review of the context in which relevant decisions in this area were made. Precisely, this multidisciplinary approach is the main novelty that this dissertation brings about.

It is also relevant to reflect on the particular order in which the various key elements to tackle the object of study and the research objectives will be displayed. **Chapter 2** will cover the definitions of key concepts and discuss the efforts made at European and international levels to try to ensure more homogeneity in the definitions which should result in better comparability across banks.

Then, in **Chapter 3** a comprehensive review of the most relevant studies that tackle the study of the macroeconomic as well as bank-specific determinants of the non-performing status and forbearance practices is presented. It follows a systematic approach as first it covers both cross-country comparison (e.g. global and regional) and country-specific analyses. Then, it takes stock of the most relevant empirical studies regarding the effects of forbearance practices.

Chapter 4 focuses on the quantitative evolution of NPLs from 2007 to 2022 leveraging on graphical representations either at regional or at country level. It

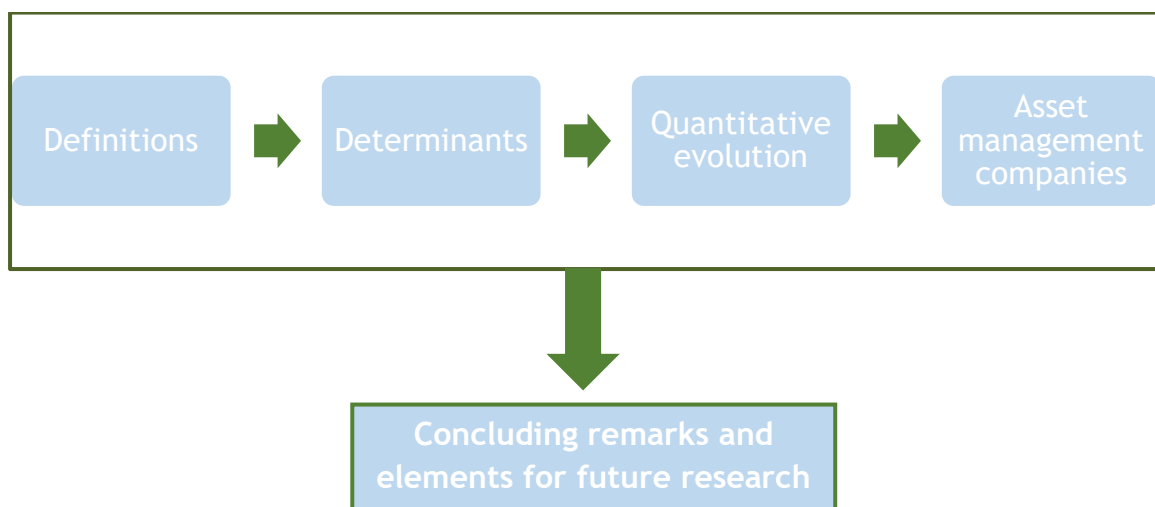
serves to examine the progress of the NPL levels not only at aggregated level, but also breaking them down by sector, type of exposure, etc.

Chapter 5 covers the initiatives taken by the authorities of several Member States since 2008 to deal with the proliferation of NPLs in their national banking sector. This encompasses diverse approaches to execute a state-sponsored asset relief to a number of beneficiary banks via asset management companies. Moreover, it includes the efforts made at European level to ensure that the main features of the EU legislation, i.e. fair competition in an open-market economy, respect of national accounting rules, etc., were preserved and that a level playing field for European banks was not put at severe risk. It also pays attention to the academic and, fundamentally, political discussion around the eventual need for the establishment of a European asset management company or whether there should be a coordinated approach of national asset management companies.

In turn, **Chapter 6** aims to draw some conclusions based on the elements covered in the previous chapters and suggest areas for future research in this field.

The logical sequence of elements which conduct to the analysis of the object of research throughout this dissertation is presented in the schematic diagram below.

Figure 1.3. Schematic representation of the sequence of the analysis



Source: Own elaboration.

2. UNDERSTANDING THE PROBLEMATIC SITUATION: DEFINITIONS ACROSS INTERNATIONAL AND EUROPEAN INSTITUTIONS

2.1. Looking for a common definition

2.1.1. Non-performing

While bank liabilities are comparable internationally, much less efforts have been made on standardising the asset side of the balance sheet, especially with respect to loan classification and the definition of the non-performing status. Traditionally, such lack of harmonisation greatly affected any attempt to perform asset quality reviews of credit institutions at national, European and international level.

The use of (slightly) different definitions has made historically difficult to compare NPL stocks and ratios across countries or even, what is more worrisome, across credit institutions in the same country. For many years, a majority of countries has classified loans as non-performing when principal or interest is 90 days past due and/or there is “well defined weakness of loan or borrower” (Barisitz, 2011). However, it is worth noting that the qualitative dimension of that definition has a significant grey area. Indeed, the concept of “well defined weakness” was not defined across most of the jurisdictions, leading to different interpretations by credit institutions and regulators (Barisitz, 2013).

That phenomenon has not been substantially different in the European Union (hereinafter, “EU”). Comparing NPL definitions and asset classification systems across Member States has been a complex and, when the information was available, a time consuming task because the analyst should be mindful of the need for upwards and downwards corrections (D`Hulster, et al., 2014), depending on the credit institution and the jurisdiction. Moreover, in my view, this situation could lead to unintended biases on the analyst.

Barisitz (2013), in his study on national NPL definitions, compared the existing NPL definition in eight Eurozone countries and UK to the NPL definition included in the Financial Soundness Indicators Compilation Guide. As presented in the table below, he concluded that Portugal, UK, Austria and Germany presented downward biases,

so at that point in time it would need upward corrections to be internationally comparable, while Italy was presenting upward bias. In the case of Italy, the upward bias could be attenuated by excluding “substandard loans” from the existing NPL definition in the country. In that regard, Bank of Italy (2013) stated that the upward bias amounted to 32% of the total NPL stock (in other words, there would be a 32% reduction of the figures reported by Italian credit institutions as at June 2012).

Table 2.1. Lack of comparability of NPLs in the EU banking sector

Jurisdiction	Primary elements *	Secondary elements **	Overall assessment
Austria	Comparable	Downward bias	Slight downward bias
Finland	Downward bias	Upward bias	Possibly no bias
France	Comparable	comparable	comparable
Germany	Comparable	Downward bias	Slight downward bias
Ireland	Comparable	comparable	comparable
Italy	Upward bias	Upward bias	Upward bias
Portugal	Slight downward bias	Downward bias	Downward bias
Spain	Comparable	comparable	comparable
UK	Downward bias	Downward bias	Downward bias

* Primary elements: 90 days past-due or well-defined weakness. ** Secondary elements: classification of replacement loans; role of collateral in grading credit quality; part of loan recorded as NPL and existence of downgrade requirement.

Source: Barisitz, 2013.

On that basis, following a cautious approach, for many years the *IMF Financial Stability Indicators* and the *ECB Consolidated Banking Data* included clear disclaimers in their NPL data series, warning that the definitions were “not strictly comparable across countries” or data “should be interpreted with caution, since (...) definitions differ across countries”.¹

The aftermath of the global financial and the peak of the EU sovereign debt crises put a spotlight on NPLs, revealing difficulties for supervisors in identifying and comparing banks’ information across jurisdictions and, sometimes within the same

¹ It is worth noting that as at November 2021 the ECB does not include any disclaimer in its *Consolidated Banking Data*. In the case of the *IMF Financial Stability Indicators*, the disclaimer is no longer included in the revised version of the 2006 FSI Guide, the 2019 FSI Compilation Guide.

jurisdiction. Consequently, the starting point to tackle the problem, having a clear understanding of its dimension, was not clear. This problem could have constituted a key factor for unwanted delays in dealing with the NPLs in the EU. Of course, another factor was the uneven distribution of NPLs across Member States, which will be thoroughly presented in section 1.3.

One of the Member States most hit by the global financial crisis (hereinafter, GFC), Ireland, was the first to react by launching an ambitious project aiming to restore international confidence in the country. Along those lines, the Central Bank of Ireland proposed a systematic approach to understand the real dimension of the NPLs in its jurisdiction.

In May 2013, it published its *Impairment Provisioning and Disclosure Guidelines*, a project that started in 2011 looking for improving the disclosures on asset quality of Irish credit institutions in order to enhance investor confidence. For serving that purpose, terms such as “exposure”, “non-performing loan”, “cured loan” and “forbearance” were defined (Central Bank of Ireland, 2013).

Table 2.2. Extract of the Impairment Provisioning and Disclosure Guidelines

Concept	Definition
Exposure	<i>The total potential loss which a Covered Institution could incur in the event of non-payment by a counterparty. An exposure includes an amount outstanding on a loan, both principal and interest.</i>
Non-performing loan	<i>(...) those that satisfy at least one of the following criteria:</i> <i>- Loans that are more than 90 days past due;</i> <i>- Loans which present a risk of not being paid back in full without collateral realisation, regardless of the existence of any past-due amount or the number of days past due.</i>
Cured loan	<i>Loans may be considered to have ceased being non-performing when, simultaneously, the situation of the debtor has improved to the extent that full repayment, according to the original or when applicable the modified conditions, is likely to be made and the debtor does not have any amount past-due.</i>
Forborne exposure	<i>Forbearance measures occurs when a bank, for reasons relating to the actual or apparent financial stress of a borrower, grants a concession whether temporarily or permanently to that borrower.</i> <i>A concession may involve restructuring the contractual terms of a debt (such as a reduction in the interest rate or principal due, or an</i>

	<i>extension of the maturity date or any weakening of the security structure or adjustment/non-enforcement of covenants) or payment in some form other than cash, such as an equity interest in the customer.</i>
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Source: Central Bank of Ireland, 2013.

Shortly after that, the European Banking Authority (hereinafter, EBA) decided to step in to ensure a level playing field in the European banking sector by homogenising the existing NPL definitions. As already discussed, until then some features of NPLs were widely known and accepted, but there were also a number of implementation and regulatory related issues impacting significantly on NPLs comparability.

In October 2013, six years after the start of the GFC (2007-2009), the EBA introduced new definitions² of “non-performing exposures” (hereinafter, “NPEs”) and “forbearance”. Following the standard procedure, the European Commission adopted them via *the Commission Implementing Regulation (EU) 2015/227, of 9 January 2015, amending Implementing Regulation (EU) No 680/2014 laying down implementing technical standards with regard to supervisory reporting of institutions according to Regulation (EU) No 575/2013 of the European Parliament and of the Council (hereinafter, “the Commission Implementing Regulation (EU) 2015/227”)*.

From the EBA preparatory work two main findings are worth highlighting (i) a consistent application of harmonized definitions would likely result in further upward revisions of NPLs; and (ii) that definitions used in jurisdictions with high NPL ratios were not necessarily the most conservative (Aiyar et al., 2015).

For instance, in Portugal asset quality of the Portuguese credit institutions was assessed, among other prudential or accounting indicators, by two nationally coined concepts: (i) “overdue credit”, based on accounting definitions; and (ii) “credit at risk”, for supervisory monitoring. Therefore, it was difficult to compare the results against banks in other jurisdictions.

² *Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013.*

Table 2.3. Portuguese asset quality metrics

Concept	Adoption	Instrument	Classification criteria	Approach	Scope
Overdue credit	1996	Loans	Up to 30 days past-due;	By operation	Only amount past-due
Credit at risk	2011	Loans	90 days past-due; Restructured having been past-due for 90 days; or Past-due for less than 90 days with strong evidence of risk (e.g. bankruptcy or liquidation)	By operation	Total outstanding amount

Source: Own elaboration based on Banco de Portugal, 2018.

As commented, the internationally widely used term “NPL” was based on different definitions. Therefore, taking into consideration that the EBA scope is only the EU, and the fact that for the time being the homogenisation efforts were located only in the EU, the EBA decided to coin a new concept.

The concept of “NPE” was designed in order to overcome the problems deriving from the existence of different definitions for “NPL” in the international arena and to signal, at that point in time, (i) the scope of the new concept: the EU; and (ii) the broader perimeter of exposures included.

It is worth noting that this new concept built on the accounting definition of “impairment” and the prudential definition of “default”. However, one of the aims of the NPE definition was to make data more comparable by overcoming the differences in the “default” and “impairment” definitions across the EU.

To this extent, the “non-performing” definition had the objective of acting as an overarching harmonised asset quality concept for reporting purposes. Therefore, the NPE concept is broader than the accounting definition of “impairment” and the prudential concept of “default”. In other words, all impaired and/or defaulted

exposures are necessarily NPEs, but NPEs can also encompass exposures that are not recognised as impaired or defaulted.

Table 2.4. Impairment and default in the EU at the time of the “NPE” inception

Concept	Adoption	Instrument	Classification criteria	Approach	Scope
Impairment (IAS 39 ³)	2002 ⁴	Loans and securities (excluding assets at fair value)	Objective evidence of losses incurred	By operation/instrument (<i>ex post</i> recognition)	All consolidated accounts of institutions following international accounting standards
Default (Article 178 CRR)	2014 ⁵	Loans and securities	90 days or 180 days past-due; or Unlikely to pay in full (without realisation of collateral)	General rule: by debtor Retail exposures: by operation is possible	All European credit institutions

Source: Own elaboration based on IAS 39 and CRR.

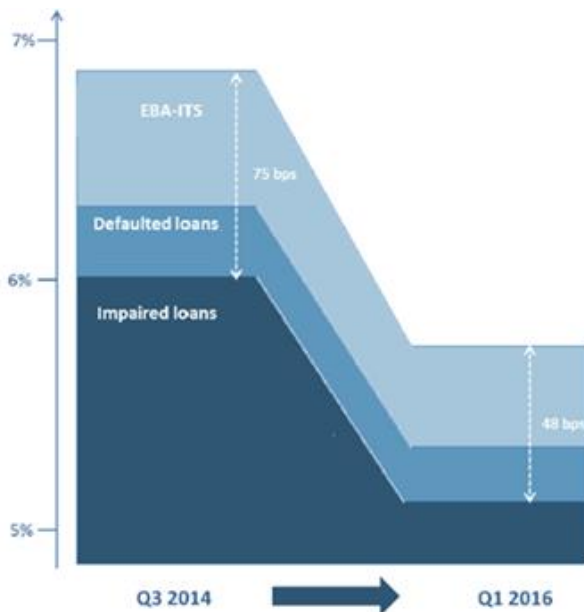
At the inception of the NPE definition, the stock of defaulted loans was larger than the impaired loans. As presented by the EBA (2016), this circumstance was maintained over time (in the period analysed: Q32014-Q12016), while, interestingly, the contribution of other features included in the NPE definition compared to the impairment concept decreased. In other words, the explanatory capacity of the accounting component of the definition increased, narrowing the difference from 75 bps to 48 bps, as presented in the figure below.

³ IAS 39 *Financial Instruments: Recognition and Measurement* was adopted in December 1998 (applicable to the financial statements as of 1 January 2001). It was revised twice, in October 2000 and December 2003. Finally, it was amended when the International Accounting Standards Board (hereinafter, IASB) undertook the migration from IAS 39 to IFRS 9, which became the new accounting standard as of 1 January 2018 (as explained in subsection 2.1.3).

⁴ Regulation (EC) n. 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards adopted the international accounting standards and required their application in the consolidated financial statements of companies issuing securities traded on listed markets. It was left for Member States to choose the standard for the preparation of the consolidated accounts of the other companies as well as the individual accounts.

⁵ It is worth noting that a definition of “default” was already established by the BCBS in 2004.

Figure 2.1. Visual representation and evolution of the metrics



Source: Own elaboration based on EBA, 2016

The definition of NPE is composed of two criteria: (i) the “past-due” criterion; and (ii) the “unlikely-to-pay” criterion.

The “past-due” or quantitative criterion includes a temporal trigger: all exposures with amounts over 90 days past due are considered non-performing. In contrast, the “unlikelyness to pay” criterion is purely qualitative. The qualitative indicators focus on the definition of some events that trigger the non-performing classification. As this two-fold configuration of the concept gives significant leeway for interpretation, supervisors noted that they expect that credit institutions have clearly defined internal criteria to identify indicators of “unlikelyness to pay”, which is subject to supervisory scrutiny (ECB, 2017).

The definition has not been designed from scratch. On the contrary, some well-known and stable features of the “non-performing” concept across European jurisdictions are maintained in the NPE definition as follows:

- (i) Exposures will be categorised as “non-performing” for their entire amount; and

- (ii) The carry-over or “pulling effect” applies: when more than 20% of the exposures of one obligor are past due by more than 90 days, all other exposures to this obligor are considered as “non-performing”.

In the international sphere, the Basel Committee on Banking Supervision (hereinafter, also “BCBS”) also recognised that there were significant differences in how credit institutions were identifying and reporting their asset quality assessments.

In 2016, the BCBS, taking over from the EBA, recognised that those significant differences in how credit institutions used to identify, report and disclose their asset quality were not only located in Europe but also worldwide. Indeed, as it became evident there were material divergences in NPL definitions across jurisdictions endangering international comparability (Haben, 2015; Bholat et al., 2016). For example, NPLs in some jurisdictions were registered by their net value, while in others they were measured by the amount that was actually overdue (D`Hulster and Qefalia, 2016). Furthermore, the treatment and recognition of forbore exposures were significantly diverse internationally and even across banks within the same jurisdiction.

In light of the above, the BCBS decided to create a task force with the following mandate: (i) to analyse jurisdictions’ and banks’ practices regarding asset categorisation; and (ii) to assess the consequences of any difference in practice. The task force performed an ambitious stock-take among 28 supervisors⁶ and 39 credit institutions from 28 jurisdictions as well as reviewed the existing literature before presenting its conclusions (BCBS, 2017).

The main outcome of that task force was the development of guidelines for the “NPE” and “forbearance” definitions. Broadly speaking, following the EBA approach, those definitions were based on commonalities in the existing definitions across member jurisdictions. However, compared to the EBA definitions, they were aimed

⁶ 27 members of the BCBS and Thailand.

to be used not only for supervisory reporting, but also for public disclosures (e.g. Pillar III reports) and banks` internal credit categorisation for credit risk management (BCBS, 2015).

Finally, it is worth noting that with regard to the definition of NPE the BCBS made clear that it was intended to complement, and not supersede, the existing categories of “past due” and “defaulted” (BCBS, 2017), as those definitions already had a long tradition in the Basel framework. In the same vein, recital 4 of the *Commission Implementing Regulation (EU) 2015/227* also noted that the NPE concept should become a harmonised asset quality index, a classification tool, without substituting the existing definitions of default and impairment.

In order to have a clear understanding on how the EBA and the BCBS approached the establishment of their standards, an analysis of the key components of both definitions is presented below following a systematic approach: (i) NPE definitions; (ii) NPE collateral treatment; and (iii) NPE recategorisation.

Table 2.5. Comparison of NPE definitions

NPE definitions	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines on Prudential treatment of problem assets - definitions of non-performing exposures and forbearance</i>
<p><i>(a) material exposures which are more than 90 days past due;</i></p> <p><i>(b) the debtor is assessed as unlikely to pay its credit obligations in full without realisation of collateral, regardless of the existence of any past due amount or of the number of days past due.</i></p> <p><i>Exposures in respect of which a default is considered to have occurred in accordance with Article 178 CRR and exposures that have been found impaired in accordance with the applicable accounting</i></p>	<p><i>i. all exposures that are “defaulted” under the Basel framework (...), where applicable; or</i></p> <p><i>ii. all exposures that are credit-impaired (in the meaning of exposures having experienced a downward adjustment to their valuation due to deterioration of their creditworthiness) according to the applicable accounting framework; or</i></p> <p><i>iii. all other exposures that are not defaulted or impaired but nevertheless:</i></p> <p style="padding-left: 20px;"><i>(a) are material exposures that are more than 90 days past due; or</i></p> <p style="padding-left: 20px;"><i>(b) where there is evidence that full repayment based on the contractual terms, original or, when applicable, modified (e.g. repayment of principal</i></p>

<i>framework shall always be considered as non-performing exposures.</i>	<i>and interest) is unlikely without the bank's realisation of collateral, whether or not the exposure is current and regardless of the number of days the exposure is past due.</i>
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Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

The scope of the definition is very close. However, interestingly, the EBA emphasised the quantitative and qualitative criteria and only concluded by making sure all defaulted and impaired exposures are also considered as NPE. On the contrary, the BCBS built on the default and impairment criteria and gave the quantitative and qualitative criteria diminished attention. Finally, the qualitative criteria “*unlikely to pay*” is more developed in the BCBS definition and included an explicit but indirect reference to the “*forbearance*” concept.

Table 2.6. Comparison of NPE collateral treatment

Collateral treatment	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines on Prudential treatment of problem assets - definitions of non-performing exposures and forbearance</i>
<i>Exposures shall be categorised for their entire amount and without taking into account the existence of any collateral.</i>	<p><i>Collateralisation or received guarantees should have no direct influence on the categorisation of an exposure as non-performing.</i></p> <p><i>However, the bank may consider the collateral when assessing a borrower's economic incentive (both positive and negative) to repay under the unlikeliness to repay criteria.</i></p>

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

Differences that are more significant can be found with regard to the collateral treatment. The EBA definition focused on the classification of the exposure at its gross value, while the BCBS made clear that the existence of guarantees or other form of collateralisation of the exposure would not affect its categorisation as NPE. Moreover, the BCBS made explicit one exception of the above: The collateral might be taken into account only when assessing the qualitative criterion of the definition. Therefore, while the EBA approach prefers to disentangle between the exposure and the collateral that might be associated to it, the BCBS approach considers that the

collateral does not have direct influence, but an indirect one via the assessment of the unlikelihood to repay qualitative criterion.

Table 2.7. Comparison of NPE recategorisation

Recategorisation	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines on Prudential treatment of problem assets - definitions of non-performing exposures and forbearance</i>
<p><i>Exposures shall be considered to have ceased being non-performing when all of the following conditions are met:</i></p> <p><i>(a) the exposure meets the exit criteria applied by the reporting institution for the discontinuation of the impairment and default classification;</i></p> <p><i>(b) the situation of the debtor has improved to the extent that full repayment, according to the original or when applicable the modified conditions, is likely to be made;</i></p> <p><i>(c) the debtor does not have any amount past-due by more than 90 days.</i></p>	<p><i>An exposure ceases to be non-performing and can be recategorised as performing when all the following criteria are simultaneously met:</i></p> <p><i>i. the counterparty does not have any material exposure more than 90 days past due;</i></p> <p><i>ii. repayments have been made when due over a continuous repayment period as specified by the supervisor of at least three months. A longer repayment period can be required for nonperforming forborne exposures;</i></p> <p><i>iii. the counterparty's situation has improved so that the full repayment of the exposure is likely, according to the original or, when applicable, modified conditions; and</i></p> <p><i>iv. the exposure is not "defaulted" according to the Basel II standard or "impaired" according to the applicable accounting framework.</i></p>

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

Another interesting feature of the definition is when the exposures could be reclassified or considered as cured, thus, exiting the NPE categorisation. The EBA included three criteria that should be met simultaneously, while the BCBS inherited those criteria and went one-step beyond. Indeed, the BCBS also clearly requested that the repayment had been continuously made in order to test that the exposure was cured. The main difference strives in the fact that it set a floor at three months,

but (i) it left the explicit possibility for supervisors to strengthen that minimum repayment period; and (ii) it made clear that non-performing forborne exposures should have a longer repayment period before exiting its categorisation as NPE.

These attempts for harmonisation constituted a significant step forward as regards asset quality comparability among (i) jurisdictions; and (ii) credit institutions within the same jurisdiction. However, it was clear from the beginning that such harmonisation was incomplete and *de minimis*. As it was immediately made evident that the NPE definition did not cover (i) the treatment of collateral and write-offs with sufficient detail; and (ii) the procedure for calculation the stock and coverage ratios (D`Hulster and Qefalia, 2016).

Montanaro (2019) considered that the standards could reduce room for under-reporting NPLs, but an opportunity was missed with regard to tackling the under-reporting of loan losses by broadening the scope of the standards. Neither the EBA nor the BCBS adequately covered that existing shortcoming. Only in the accounting context, with the IFRS 9 (please refer to section 2.1.3) an attempt to tackle that problem was made.

In the Banking Union, this incomplete harmonisation has been partially covered up by the European Central Bank (hereinafter, also “ECB”). With its *Guidance to banks on non-performing loans*, the ECB has set a number of expectations that credit institutions under its direct remit are recommended to follow, covering the treatment of collateral and write-offs.

However, it is worth noting that this document is in no way binding to credit institutions. However, as all guidances to credit institutions, it plays an important role in the supervisory dialogue and if deviations from it are not dully justified by a given credit institution, it might affect its Pillar 2 requirement. All in all, it constitutes a key development in the comprehensive efforts to tacke the NPEs burden.

Another shortcoming of the EBA and BCBS standards is their high-level categorisation of exposures, as presented in the table below.

Figure 2.2. EBA categorisation of exposures (template 18)

Gross carrying amount											
Performing					Non-performing						
	Not past due or Past due <= 30 days	Past due > 30 days <= 60 days	Past due > 60 days <= 90 days		Unlikely to pay that are not past-due or past-due < = 90 days	Past due > 90 days <= 180 days	Past due > 180 days <= 1 year	Past due > 1 year	Of which: defaulted	Of which: impaired	
010	020	030	040	050	060	070	080	090	100	110	120
Annex V. Part 2. 45, 109, 145-162	Annex V. Part 2. 145-162	Annex V. Part 2. 158	Annex V. Part 2. 158	Annex V. Part 2. 158	Annex V. Part 2. 145-162	Annex V. Part 2. 159	Annex V. Part 2. 159	Annex V. Part 2. 159	Annex V. Part 2. 159	CRR art 178; Annex V. Part 2.61	IAS 39. 58-70
Annex V. Part 2. 45, 109, 145-162	Annex V. Part 2. 145-162	Annex V. Part 2. 158	Annex V. Part 2. 158	Annex V. Part 2. 158	Annex V. Part 2. 145-162	Annex V. Part 2. 159	Annex V. Part 2. 159	Annex V. Part 2. 159	Annex V. Part 2. 159	CRR art 178; Annex V. Part 2.61	CRR art 4(95)

Source: EBA, 2014.

Some national supervisory authorities, in order to overcome this shortcoming, identify different categories of NPEs. For instance, Bank of Italy in its *Circular no. 272/2008 of 30 July 2008, updated on 16 July 2013*, divided NPEs in three categories as follows:

- Bad loans (*sofferenze*): exposures to debtors that are insolvent or in substantially similar circumstances.
- Unlikely-to-pay (*inadempienze probabili*): exposures in respect of which credit institutions believe the debtors are unlikely to meet their contractual obligations in full unless action such as the enforcement of guarantees is taken.
- Overdrawn and/or past-due (*esposizioni scadute e/o sconfinanti*): exposures that are overdrawn and/or past-due by more than 90 days and for above a predefined amount.

For many years Bank of Spain has had in place the Annex IX to its Accounting Circular, where there is a definition of “riesgo dudoso” as a proxy of “non-performing” (“exposiciones con incumplimiento”) and a provisioning framework for credit risk.

The version of the Annex IX, fully aligned with the ECB expectations, was included in the Circular 4/2017, of 27 November (Bank of Spain, 2018), which has been amended by the Circular 3/2020, of 11 June in order to adjust the Spanish financial legislation to the response of the European financial authorities to the COVID-19 situation.

In March 2018 the European Commission made another important step forward in the configuration of a harmonise approach. As part of its package of measures to deal with NPEs in the EU, the European Commission published its *Proposal for a Regulation of the European Parliament and the Council on amending Regulation (EU) No 575/2013 as regards minimum loss coverage for non-performing exposures, where it adopted the EBA definition of NPE.*

As indicated, this proposal built on the NPE definition included in European Commission Implementing Regulation (EU) 680/2014 and after its endorsement by the European legislative institutions, the European Council and the European Parliament in their *Regulation (EU) 2019/630 of the European Parliament and of the Council of 17 April 2019 amending Regulation (EU) No 575/2013 as regards minimum loss coverage for non-performing exposures* (hereinafter, *Regulation (EU) 2019/630*), it became binding for the European credit institutions the use of the EBA definition not only for supervisory reporting purposes but also for the purposes of the minimum loss coverage, as further developed in section 2.2 of this chapter. Therefore, the previous scope of the European NPE definition was broadened.

Table 2.8. NPE definition in Article 47a(3) Regulation (EU) 2019/630

Definition of NPE	
European Commission Proposal	Final adoption
(a) an exposure in respect of which a default is considered to have occurred (...);	(a) an exposure in respect of which a default is considered to have occurred (...);
(b) an exposure considered impaired in accordance with the applicable accounting framework;	(b) an exposure which is considered to be impaired in accordance with the applicable accounting framework;

<i>(c) an exposure under probation (...), where additional forbearance measures are granted or where it becomes more than 30 days past due;</i>	<i>(c) an exposure under probation (...), where additional forbearance measures are granted or where it becomes more than 30 days past due;</i>
<i>(d) an exposure in form of a commitment that, were it drawn down or otherwise used, would present a risk of not being paid back in full without realisation of collateral;</i>	<i>(d) an exposure in form of a commitment that, were it drawn down or otherwise used, would likely not be paid back in full without realisation of collateral;</i>
<i>(e) an exposure in form of a financial guarantee that is at risk of being called by the guaranteed party, including where the underlying guaranteed exposure meets the criteria to be considered as non-performing.</i>	<i>(e) an exposure in form of a financial guarantee that is likely to be called by the guaranteed party, including where the underlying guaranteed exposure meets the criteria to be considered as non-performing.</i>

Source: Own elaboration based on European Commission, 2018 and Eur-Lex (Official Journal of the European Union), 2019.

As presented in the table above, the amendments introduced in the legislative procedure were minimal, showing that there was a full alignment among the three participating EU institutions. On the contrary, it is worth noting that there are remarkable differences between this definition and the one used by the EBA. Firstly, it follows the approach taken by the BCBS, building the definition on the basis of the pre-existing definitions of “default” and “impairment”. Secondly, the probation status of an exposure is directly included in the definition. Finally, the “unlikely-to-pay” criterion is further specified in letters d) and e).

To conclude, it is worth noting that the NPE definition is strictly speaking only binding for supervisory reporting, for the associated loan loss provisions and limited to asset quality exercises within the EU. Nevertheless, the European authorities encourage credit institutions to use the term NPE and its definition also for their internal risk control and public financial reporting with a view to turn NPE into the new standard in the banking sector. Overall, regardless of the efforts of the EBA on coining a common definition the divergences in public financial reporting across European credit institutions are still in place. The table below exemplifies these divergences for the ten largest EU banking groups by comparing the number of times

a concept is mentioned in the results presentation as well as in the regulated reporting (i.e. Pillar 3 report⁷) as at year-end 2022.

Table 2.9. Overview of the use of NPE and NPL concepts in the banks' (un)regulated reports

Bank	Results presentation		Pillar 3 report	
	NPL	NPE	NPL	NPE
BNP Paribas SA	11	0	11	42
Crédit Agricole Group	12	0	8	30
Banco Santander SA	9	0	5	24
Groupe BPCE	1	0	8	15
Société Générale SA	3	0	21	2
Deutsche Bank AG	1	0	5	53
Intesa Sanpaolo SpA	79	0	45	34
Crédit Mutuel Group	7	0	80	30
ING Groep NV	1	0	11	26
UniCredit SpA	0	29	15	30

Source: Own elaboration, based on bank's year-end 2022 results presentations as well as Pillar 3 reports.

Analysing the table above we clearly see how banks include references to the concept of NPE in the regulated report. However, this basically refers to the inclusion of the tables designed by the EBA. Even one banking group, Société Générale, does not include those tables in its Pillar 3 report (but potentially in a separate document). On the contrary, the use of NPL concept is still dominant in the unregulated reports, except for UniCredit, and still has a relevant footprint in the regulated reporting exercises. Therefore, despite the policy efforts anchored by the EBA and followed by the EU legislation in the area of reporting there is still significant room for improvement in terms of homogenisation of terminology.

The EBA, acknowledging that those divergences still exist, decided to create standardised data templates in order to facilitate sale transactions across the EU.

⁷ Following the mandate of Article 434a of CRR2, the EBA adopted a standardised approach in elements for banks' Pillar 3 disclosures with the *EBA/ITS/2020/04: Implementing technical standards on public disclosures by institutions of the information referred to in Titles II and III of Part Eight of Regulation (EU) No 575/2013*.

These templates offer a common data set for (i) the screening, (ii) financial due diligence and (iii) valuation with regard to NPE transactions (EBA, 2018).

At the international level, the harmonisation process is even slower due to the lack of enforceability of the guidelines issued by the BCBS, relying solely on its moral suasion and the will of the participating jurisdictions to implement the definition in their respective legislations.

Acknowledging the differences, as presented in the table below, in this dissertation we will be forced to occasionally refer indistinctively to NPE, NPA or NPL⁸ due to the use of data and/or sources that do not clarify the scope of the definition, i.e. the instruments covered. As acknowledged by Baudino et al. (2018), NPL is still the term most commonly used in academia and among market participants. However, it is well-noted that from a regulatory point of view NPE is the key concept, as defined in the applicable European legislation.

Table 2.10. Categories of “non performing” based on the instruments covered

Concept	Acronym	Instruments covered
Non-performing loans	NPLs	Loans
Non-performing assets	NPAs	Loans, securities (excluding trading book) and foreclosed assets
Non-performing exposures	NPEs	Loans, securities (excluding trading book), and off-balance sheet exposures

Source: Own elaboration.

Therefore, the overarching concept is the non-performing exposures, which includes the non-performing assets and the non-performing loans (in turn, a subset of the non-performing assets). In this dissertation, and in particular in chapters 3 and 4, we will use the concept of NPE when we refer to the data with reference date as from the entry into force of this definition in the EU, whereas NPL remains valid for the timespan before that moment when the dataset were not adjusted or for

⁸ This approach has been also followed by the ECB in its Guidelines to banks.

international sources. Likewise, in chapter 5, when we present the state-sponsored asset management companies put forward by Member States we will use both definitions depending on the reference date and the sources used.

2.1.2. Definition of forbearance

The academic literature uses the term forbearance to describe two different situations: (i) regulatory forbearance and (ii) private forbearance.

The concept of the regulatory forbearance refers to a situation where regulators decide not to take timely action to prevent the negative externalities of failing banks and, consequently, close insolvent banks. That is to say, it is a time buffer regulators grant financial institutions for them to solve their financial problems before the authorities take actions.

This concept was at the center of the policy and academic discussions in the aftermath of the banking crises of the 1980s and early 1990s in the US, when deposit insurance funds incurred in significant losses due to a dysfunctional use of this practice. As a response, the U.S. Congress created a system of “*Prompt Corrective Action*” to limit regulators’ ability to forbear (Edwards, 2011). This discretionary decision, executed in a case-by-case basis, is usually based on the “Too-Big-to-Fail”⁹ and “Too-Many-to-Fail” approaches (Kasa and Spiegel, 2008; Brown and Dinç, 2011).

When it is implemented following sound standards, it should provide credit institutions adequate time to take corrective actions in order to reduce risks and implement structural changes to strength their solvency position. However, it is worth noting that its use needs to be carefully assessed. If a forbearance policy only artificially expands the timespan for the failure of a credit institution, it would increase the aggregate costs of the failure (Eisenbeis and Horvitz, 1994).

⁹ According to Dash (2009), the too-big-to-fail doctrine started with the federal financial support provided to New York City in 1914. Then, in the context of the bailout of Continental Illinois Bank, a U.S. congressman, Stewart McKinney, indicated that “the government had created a new class of banks, those too big to fail.”

Here we will focus on the second meaning of the forbearance concept: the so-called “private forbearance” or “forbearance lending”. It refers to the *ex post* renegotiation of the initial terms of a contract between a credit institutions and a borrower facing (temporary) financial difficulties. This meaning has its terminological roots in the aftermath of the Japanese financial crisis in the early 1990s, when real estate prices crashed and many borrowers were in trouble.

When “private forbearance” is used to assist borrowers experiencing temporary financial difficulties, credit institutions aim at maximising the recovery value of their assets, reducing the potential of a fire sale and avoiding repossession costs and provisions. By doing so, in turn, at firm-level they are believed to reduce credit risk and credit losses. Moreover, at macroeconomic level its use would limit the erosion of the economy’s supply potential during a downturn (Arrowsmith et al, 2013). This is known as “*good forbearance*”, being an effective tool for risk management (BCBS, 2017).

On the contrary, “bad forbearance”, also known as “zombie lending” (Caballero et al., 2005) or “evergreening” (Peek and Rosengren, 2005; Watanabe, 2010), would be used not to alleviate borrowers’ underlying temporary constraints but to mask persistent financial difficulties. It is described as a tool of “extend and pretend”¹⁰ for inadequate risk management, as those assets are left without the adequate treatment in the credit institution’s balance sheet. Indeed, it is sometimes used as a strategy to artificially reduce NPEs and to avoid negative attention to the deterioration of the asset quality by postponing provisions and, in turn, avoiding the erosion of investors’ confidence in the solvency of a credit institution.

In this case, there is a misallocating of resources to non-viable borrowers at the expense of sound companies (BCBS, 2017). This type of forbearance confers credit institutions the possibility to defer the recognition of losses, distorting their financial

¹⁰ The excessive and inappropriate recourse to forbearance measures have been a key ingredient of financial crises, as during the “Tequila effect” started in 1994 in Mexico, and also posed difficulties to the recovery following a financial distress, as during the Japanese lost decade in 1990s (Calomiris and Haber, 2014).

reports. It has been particularly used at the peak and in the aftermath of financial crises (Huizinga and Laeven, 2012).

Therefore, it is clear that the term “forbearance” should not be directly associated to “bad forbearance”. As presented above, the key factor when considering applying forbearance measures is to evaluate whether a borrower is experiencing temporary or persistent financial difficulties.

When an economy is growing, even in the run up to a crisis, few bank clients present difficulties to repay the amounts borrowed. In this context, the adoption of forbearance measures is negligible. On the contrary, when the economic cycle moves to a negative outlook, supervisors typically shine a spotlight on forbearance practices as a consequence of the potential deterioration of the credit portfolios of the credit institutions. In the aftermath of the GFC and at the peak of the sovereign crisis in the EU, some national authorities reacted while others continued silent. A coordinated EU-wide policy response was not even envisaged at that point in time.

In Spain, the *Circular 6/2012 of Bank of Spain* requested Spanish credit institutions to disclose the amount of forbearance exposures on an annual basis. Moreover, the *Code of good banking practice* was issued including some guidelines on forbearance measures, such as the recommendation to evaluate whether the client is under transitional difficulties. If so, credit institutions and clients facing temporary problems could renegotiate the terms of their contract to adapt to the current situation of the debtor (Plata et al., 2017).

In July 2014, the EBA decided to step in. Together with the NPE definition, it developed harmonised criteria in order to identify forbearance measures for supervisory reporting. As described in the table below, the EBA deviated from the purely conceptual debate of “good forbearance” and “bad forbearance”, as it is based on a mainly subjective decision of credit institutions. The EBA tried to integrate both subjective and objective factors when defining two categories: (i) “performing exposures with forbearance measures” and (ii) “non-performing exposures with forbearance measures”.

Figure 2.3. EBA categorisation of forbearance measures (Template 19)

Gross carrying amount of exposures with forbearance measures										
Performing exposures with forbearance measures					Non-performing exposures with forbearance measures					
		Instruments with modifications in their terms and conditions	Refinancing	of which: Performing forbearance exposures under probation		Instruments with modifications in their terms and conditions	Refinancing	of which: Defaulted	of which: Impaired	of which: Forbearance of non-performing exposures
010	020	030	040	050	060	070	080	090	100	110

Source: EBA, 2014.

Contrary to academic attention to NPLs, before the EBA 2014 document there was not much published on forbearance in the EU. It was a concept that did not deserve attention by European academia.¹¹ Among regulators it was not either as important as the discussions on NPLs.

According to Homar et al. (2015) this perceived lack of attention was, indeed, explained by the lack of data for conducting empirical studies. We could cite the exceptions of the ESRB Advisory Scientific Committee (2012) and the Bank of England (i.e. in its Financial Stability Report of June 2011 and the Quarterly Bulletin of Q42013) publications as significant anchors of the regulatory debate ahead of the EBA technical standards.

We had to wait until 2015, only after the EBA definition of forbearance, for the first study that empirically analyses forbearance in the EU. It was conducted by Homar et al. (2015), leveraging on the asset quality review performed on 130 Eurozone credit institutions ahead of the establishment of the Single Supervisory Mechanism (hereinafter, also “SSM”) in 2014. They concluded that the main factors explaining

¹¹ On the contrary, in Japan it has been one of the key aspects of the studies explaining the Japanese “lost decade”. However, as recognised by Kobayashi et al. (2003): “On the empirical side, a difficulty arises in that we cannot see, from observed data, whether banks had deemed borrower firms unable to repay the outstanding loans when they decided to roll them over”. Thus, this major constraint could be one of the reasons for the lack of empirical studies.

forbearance are the following: (i) adverse macroeconomic conditions; (ii) lax bank supervision; and (iii) measures of bank weakness.

In 2016, the BCBS acknowledged that forborne exposures represented a significant amount of existing NPLs and there seemed to be different definitions and practices of forbearance across participating jurisdictions and credit institutions within those jurisdictions that, in turn, would affect the comparability of NPLs. As way-forward in this regard it established a task force with a clear mandate: to study how forbearance was defined and implemented in 28 jurisdictions and a sample of their banks.

The task force identified that most of the jurisdictions (26 out of 28) had a term referring to modified contracts due to a borrower’s financial difficulty. “Forborne” and “restructured” were the most common terms. In 9 jurisdictions the term “forborne” was used, while in most of the other jurisdictions “restructured” was the most widely-used term, followed by “renegotiated”, “rescheduled” or “troubled debt restructuring”.

Of course, even working under the assumption that those terms could be considered as synonyms, in the absence of an international applicable definition it was almost impossible to effectively compare practices across jurisdictions. Indeed, it was perfectly possible that even described with a different term, in practical terms, two concepts were closer in their categorisation than the same term across two jurisdictions. As a conclusion, it became evident that each jurisdiction had a particular definition to describe the modification of contracts where borrowers were facing financial difficulties. However, it is worth highlighting that several commonalities were identified.

Table 2.11. Main results of the analysis conducted by the task-force of the BCBS

Commonalities	Differences
<ul style="list-style-type: none"> <i>The definition refers to a change of the terms of the contract to address a borrower’s financial difficulty;</i> 	<ul style="list-style-type: none"> <i>The definition of financial difficulty (the essential characteristic to distinguish forbearance from other changes in credit terms that are commercially motivated); the</i>

<ul style="list-style-type: none"> • Forbearance could allow the upgrade of a non-performing exposure to performing status and • Cross-cutting category: credit institutions could assign forborne loans to various other credit categories 	<p>types of forbearance measure and concession that qualify as forbearance;</p> <ul style="list-style-type: none"> • The conditions under which the recognition of forborne exposures as impaired, defaulted, non-performing or the categories; • The credit categorisation schemes in which they are included, and whether a forborne exposure must at a minimum be included in a given category; and • When an upgrade is possible, the conditions imposed before the upgrade to performing vary, including the mandatory probation period during which the restructured borrower has to show good compliance with the restructured conditions before being considered as performing
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Source: BCBS, 2017.

As in the case of the NPE definition, the BCBS built its definition of forbearance on the commonalities in existing definitions of similar terms, as outlined above. The objective was ambitious but clear. The standard aimed at providing clarity from a terminological point of view as well as guidance on quantitative and qualitative criteria for credit categorisation. As a result it should ensure consistency in supervisory reporting, enhancing comparability when supervisors and market participants were to analyse the asset quality of credit institutions (BCBS, 2017).

In order to have a clear understanding on how the EBA and the BCBS approached the establishment of their standards, we will analyse the key components of both definitions following a systematic approach, as the one followed with regard to the NPE definition.

Table 2.12. Definition of forbearance measures

Forbearance measures	
Commission Implementing Regulation (EU) 2015/227	BCBS Guidelines for definitions of non-performing exposures and forbearance
Forbearance ¹² measures consist of concessions towards a debtor that is	-Forbearance occurs when:

¹² The EBA defined forborne exposures as debt contracts in respect of which forbearance measures have been applied.

<p><i>experiencing or about to experience difficulties in meeting its financial commitments ('financial difficulties').</i></p> <p><i>Exposures shall be regarded as forborne where a concession has been made, irrespective of whether any amount is past due or of the classification of the exposures as impaired in accordance with the applicable accounting framework or as defaulted in accordance with Article 178 of CRR.</i></p>	<ul style="list-style-type: none"> • <i>a counterparty is experiencing financial difficulty in meeting its financial commitments; and</i> • <i>a bank grants a concession that it would not otherwise consider, whether or not the concession is at the discretion of the bank and/or the counterparty.</i> <p><i>A concession is at the discretion of the counterparty (debtor) when the initial contract allows the counterparty (debtor) to change the terms of the contract in its own favour (embedded forbearance clauses) due to financial difficulty.</i></p> <ul style="list-style-type: none"> • <i>The identification of an exposure as forborne does not affect its categorisation as impaired for accounting purposes or as defaulted in accordance with the regulatory framework.</i> <p><i>-Forbearance includes concessions that are granted due to the counterparty's financial difficulty on any exposure in the form of a loan, a debt security or an off-balance sheet item (e.g. loan commitments or financial guarantees), regardless of the measurement method for accounting purposes.</i></p> <p><i>-Forbearance recognition is not limited to measures that give rise to an economic loss for the lender.</i></p>
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Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

Both definitions of forbearance are structured based on two main components: (i) the concept of “concession”, and (ii) the concept of “financial difficulty”. Moreover, they make clear that they are not directly linked to the categorisation as impaired or defaulted.

However, there are some differences. Firstly, the BCBS definition is more detailed. It is worth noting the interplay between the two components in the BCBS definition, while in the case of the EBA this interplay is only covered when defining “concession”. As it is clearly stated, the concession is granted to the borrower as a direct consequence of its financial difficulties. Secondly, the EBA definition not only covers the current financial difficulties of the borrower, as in the BCBS definition, but also its likely future financial difficulties.

Thus, we could tend to think that the scope of the EBA definition is wider than the BCBS definition, as it also tries to capture the concessions granted to borrowers when it is clearly expected that they will enter in financial difficulties to honour their commitment shortly. However, when the BCBS standard provides examples of “financial difficulties” it also covers the bank’s expectations that the client will face financial difficulties in the near future. Therefore, we should conclude that both definitions have the same, or very similar, objective scope.

With regard to the component of “financial difficulty” it is worth highlighting that even though this concept is pivotal for the “forbearance” definition of the EBA, it is simply defined as “difficulties in meeting its financial commitments”, while in the case of the BCBS guidelines much more attention has been given to this concept by providing a non-exhaustive list of examples, as presented in the table below.

Table 2.13. Examples of indicators of financial difficulty

Definition of financial difficulty in the BCBS Guidelines for definitions of non-performing exposures and forbearance
<p><i>Financial difficulty: in order to identify cases of forbearance, banks should first determine if the counterparty is experiencing financial difficulty at the time when the forbearance is granted.</i></p> <p><i>The following list provides examples of possible indicators of financial difficulty, but is not intended to constitute an exhaustive enumeration of financial difficulty indicators with respect to forbearance. In particular, financial difficulty can be identified even in the absence of arrears on an exposure:</i></p> <p><i>(a) A counterparty is currently past due on any of its material exposures.</i></p> <p><i>(b) A counterparty is not currently past due, but it is probable that the counterparty will be past due on any of its material exposures in the foreseeable future without the concession, for instance, when there has been a pattern of delinquency in payments on its material exposures.</i></p> <p><i>(c) A counterparty’s outstanding securities have been delisted, are in the process of being delisted, or are under threat of being delisted from an exchange due to noncompliance with the listing requirements or for financial reasons.</i></p> <p><i>(d) On the basis of actual performance, estimates and projections that encompass the counterparty’s current capabilities, the bank forecasts that all the counterparty’s committed/available cash flows will be insufficient to service all of its loans or debt securities (both interest and principal) in accordance with the contractual terms of the existing agreement for the foreseeable future.</i></p> <p><i>(e) A counterparty’s existing exposures are categorised as exposures that have already evidenced difficulty in the counterparty’s ability to repay in accordance with the supervisory</i></p>

categorisation scheme in force or the credit categorisation scheme within a bank’s internal credit rating system.

(f) A counterparty is in non-performing status or would be categorised as nonperforming without the concessions.

(g) The counterparty cannot obtain funds from sources other than the existing banks at an effective interest rate equal to the current market interest rate for similar loans or debt securities for a non-troubled counterparty.

Source: BCBS, 2017.

As regards another key component of the “forbearance” definition, the concept of “concession” the comparative analysis is more balanced, as both definitions concede detailed attention to it, as presented in the table below.

Table 2.14. Definition of concession

Concession	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines for definitions of non-performing exposures and forbearance</i>
<p><i>A concession refers to either of the following actions:</i></p> <p><i>(a) a modification of the previous terms and conditions of a contract that the debtor is considered unable to comply with due to its financial difficulties ('troubled debt') resulting in insufficient debt service ability and that would not have been granted had the debtor not been experiencing financial difficulties;</i></p> <p><i>(b) a total or partial refinancing of a troubled debt contract, that would not have been granted had the debtor not been experiencing financial difficulties.</i></p> <p><i>A concession may entail a loss for the lender.</i></p> <p><i>Exposures shall not be treated as forborne where the debtor is not in financial difficulties”.</i></p>	<p><i>Concessions are special contractual terms and conditions provided by a lender to a counterparty facing financial difficulty so that the counterparty can sufficiently service its debt.</i></p> <p><i>The main characteristic of these concessions is that a lender would not extend loans or grant commitments to the counterparty, or purchase its debt securities, on such terms and conditions under normal market conditions.</i></p> <p><i>Supervisors may set specific materiality thresholds for what constitutes a concession.</i></p> <p><i>Not all concessions lead to a reduction in the net present value of the loan, and therefore a concession does not necessarily lead to the recognition of a loss by the lender.</i></p> <p><i>There is no concession when the borrower is not in financial difficulty.</i></p>

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

In both definitions of concession it is clear that terms and conditions of the initial contract are reformulated only for the purposes of alleviating the borrower’s position, which has changed compared to the moment where the contract was signed. This renegotiation of the contract deviates from the “normal market

conditions”, as recognised by the BCBS. That is to say, there is an *ex novo* favourable treatment to the debtor facing financial difficulties.

The main source of divergence between the two definitions is when they describe the effects of granting such a favourable treatment. In the case of the EBA definition, the emphasis is put on the potential loss of the lender. While in the case of the BCBS, it is made clear that concessions do not necessarily lead to the recognition of a loss. Finally, the BCBS definition draws its attention to the important role of supervisors with regard to the bank’s concessional practices, when suggesting that materiality thresholds could be imposed by them.

Table 2.15. Evidence of concession

Evidence of concession	
Commission Implementing Regulation (EU) 2015/227	BCBS Guidelines for definitions of non-performing exposures and forbearance
<p>(a) a difference in favour of the debtor between the modified terms of the contract and the previous terms of the contract;</p> <p>(b) inclusion in a modified contract of more favourable terms than other debtors with a similar risk profile could have obtained from the same institution at that time.</p> <p>The exercise of clauses which, when used at the discretion of the debtor, enable the debtor to change the terms of the contract (‘embedded forbearance clauses’) shall be treated as a concession when the institution approves executing those clauses and concludes that the debtor is experiencing financial difficulties.</p>	<p>(a) changes in the conditions of the existing contract, giving considerably more favourable terms for the counterparty;</p> <p>(b) a supplementary agreement, or a new contract to refinance the current transaction; or</p> <p>(c) the exercise of clauses embedded in the contract that enable the counterparty to change the terms and conditions of its contract or to take on additional loans, debt securities or off-balance sheet items at its own discretion. These actions should only be treated as concessions if the bank assesses that the counterparty is in financial difficulty.</p> <ul style="list-style-type: none"> • Refinancing an existing exposure with a new contract due to the financial difficulty of a counterparty could qualify as a concession, even if the terms of the new contract are no more favourable for the counterparty than those of the existing transaction.

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

Both standards put their spotlight on the favourable terms and conditions of the modified contract. However, while the EBA focuses only on the modification of the existing contract, the BCBS goes beyond and considers as an evidence of concession

any refinancing measure, including a new contract, based on the financial difficulty of the borrower.

This enhancement allows the BCBS to consider explicitly as a concession the new contract even if its terms are not more favourable than the ones included in the first contract. However, it is clear that in case of financial difficulty of a debtor, the terms and conditions of the second contract should be more severe, as its financial position is weaker than the one at the time of the first contract. Therefore, by maintaining the original terms, in practice, the credit institution would be applying more favourable conditions to that particular client than to clients with the same risk profile.

Finally, as in the case of the “financial difficulty” component, the BCBS guidelines included a non-exhaustive list of examples with regard to “concession”, as presented in the table below.

Table 2.16. Examples of indicators of concessions

Definition of financial difficulty in the <i>BCBS Guidelines for definitions of non-performing exposures and forbearance</i>
<p><i>There are many types of concession granted by lenders, or exercised by counterparties in existing contracts, that could be considered as forbearance. When a borrower is assessed as experiencing financial difficulty, examples of potential concessions are:</i></p> <ul style="list-style-type: none"> <i>(a) extending the loan term;</i> <i>(b) rescheduling the dates of principal or interest payments;</i> <i>(c) granting new or additional periods of non-payment (grace period);</i> <i>(d) reducing the interest rate, resulting in an effective interest rate below the current interest rate that counterparties with similar risk characteristics could obtain from the same or other institutions in the market;</i> <i>(e) capitalising arrears;</i> <i>(f) forgiving, deferring or postponing principal, interest or relevant fees;</i> <i>(g) changing an amortising loan to an interest payment only;</i> <i>(h) releasing collateral or accepting lower levels of collateralisation;</i> <i>(i) allowing the conversion of debt to equity of the counterparty;</i> <i>(j) deferring recovery/collection actions for extended periods of time; and</i> <i>(k) easing of covenants.</i>

Source: BCBS, 2017.

Regarding the subjective scope of the definition of forbearance we could consider that both definitions diverge. The EBA considers that it should be assessed at debtor level but taking into account the highest level of consolidation. On the contrary, the BCBS focuses on the individual exposure of the debtor.

However, it is worth noting that in the case of granting new funding to a given debtor if the conditions are maintained despite of the increase in its risk profile, it is also evaluated as a form of concession by the BCBS standard. Consequently, we could conclude that the BCBS definition departs from the individual exposure consideration and arrives at the debtor level approach in practical terms.

Still, there seems to be a significant difference. While in the case of the EBA the debtor's group plays a central role, in the BCBS definition there is only a reference to individual counterparties, as presented in the following table. Therefore, the approach followed is not equivalent.

Table 2.17. Different subjective scope of the standards

Subjective scope	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines for definitions of non-performing exposures and forbearance</i>
<i>Financial difficulties shall be assessed at debtor level, (...) including all the natural and legal entities in the debtor's group which are within the accounting scope of consolidation.</i>	<p><i>Forbearance is identified at the individual exposure level to which concessions are granted due to financial difficulty of the counterparty.</i></p> <p><i>A counterparty is a natural or legal person to which a bank has exposures.</i></p>

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

There are powerful reasons behind these diverging approaches. As explained by Baudino et al. (2018) only in the EU jurisdictions there is a group level approach that connects borrowers belonging to the same group. On the contrary, in the US and the majority of other member countries of the BCBS the categorization is done only on an individual basis. Therefore, as the standard was built on the existing commonalities, it is clear that the subjective scope of the BCBS definition of forbearance should deviate from the EU group approach.

As outlined above, both definitions did not follow the academic distinction between “good” and “bad forbearance”. In turn, they made clear that forbearance measures can be granted either to performing exposures or to non-performing exposures. The BCBS clarifies that there are two main components which are relevant for the categorisation:

- i) the status of the exposure at the time when forbearance is granted; and
- ii) the counterparty’s payment history or creditworthiness after the extension of forbearance.

The EBA standard presents a systematic approach for differentiating between the performing and non-performing with forbearance measures, including detailed categorisation. On the contrary, in the case of the BCBS standard there are only a number of principles guiding the supervisory practices that banks should follow. Therefore, it allows for some degree of discretion.

Table 2.18. Categorisation of forbearance measures

<i>Performing vs non-performing</i>	
<i>Commission Implementing Regulation (EU) 2015/227</i>	<i>BCBS Guidelines for definitions of non-performing exposures and forbearance</i>
<p><i>‘Performing exposures with forbearance measures’ comprise forborne exposures that do not meet the criteria to be considered as non-performing.</i></p> <p><i>Forborne exposure may be considered as performing from the date the forbearance measures were applied where either of the following conditions is met:</i></p> <p><i>(a) that extension has not led the exposure to be classified as non-performing;</i></p> <p><i>(b) the exposure was not considered to be a non-performing exposure at the date the forbearance measures were extended.</i></p>	<p><i>Banks should not use forbearance practices to avoid categorising loans as non-performing.</i></p> <p><i>Categorising loans as performing or as less risky by extending forbearance is a source of divergence.</i></p> <p><i>Therefore, the definition prohibits the upgrading of a non-performing exposure by granting forbearance measures and requires a separate categorisation for forborne exposures.</i></p> <p><i>Banks should pay particular attention to the appropriate categorisation of exposures on which forbearance has been granted more than once.</i></p>
<p><i>‘Non-performing exposures with forbearance measures’ comprise forborne exposures that</i></p>	<p><i>When forbearance is applied to a non-performing exposure, the exposure should remain non-performing.</i></p>

<p><i>meet the criteria to be considered as non-performing.</i></p> <p><i>Those non-performing exposures with forbearance measures include the following:</i></p> <p><i>(a) exposures which have become non-performing due to the application of forbearance measures;</i></p> <p><i>(b) exposures which were non-performing prior to the extension of forbearance measures;</i></p> <p><i>(c) exposures to which the conditions for existing the classification as non-performing are not met simultaneously;</i></p> <p><i>(d) forborne exposures which have been reclassified from the performing category, including exposures under probation having been re-forborne or are more than 30 days past-due.</i></p>	<p><i>When forbearance is applied to a performing exposure, the bank then needs to assess whether the exposure meets the non-performing criteria, even if the forbearance resulted in a new exposure.</i></p> <p><i>When the original exposure would have been categorised as non-performing at the time of granting forbearance, had the forbearance not been granted, the new exposure should be categorised as non-performing.</i></p> <p><i>When a forborne exposure under the probation period is granted new forbearance, this should trigger a re-start of the probation period, and banks should consider whether the exposure should be categorised as non-performing.</i></p> <p><i>When a forborne exposure becomes non-performing during the 12-month probation period, the probation period starts again.</i></p>
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Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and BCBS, 2017.

Interestingly, the EBA standard includes in its systematic approach a rebuttable presumption that forbearance has taken place together with a list of cases that shall be treated necessarily as a forbearance measure in order to harmonise the existing practices, as presented below.

Table 2.19. Rebuttable presumption vs. Mandatory consideration of forbearance measures

Commission Implementing Regulation (EU) 2015/227	
Rebuttable presumption	Mandatory consideration
<p><i>(a) the modified contract was totally or partially past due by more than 30 days (without being non-performing) at least once during the three months prior to its modification or would be more than 30 days past due, totally or partially, without modification;</i></p> <p><i>(b) simultaneously with or close in time to the concession of additional debt by the institution, the debtor made payments of principal or interest on another contract with the institution that was totally or partially past due by 30 days at least once during the three months prior to its refinancing;</i></p>	<p><i>(a) a modified contract that has been classified as non-performing before the modification or would in the absence of modification be classified as non-performing;</i></p> <p><i>(b) the modification that has been made to a contract involves a total or partial cancellation by write-offs of the debt;</i></p> <p><i>(c) the institution approves the use of embedded forbearance clauses for a debtor who is non-performing or who would be considered as non-performing without the use of those clauses;</i></p> <p><i>(d) simultaneously with or close in time to the concession of additional debt by the</i></p>

<i>(c) the institution approves the use of embedded forbearance clauses for 30 days past due debtors or debtors who would be 30 days past due without the exercise of those clauses.</i>	<i>institution, the debtor made payments of principal or interest on another contract with the institution that was non-performing or would in the absence of refinancing be classified as non-performing.</i>
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Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015.

As commented, in March 2018, the European Commission, as part of the European Commission’s package of measures to deal with NPEs in the European Union, decided to set a “minimum loss coverage for non-performing exposures”, including also a definition of forbearance measures recognising the direct link of these two asset quality concepts.

As in the case of the NPE definition, the proposal built on the forborne exposures and forbearance measures definitions included in the *European Commission Implementing Regulation (EU) 680/2014*. This proposal, as explained above, became the Regulation (EU) 2019/630, broadening the original scope of the standards, as they became applicable not only for supervisory reporting purposes but also for the purposes of the minimum loss coverage among European credit institutions.

It is worth noting that the definition of forbearance included in the European Commission’s proposal was slightly modified during the legislative approval process, as described in the table below.

Table 2.20. Definition of forbearance measures in Article 47b Regulation (EU) 2019/630

Definition of forbearance	
European Commission Proposal	Final adoption
<i>a concession by an institution towards an obligor that is experiencing or is likely to experience a deterioration in its financial situation.</i>	<i>a concession by an institution towards an obligor that is experiencing or is likely to experience difficulties in meeting its financial commitments.</i>

Source: Own elaboration based on European Commission and Eur-Lex (Official Journal of the European Union), 2019.

As the definition was based on the standard created by the EBA it maintains its two main components: (i) concession; and (ii) financial difficulty of the debtor. The original proposal was probably too broad because a borrower could experience deterioration in its financial situation, but still be able to honour the debt without significant problems. Thus, its substitution for a narrower objective scope, more in

line with both the EBA and BCBS standards, in the final adoption is welcomed, as it respects the key component of “being in a financial difficulty”.

The main novelty of the Article 47b of the Regulation (EU) 2019/630 compared to the definition of forbearance included in the Commission Implementing Regulation (EU) 2015/227 is the enhancement of the non-exhaustive list of situations that are considered as forbearance measures.

Table 2.21. Non exhaustive list of forbearance measures

Mandatory consideration of forbearance	
Commission Implementing Regulation (EU) 2015/227	Article 47b of the Regulation (EU) 2019/630
<p><i>(a) a modified contract that has been classified as non-performing before the modification or would in the absence of modification be classified as non-performing;</i></p> <p><i>(b) the modification that has been made to a contract involves a total or partial cancellation by write-offs of the debt;</i></p> <p><i>(c) the institution approves the use of embedded forbearance clauses for a debtor who is non-performing or who would be considered as non-performing without the use of those clauses;</i></p> <p><i>(d) simultaneously with or close in time to the concession of additional debt by the institution, the debtor made payments of principal or interest on another contract with the institution that was non-performing or would in the absence of refinancing be classified as non-performing.</i></p>	<p><i>(a) new contract terms are more favourable to the obligor than the previous contract terms, where the obligor is experiencing or is likely to experience difficulties in meeting its financial commitments;</i></p> <p><i>(b) new contract terms are more favourable to the obligor than contract terms offered by the same institution to obligors with a similar risk profile at that time, where the obligor is experiencing or is likely to experience difficulties in meeting its financial commitments;</i></p> <p><i>(c) the exposure under the initial contract terms was classified as non-performing before the modification to the contract terms or would have been classified as non-performing in the absence of modification to the contract terms;</i></p> <p><i>(d) the measure results in a total or partial cancellation of the debt obligation;</i></p> <p><i>(e) the institution approves the exercise of clauses that enable the obligor to modify the terms of the contract and the exposure was classified as non-performing before the exercise of those clauses, or would be classified as non-performing were those clauses not exercised;</i></p> <p><i>(f) at or close to the time of the granting of debt, the obligor made payments of principal or interest on another debt obligation with the same institution, which was classified as a non-performing exposure or would have been classified as non-performing in the absence of those payments;</i></p> <p><i>(g) the modification to the contract terms involves repayments made by taking possession of collateral, where such modification constitutes a concession.</i></p>

Source: Own elaboration based on Eur-Lex (Official Journal of the European Union), 2015 and 2019.

Despite the homogenisation efforts of EU authorities and the BCBS the European banks still use other denominations, as “restructured” instead of “forbearance”/ “forborne exposures”. Among the ten largest European banks this is the case of the four French banks. Moreover, the degree of transparency as regards the disclosure of the modification of contracts where borrowers were facing financial difficulties is rather limited across the largest EU banks, with the exception of Intesa Sanpaolo. On the contrary, this information is typically included in the Pillar 3 report, as it is part of the minimum information to be reported.

Table 2.22. Overview of the use of forbearance/forborne exposures as well as other similar terms in the banks’ (un)regulated reports

Bank	Results presentation		Financial statements/Annual report		Pillar 3 report	
	Forbearance /Forborne exposure	Other denomination	Forbearance / Forborne exposures	Other denominations	Forbearance / Forborne exposures	Other denominations
BNP Paribas SA	0	0	1	2 (restructured)	11 (in tables)	33 (restructured)
Crédit Agricole Group	0	0	0	19 (restructured)	10 (in tables)	38 (restructured)
Banco Santander SA	0	0	0	0	20	0
Groupe BPCE	0	0	0	15 (restructured)	26	3 (restructuring), 1 (deferral)
Société Générale SA	0	0	0	18 (restructured)	25	7 (restructured)
Deutsche Bank AG	0	0	0	0	27	1 (restructuring); 1 (modification)
Intesa Sanpaolo SpA	6	0	174	3 (deferral)	59	0
Crédit Mutuel Group	0	0	4	23 (restructured)	6	19 (restructured)
ING Groep NV	0	0	27	2 (restructured), 2 (concession)	34	0
UniCredit SpA	0	0	108	0	35	0

Source: Own elaboration, based on bank’s year-end 2022 results presentations as well as Pillar 3 reports.

2.1.3. Concept of default

In the European Union, the *Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business*

of credit institutions (commonly denominated, “Capital Requirements Directive” or “CRD”) introduced the definition of default in its Annex VII, Part 4, point 44. This definition includes a subjective criterion, the unlikelihood to pay, and an objective one, a specific number of days past due, as presented in the table below.

Table 2.23. Definition of default in the CRD

Definition of default in the CRD	
A ‘default’ shall be considered to have occurred with regard to a particular obligor when either or both of the two following events has taken place:	
(a) the credit institution considers that the obligor is unlikely to pay its credit obligations to the credit institution, the parent undertaking or any of its subsidiaries in full, without recourse by the credit institution to actions such as realising security (if held).	(b) the obligor is past due more than 90 days on any material credit obligation to the credit institution, the parent undertaking or any of its subsidiaries.

Source: Eur-Lex (Official Journal of the European Union), 2013.

However, that definition was not absolute, because competent authorities could adjust the objective or quantitative criterion (90 days past due) set by default, which was designed to serve as a floor. This provision, of course, was the leeway for heterogeneous practical application of the default definition by banks and national implementing guidelines.

Indeed, to further complicate the scene, the CRD deemed as appropriate that the competent authorities of each Member State would “set the exact number of days past due (...) for exposures to such counterparts situated within this Member State”, providing only a ceiling at 180 days. This unusual flexibility, was applicable to (i) retail exposures, (ii) exposures to public sector entities and (iii) corporate exposures alike. However, being not happy with this heterogeneity, for retail and public sector exposures, the exact number of days could differ across product lines, while for corporate exposures a time limit was included in a transitional provision, i.e. until 31 December 2011.

Finally, in case of having exposures to counterparts located in other Member States for the three categories of exposures mentioned above, instead of following the number of days decided by the host authority and ensuring a level playing field in

each Member State, the CRD simply set a ceiling at the number of days past due by indicating “the competent authorities shall set a number of days past due which is not higher than the number set by the competent authority of the respective Member State”.

The concept of default incorporated in the CRD was replaced by Article 178 of *Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012* (hereinafter, CRR).

Table 2.24. Definition of default in the CRR

Definition of default in the CRR	
A ‘default’ shall be considered to have occurred with regard to a particular obligor when either or both of the two following events has taken place:	
(a) the institution considers that the obligor is unlikely to pay its credit obligations to the institution, the parent undertaking or any of its subsidiaries in full, without recourse by the institution to actions such as realising security.	(b) the obligor is past due more than 90 days on any material credit obligation to the institution, the parent undertaking or any of its subsidiaries. Competent authorities may replace the 90 days with 180 days for exposures secured by residential property or SME commercial immovable property in the retail exposure class, as well as exposures to public sector entities.

Source: Eur-Lex (Official Journal of the European Union), 2013.

Compared to the definition of default in the CRD the qualitative and quantitative criterion are kept. Actually, with regard to the definition of the qualitative “unlikelihood to pay” criterion the changes have been minimal. In the case of the quantitative criterion: “90 days past due”, as a general rule, it is worth noting that the categories for which the national competent authorities could substitute the 90 days rule by 180 days have been narrowed. This constitutes its main contribution towards the complete harmonisation. Now, it is only possible to expand minimum threshold of the quantitative criteria for (i) two types of retail exposures, and (ii) for exposures with the public sector.

Another interesting feature of the concept of default in the CRR is that its Article 178 not only mandates the EBA to clarify the practical implications of this concept, as in the CRD, but also includes a number of clarifications on its own with regard to the start of the counting, as presented below:

Table 2.25. Counting of the past due criterion in the CRR

Counting of past due
<ul style="list-style-type: none"> • <i>For overdrafts, days past due commence once an obligor has breached an advised limit, has been advised a limit smaller than current outstandings, or has drawn credit without authorisation and the underlying amount is material;</i> • <i>Days past due for credit cards commence on the minimum payment due date; and</i> • <i>Institutions shall have documented policies in respect of the counting of days past due, in particular in respect of the reageing of the facilities and the granting of extensions, amendments or deferrals, renewals, and netting of existing accounts. These policies shall be applied consistently over time, and shall be in line with the internal risk management and decision processes of the institution.</i>

Source: Eur-Lex (Official Journal of the European Union), 2013.

Moreover, the CRR includes also a list of indicators of “unlikelihood to pay” in order to set minimum guidelines for internal risk management, as presented in the table below. This constitutes an unusual example of how a level 1 legislative document provides with relevant criteria to interpret a subjective concept and proves the interest of the legislator in further homogenising existing bank practices.

Table 2.26. Indicators of unlikelihood to pay in the CRR

Indicators of unlikelihood to pay
<p>(a) <i>the institution puts the credit obligation on non-accrued status;</i></p> <p>(b) <i>the institution recognises a specific credit adjustment resulting from a significant perceived decline in credit quality subsequent to the institution taking on the exposure;</i></p> <p>(c) <i>the institution sells the credit obligation at a material credit related economic loss;</i></p> <p>(d) <i>the institution consents to a distressed restructuring of the credit obligation where this is likely to result in a diminished financial obligation caused by the material forgiveness, or postponement, of principal, interest or, where relevant fees (...);</i></p> <p>(e) <i>the institution has filed for the obligor's bankruptcy or a similar order in respect of an obligor's credit obligation to the institution, the parent undertaking or any of its subsidiaries; and</i></p>

(f) *the obligor has sought or has been placed in bankruptcy or similar protection where this would avoid or delay repayment of a credit obligation to the institution, the parent undertaking or any of its subsidiaries.*

Source: Eur-Lex (Official Journal of the European Union), 2013.

Of course, as noted, this provision of some indications did not prevent Article 178(7) CRR from mandating the EBA to specify guidelines on the application of this article. In September 2016, the EBA fulfilled that mandate with the EBA *Guidelines on the application of the definition of default under Article 178 of Regulation (EU) No 575/2013 (GL/2016/07)*. They cover a extensive list of items, that are simply outlined in the table below.

Table 2.27. *Items covered by the EBA guidelines on default*

Items covered by the EBA guidelines on default
(a) <i>Compliance and reporting obligations</i>
(b) <i>Scope: the Standardised Approach for credit risk; and (ii) the Internal Ratings Based Approach (IRB Approach)</i>
(c) <i>Date of application</i>
(d) <i>First application of the guidelines by IRB institutions: where possible, adjust the historical data based on the new definition</i>
(e) <i>Counting of days past due</i>
(f) <i>Technical past due situation</i>
(g) <i>Exceptions: exposures to central governments, local authorities and public sector entities</i>
(h) <i>Specific provisions applicable to factoring and purchased receivables</i>
(i) <i>Setting the materiality threshold: Competent authorities should notify the EBA of the levels of the materiality thresholds that they set in their respective jurisdiction</i>
(j) <i>Non-accrued status</i>
(k) <i>Specific credit risk adjustments (SCRA)</i>
(l) <i>Sale of the credit obligation</i>
(m) <i>Distressed restructuring</i>
(n) <i>Protection similar to bankruptcy</i>
(o) <i>Other indications of unlikelihood to pay</i>
(p) <i>Governance processes regarding unlikelihood to pay</i>
(q) <i>Application of the definition of default in external data</i>
(r) <i>Criteria for the return to a non-defaulted status</i>
(s) <i>Consistency in the application of the definition of default</i>

- (t) Application of the definition of default for retail exposures*
- (u) Timeliness of the identification of default*
- (v) Documentation of the banks' internal policies*
- (w) Internal governance requirements for institutions applying the IRB Approach*

Source: EBA, 2016.

Not surprisingly, the EBA identified different practices followed by credit institutions as regards the definition of default and set standards seeking for the convergence of practices. It is worth noting that these guidelines only apply from 1 January 2021 onwards¹³. However, the EBA encouraged institutions to implement the changes in their IT systems and internal procedures prior to this date in order to build the necessary time series.

These guidelines were welcomed by the industry (WSBI-ESBG, 2016; EBF, 2016; BBVA, 2016) and practitioners alike as they had as main objective to ensure consistency, transparency and comparability of risk parameters among banks across the EU banking sector, a long lasting demand from the industry. According to EY (2019) “the new set of standards are more detailed and prescriptive, and will have significant impact on governance, data, processes, systems and credit models”.

2.1.4. Concept of impairment: from IAS 39 to IFRS 9

International accounting standard setters have traditionally played a key role in the asset quality assessment and the comparability of financial reports within the banking sector. They set the financial asset valuation principles, used not only to classify the exposures but also to evaluate them. Among the various standards the measurement and treatment of the financial assets is fundamental for credit institutions. Key is the concept of “impairment” which emerges along with the need to recognise “provisions” in order to cover up for potential future losses.

However, notwithstanding the importance of the accounting setters, supervisory authorities regularly need to supplement accounting standards with regulatory

¹³ Unless any competent authority has opted to accelerate the timeline of the transition at its discretion.

guidance in order to specify them. Accounting standards are only principles-based and applicable to all companies regardless of the sector. In the particular case of banks, their main activity is the origination, identification and management of credit risk. Therefore, it seems to be quite reasonable that they require more detailed guidance from supervisory authorities and/or regulators when the accounting standard refers to the centerpiece of their business model (Baudino et al., 2018).

Actually, this is normally recognised in national law when implementing the international standards. In some jurisdictions (e.g. Spain) the central bank is also the accounting standards setter for credit institutions, aiming at ensuring a level playing field across banks by detailing the applicable standards.

It is clear that how banks identify, measure and report their stock of impaired assets and associated provisions have a paramount influence in their published financial statements, which are used by market participants to assess their credit risk profile. Thus, in order to ensure comparability across banks not only standards but also detailed guidelines become crucial for ensuring a level playing field in the banking sector. Otherwise, in the absence of those guidelines banks would adopt various internal guidelines, which would diverge between one and others based on bank-specific factors, such as the content and quality of their credit portfolios.

As highlighted by the FSC Subgroup on NPLs, Council of the European Union (2017), accounting standards also can set different incentives on NPLs. Particularly, among other factors, the timing of impairment loss recognition may have an impact on a bank's decision to manage its credit risk. Therefore, in my view, having a homogeneous set of standards is not only the most appropriate way to enhance comparability among banks within the same jurisdiction but also among jurisdictions. This is of paramount importance for banking groups operating in several jurisdictions.

In order to promote that international comparability, the International Accounting Standards Committee (hereinafter, also "IASB") was established in 1973 as the sole body with the responsibility of issuing international accounting standards

(hereinafter, IAS). Among those standards, there was one of paramount importance for the banking sector, the *IAS 39: Financial Instruments: Recognition and Measurement* (hereinafter, “IAS 39”). This standard determined the way banks recognised and measured financial assets until January 2018.

As noted, a fundamental concept for banks is the definition of impairment, whose IAS 39 definition is presented in the following table:

Table 2.28. Definition of impairment in the IAS 39

Definition of impairment in the IAS 39
<p><i>A financial asset or a group of financial assets is impaired and impairment losses are incurred if, and only if, there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a ‘loss event’) and that loss event (or events) has an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.</i></p> <p><i>It may not be possible to identify a single, discrete event that caused the impairment. Rather the combined effect of several events may have caused the impairment.</i></p> <p><i>Losses expected as a result of future events, no matter how likely, are not recognised.</i></p>

Source: IASC.

This definition crystallised the so-called “incurred loss model”, which refers to the recognition of losses only when they have been materialised (“a loss event”). Thus, for the recognition of the impairment of an asset, instead of analysing the likelihood of an event to take place, practitioners need to identify an “objective evidence” that has a negative impact on the future cash flows. That is to say, the creditor would not be in a position to receive all amounts due according to the original terms of the contract.

Table 2.29. Objective evidence of impairment in the IAS 39

Objective evidence of impairment in the IAS 39
<p><i>Objective evidence that a financial asset or group of assets is impaired includes observable data that comes to the attention of the holder of the asset about the following loss events:</i></p> <ul style="list-style-type: none"> <i>(a) significant financial difficulty of the issuer or obligor;</i> <i>(b) a breach of contract, such as a default or delinquency in interest or principal payments;</i> <i>(c) the lender, for economic or legal reasons relating to the borrower’s financial difficulty, granting to the borrower a concession that the lender would not otherwise consider;</i> <i>(d) it becoming probable that the borrower will enter bankruptcy or other financial reorganisation;</i>

(e) the disappearance of an active market for that financial asset because of financial difficulties; or

(f) observable data indicating that there is a measurable decrease in the estimated future cash flows from a group of financial assets since the initial recognition of those assets, although the decrease cannot yet be identified with the individual financial assets in the group, including:

(i) adverse changes in the payment status of borrowers in the group (...); or

(ii) national or local economic conditions that correlate with defaults on the assets in the group (...).

Source: IASC.

The IASC was substituted by the *International Accounting Standards Board* (hereinafter, also “IASB”) in 2001. Many existing accounting standards were reformulated shortly after that date in the form of International Financial Reporting Standards (hereinafter, “IFRS”). However, it took significant time to replace the IAS 39 due to the complexity of the issues at stake. In 2014, the IASB published the *IFRS 9: Financial instruments* (hereinafter, “IFRS 9”), but its entry into force was postponed, until 1 January 2018, in order to provide the industry with some time to implement the changes needed.

It was the outcome of a work that started in November 2009 with its *Exposure Draft Financial Instruments: Amortised Cost and Impairment*, which was the first attempt to address the G20 (London Summit 2009) request for a change in the accounting standards in order to reduce pro-cyclicality in the financial sector (Financial Stability Forum, 2009).

The new standard requires credit institutions to anticipate the recognition of losses from the date of origination even if the status of the loan is still performing as soon as there are symptoms showing weaknesses; that is to say, the situation differs from the one at the origination. This change has not directly come via a dramatic redrafting of the definition of impairment, which remains quite stable, but from the need to carry out a more granular assessment of credit risk (Baudino et al., 2018). Indeed, with IFRS 9 companies need to factor in not only past and current events but also future events or expectations.

In its efforts to improve the timely recognition of losses, IFRS 9 has been designed in such a way that assessment of potential credit impairment starts as from the origination or purchase. There are three different categories or “stages”, as presented and briefly explained in the table below.

Table 2.30. The three-stage system in IFRS 9

The three stage system in IFRS 9		
Stage 1	Stage 2	Stage 3
<i>As soon as a financial instrument is originated or purchased, 12-month expected credit losses are recognised in profit or loss and a loss allowance is established. This serves as a proxy for the initial expectations of credit losses.</i>	<i>If the credit risk increases significantly and the resulting credit quality is not considered to be low credit risk, full lifetime expected credit losses are recognised.</i>	<i>If the credit risk of a financial asset increases to the point that it is considered credit-impaired, interest revenue is calculated based on the amortised cost (i.e. the gross carrying amount adjusted for the loss allowance).</i>

Source: IASB.

Whereas in Stage 1 the potential impairment recognition is measured considering only a 12-month expected credit loss, in Stages 2 and 3 the timespan is expanded, covering the lifetime of the exposure. It is worth noting that this assessment is performed at each reporting date.

As noted, firms need to perform this analysis as soon as the exposure is recognised in their books. An exposure is reclassified from stage 1 to stage 2 or 3 based on whether the credit risk “significantly increases” from its initial recognition; that is to say, when the expected credit losses at the moment of the initial recognition do not represent any longer a fair estimate of the potential losses due to an expected deterioration of the underlying conditions. Moreover, it is worth noting that for considering that an exposure might have significantly increased its credit risk a rebuttable presumption has been recognised: the 30-day past due criterion.

The change in the accounting standard was not only a political request coming from the G20, but it was also driven by academic research, including Beatty and Liao (2011) or Bushman and Williams (2012), among many others. Bhat et al. (2013) noted

that credit institutions applying expected loss models ended in a reduction in the origination of pro-cyclical loans as well as in a more timely provisioning schemes.

From the very beginning, it was highlighted that this change in the applicable accounting standard was expected to contribute to the reduction of existing NPL stocks. The rationale was that IFRS 9 has been designed to set aside impairment losses in a more timely manner compared to AIS 39. Thus, it would better reflect the “true and fair value” of a company at a given reporting date.

Consequently, as the FSC Subgroup on Non-Performing Loans noted, when credit institutions apply the new standard there seems to be an incentive to dispose or restructure loans more rapidly than in the past in order to avoid potentially higher provisions. Indeed, in comparative terms, this migration from an incurred to an expected loss model results *ceteris paribus* in higher provisions (Gebhardt and Novotny-Farkas, 2011), at least in the early stages of the credit risk assessment. Thus, banks have now less incentives to accumulate NPLs (EBA, 2016), while waiting for better times to come.

However, it is worth noting that the aforementioned conclusions are not shared by all the academia. Seitz et al. (2018) conducted a study which compared time series under IAS 39 of 32 European banks with simulated time series of loan loss reserves under IFRS 9 for the period 2005-2014. They tried to put some light on how the “expected credit loss” model under IFRS 9 might address pro-cyclicality and under-provisioning, the so-called “too little, too late” of the IAS 39. Their conclusions were worrisome as simulated IFRS 9 reserves were not generally higher than the real IAS 39 loan loss reserves, but mostly exceeded IAS 39 reserves during the peak of a crisis. They also acknowledged that conclusions were highly dependent on assumptions and input parameters. Therefore, only time will demonstrate whether the migration from IAS 39 to IFRS 9 will address pro-cyclicality and under-provisioning, or the effects will be mostly focused on the loss recognition in early stages but without an overall better allocation of provisions throughout the cycle.

IFRS 9 makes clear that the collateral posted is not considered for the measurement of impairment. Nevertheless, it will continue to be used when estimating the provisioning efforts needed to present the “true and fair view” of the financial statements of firms. All in all, as recognised by the EBA (2016), the new accounting standard will “further contribute to the convergence of impaired and non-performing definition”.

Finally, it is also worth highlighting the key role the IFRS 9 Stage 1, 2 and 3 denominations have when European banks report to the authorities as well as when they disclose information to the financial markets. The table below compares the use of the NPL and NPE concepts against the use of Stage 3 denomination for the ten largest EU banking groups.

Table 2.31. Overview of the use of NPE, NPL and Stage 3 concepts in the banks’ (un)regulated reports

Bank	Results presentation			Pillar 3 report		
	NPL	NPE	Stage 3	NPL	NPE	Stage 3
BNP Paribas SA	11	0	11	11	42	73
Crédit Agricole Group	12	0	1	8	30	110
Banco Santander SA	9	0	1	5	24	4
Groupe BPCE	1	0	10	8	15	12
Société Générale SA	3	0	0	21	2	85
Deutsche Bank AG	1	0	11	5	53	10
Intesa Sanpaolo SpA	79	0	0	45	34	9
Crédit Mutuel Group	7	0	5	80	30	37
ING Groep NV	1	0	27	11	26	3
UniCredit SpA	0	29	5	15	30	4

Source: Own elaboration, based on bank’s year-end 2022 results presentations as well as Pillar 3 reports.

Compared to the NPE concept, accounting terms (i.e. stage 3 under IFRS 9) remain predominant in the regulated and non-regulated reporting of several banks. In terms of number of repetitions, Stage 3 is the concept most used by four banks in the

presentation of results and by three in the Pillar 3 report. It is also interesting to note that, within the same jurisdiction (i.e. France or Italy), banks follow different patterns. This exemplifies that the homogenisation efforts have evolved over time, but this refers to the area of regulated reporting exercises. The fact that even within the same jurisdiction banks follow different standards does not allow even for comparability within jurisdictions.

Therefore, despite the policy and political efforts driven by the EBA and followed by EU legislation in the field of reporting, there is still significant room for improvement in terms of homogenisation of terminology.

2.1.5. Forborne exposures - Interplay between EBA guidelines and accounting standards

As previously explained, in 2014 the plurality of definitions of non-performing and forbearance or similar concepts as well as reporting guidance was the norm in the EU. These were the circumstances in which the EBA started its work towards the harmonisation.

This situation is clearly explained in the recitals of the *Commission Implementing Regulation (EU) 2015/227*: there were “(...) neither comprehensive, harmonised definitions of the concepts of forbearance and of non-performing exposures, nor specific and detailed supervisory reporting requirements.” In this regulatory context, in July 2014, the EBA set (i) the common criteria to identify forbearance measures; and (ii) proposed harmonised definitions for default and impairment regarding the extension of forbearance measures.

In the accounting arena, under IAS 39 the concept of forbearance was not directly covered. The new standard, also published in July 2014, followed the same light approach, by including only indirect or vague references to what the EBA had defined as forbearance measures, without using the term. As a result, the EBA, already in May 2017, decided to release its *Guidelines on credit institutions credit risk management practices and accounting for expected credit losses* in order to guide

credit institutions on its first application of IFRS 9 and the interplay of the regulatory concepts of non-performing and forbearance with the accounting principles.

As explained by the BCBS (2017) the identification of an exposure as forborne does not affect its categorisation as impaired for accounting purposes. In fact, under both IAS 39 and IFRS 9, the concept of forborne exposures does not correspond to the concept of modified assets. Moreover, the identification of an exposure as forborne has no direct implications per se on the impairment stage in which this exposure is allocated for accounting purposes under an expected-credit loss model (it could be either stage 2 or 3).

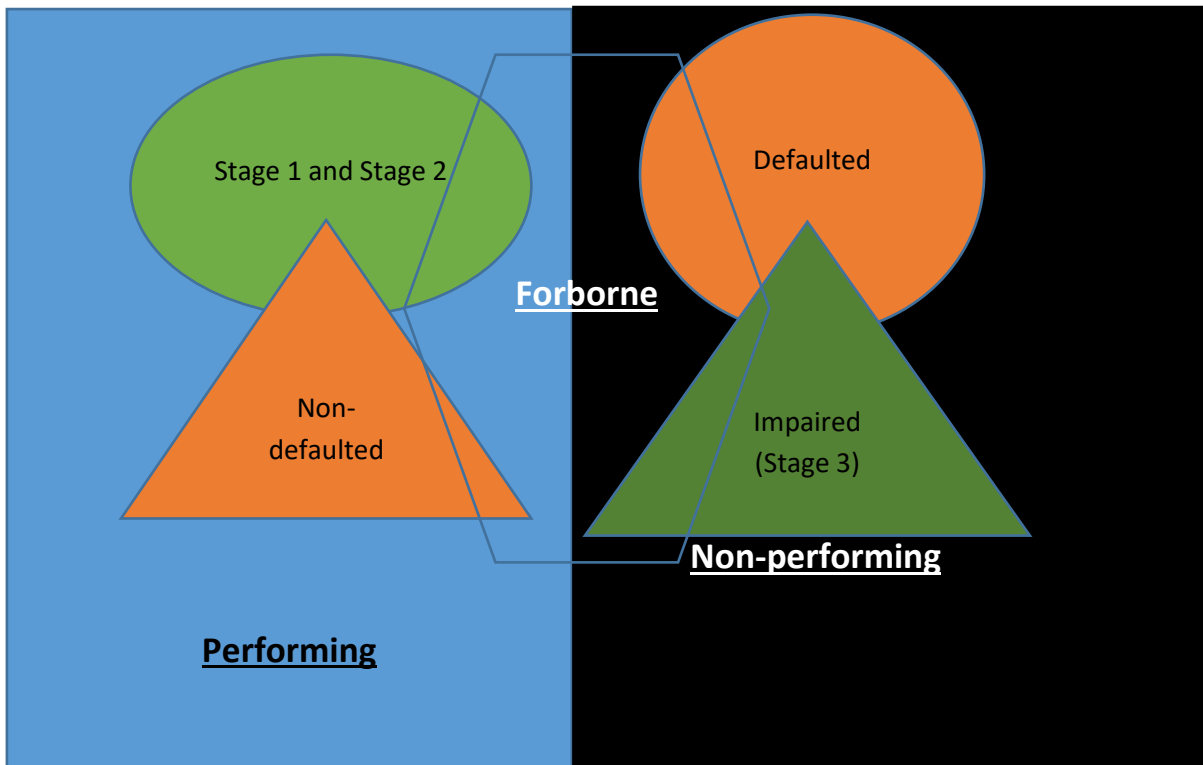
In practical terms, under the incurred-loss model, it was easier to grant debtors a “second opportunity” via the use of a forbearance measure and, at the same time, avoid the recognition of the exposure as non-performing category. On the contrary, under expected-credit loss approach, since its entry into force in 2018, all forborne exposures, either performing or non-performing, require high levels of provisions because the circumstances have significantly changed from the date of origination. Thus, controlling by all other relevant factors this will lead to an increase on the provision requirements and potentially to the cost of forbearance for banks, resulting on a more severe scenario for debtors suffering temporarily financial difficulties (Plata et al., 2017).

2.1.6. Interplay between the definitions

As noted, both defaulted and impaired exposures are always considered as non-performing exposures. In this way, the non-performing definition is an umbrella concept, as defined by the EBA (2014). Moreover, forborne exposures could be either performing or non-performing, depending on its particular characteristics.

In the following figure a visual representation of the interplay between those definitions is provided. It is worth highlighting how there are some elements that pertain to several definitions. Therefore, there are intersections showing these interlinkages.

Figure 2.4. Visual representation of the interplay between regulatory and accounting definitions

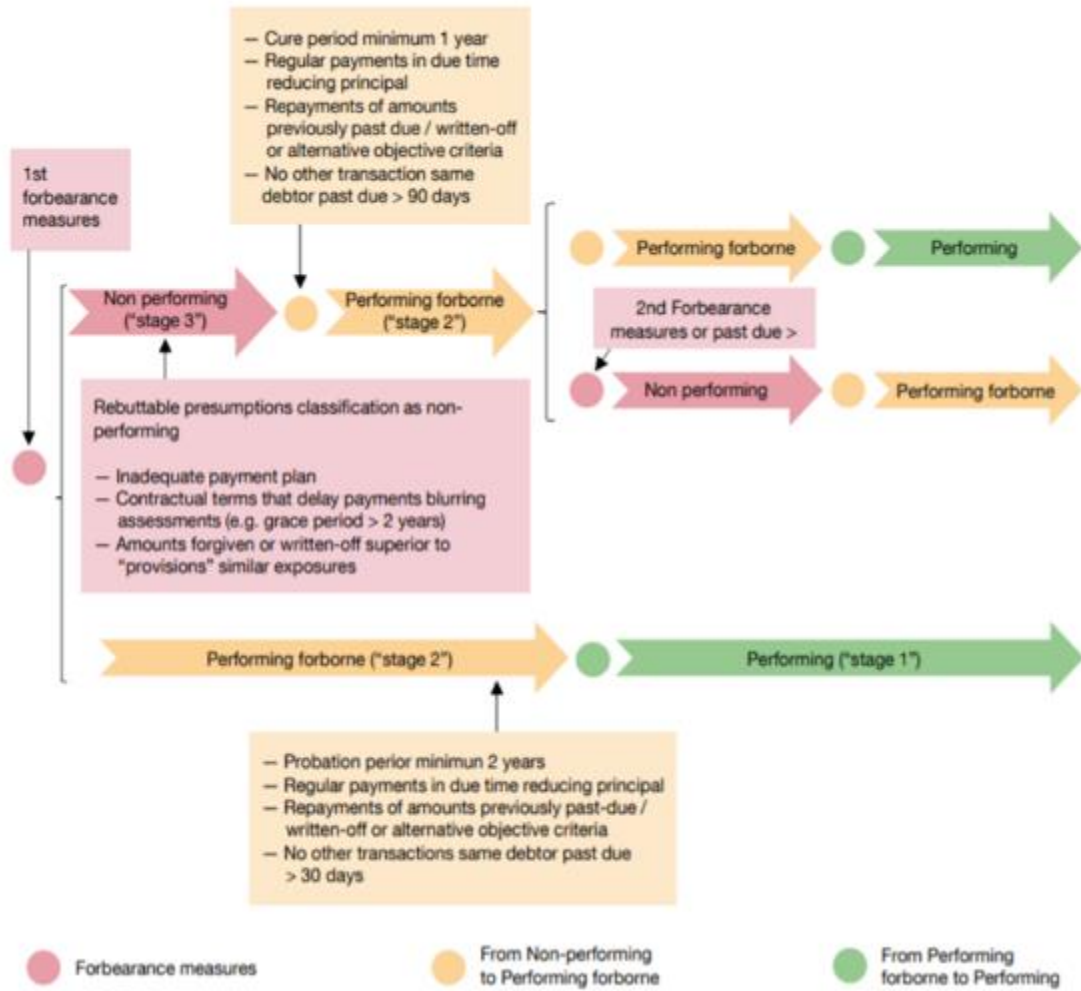


Source: Own elaboration.

It is worth noting that the authorities in some Member States have gone a step further with regard to the forbore exposures. If we take the example of Spain in order to clarify the classification of exposures and to avoid a misuse of the existing definitions the Bank of Spain amended the Annex IX of its accounting Circular for credit institutions (Circular 4/2017).

The implications in terms of interdependencies of the existing forbore definition and the need for the reclassification of an exposure depending on its status is presented in the figure below. Moreover, in several boxes the main criteria for the reclassification are displayed for the sake of completeness.

Figure 2.5. Forborne exposures in Annex IX of the Spanish accounting Circular



Source: Pallarés Sanchidrián and Rodríguez García, 2019.

2.2. Other relevant asset quality indicators

A high NPL ratio, and its effects to the asset quality indicators, has been traditionally considered as a key indicator of insolvency. However, when performing an asset quality assessment of a credit institution the NPL/NPA/NPE ratios need to be complemented with other indicators, as it is clear that it does not capture all the effects non-productive exposures may have on its solvency and financial situation, i.e. it does not take into account the asset collateral or the provisions set aside.

Thus, it is a common practice to enrich the analysis with, at least, the following additional metrics.

2.2.1. Loan loss provision

One of the most effective credit risk management tools is provisioning. By setting aside amounts as loan loss provisions, banks are effectively limiting potential losses associated with those loans in the future. Therefore, those loan loss provisions function as a buffer or safety net to be used if losses materialise, absorbing them before they hit the capital position of the credit institution (Alessi et al., 2021).

In the short-term, a combination of high NPL/NPA/NPE ratios and inadequate level of provisions may put the solvency of a bank at risk. In turn, if those NPE are sufficiently provisioned, a high NPE ratio may not necessarily pose a short-term threat to banks and, as a consequence, to financial stability in a given jurisdiction. Therefore, the adequate loan loss provisioning is, at least, a fundamental tool in order to ameliorate the solvency outlook of a banking system in the near future.

However, we should not forget that a high level of NPE indicates that corporate and households are straggling, a clear symptom of potential problems as regards financial stability and economic growth in the long-term (FSC Subgroup on Non-Performing Loans, 2017) if those underlying problems are not adequately resolved in due time.

Despite the clear benefits for the global financial stability of a common provisioning framework, it is not harmonised at international level. On the contrary, traditionally authorities have applied different accounting and prudential rules across jurisdictions (d'Huelster et al., 2014). This, leads to a situation where conducting a benchmarking exercise taking banks that are subject to different rules is not, where actually possible, an easy task. As pointed out by Baudino et al. (2018), the use of diverse principles-based accounting standards leads to a great degree of judgments and, as a consequence, divergences. Furthermore, these initial divergences might be exacerbated by several country-specific rules that prudential authorities issue

aiming at reducing the judgements banks in their jurisdictions might have if the accounting standards would be directly applied.

Moreover, on one hand, from an accounting perspective bank managers have had traditionally a great degree of discretion in setting loan loss provisions which directly affects the P&L and capital and, in turn, the comparability across banks with a similar business model (Walter, 1991).

On the other hand, from a regulatory point of view, other things being equal, that is to say comparing two similar portfolios, it is clear that the higher provisions are, the more prudent the risk management seems to be (Alessi et al., 2020). However, this is only an *ex-ante* presumption and not a rule set in stone, as of course there might be underlying factors explaining that difference in the provisions. What it is clear, as Wheeler (2019) noted, is that an adequate level of loan loss provisions is believed to positively affect the banks' safety and soundness, i.e. it directly affects the level of riskiness of a comparable portfolio.

Nevertheless, when a loan is considered as non-performing the main driver for provisions building is the valuation of the collateral, if any. This procedure is rather subjective, as it is mostly based on assumptions. The international accounting standards only set as a principle that in order to value the collateral the net present value method needs to be applied, but they do not provide for concrete valuation standards. Thus, banks need to estimate the time and costs to dispose the collateral.

In many jurisdictions there are mandatory regulatory haircuts in case loans enter into the non-performing territory and the time and costs variables might be subject to material divergences across jurisdictions and are difficult to estimate (Baudino et al., 2018). Moreover, other divergences in the prudential treatment of loan write-offs or linked to the accrued interest on NPAs significantly affect the final valuation of loan loss provisions.

Traditionally, this was also the situation in the EU. However, the creation of the SSM and its immediate focus on developing best practices across banks under its remit,

the Regulation (EU) 2019/630 and the key role of the EBA developing guidelines have set the foundations for the harmonisation of loan loss provisions in the EU.

In March 2017, the ECB published its *Guidelines on managing and provisioning NPLs and foreclosed assets*. It included a number of quantitative indicators on the minimum levels of prudential provisions, taking into account the type of collateral and also considered the vintage of those non-performing exposures.

Then, in July 2018, in the context of the yearly supervisory dialogue the ECB decided to set bank-specific supervisory expectations for the provisioning of those exposures when they were above a threshold. With this approach, the European supervisor was looking for reducing the existing divergences across banks in the medium-term.

However, there is an important area that still presents a worrisome lack of harmonization: the tax implications. The tax treatment of loan loss accounting provisions still varies across jurisdictions. Accounting regimes require provisions to be deducted from earnings in the period when they are made. However, the fiscal authority may adopt a different treatment, i.e. no recognition at the same time and only when the loss occurs (Weil, Schipper and Francis, 2013). In such cases banks recognise a deferred tax asset if some conditions are met.

There are basically three possible tax regimes. In some jurisdictions accounting provisions are directly recognised in the taxable income whereas in other jurisdictions, they are recognised only upon their realisation, that is to say when the associated loans are written off. This result in the recognition of deferred tax assets, decoupling the accounting and fiscal treatments. Finally, other jurisdictions are halfway as only under those circumstances in which the losses are more certain banks are allowed to recognised them in their taxable income in the same period (Bholat et al., 2016).

It is well noted that these diverse tax regimes have important implications as regards the recognition of loan loss provisions as well as on the write-off. Therefore, in order to further harmonise the loan loss provisions in the European Union and enhance the

comparability of asset quality across European banks, a homogeneous tax treatment is of paramount importance.

2.2.2. Coverage ratio

The gross carrying amount of NPE needs to be put in context in order to understand the dimension of a potential problematic situation. Serving such purposes the coverage ratio provides key insights when assessment asset quality.

The coverage ratio could be defined as “the level of loan loss provisions already booked in bank’s balance sheets to account for the losses associated with the exposures” (Council of the European Union, 2017); that is to say, the provision for credit losses as a percentage of total exposures. Thus, this ratio serves an explanatory metric for better understanding a high NPL ratio. As it is evident that a high level of NPL if adequately provisioned should be of a less concern than an identical level with poor provisioning linked to it. As a consequence, in practical terms a high coverage ratio provides some comfort.

However, as already noted when describing the other relevant indicators, i.e. loan loss provisions, when analysing and comparing coverage ratios it is crucial to deep dive on additional elements such as the portfolio characteristics, the types of collateral and other valuation considerations as well as bank’s provisioning policies in order to have a clear whole picture of the asset quality in a given bank. Moreover, it is also important, even though it is usually difficult to perform the exercise, to carry out peer analysis as well as comparing coverage ratios across jurisdictions.

2.2.3. Texas ratio

The so-called Texas ratio is an interesting indicator to complement the asset quality analysis because of its simplicity. It compares the non-productive assets of the bank, gross NPAs, with the financial resources at its disposal to absorb potential losses originated from those assets, i.e. equity and loan loss provisions. This tool was designed at *RBC Capital Markets* by an analyst, Gerard Cassidy. He conceived it as a metric to analyse and better predict the banking failures in Texas in the context of the real estate bubble of the 1980s.

The higher this ratio is the worse is the financial situation of the credit institution. Cassidy set the bar at 100% (or 1:1), as it is clear that if a bank goes beyond this threshold it might not have enough financial resources to absorb the potential losses originated in its non-productive assets. A Texas ratio above that threshold does not directly imply failure, but it signals potential concerns on the bank's viability that need to further investigated. Thus, as acknowledged by Jesswein (2009), the intuition behind the ratio itself seems to be solid and easy to understand. Moreover, as it can be calculated with public data and its simplicity compared to more elaborated models, i.e. computer-based early warning systems, made it a recurrent tool used by practitioners and the media¹⁴ to disentangle the banks at severe risk of failure during the Great Financial Crisis of 2007 and beyond.

Particularly, in the US it was used as a proxy of the FDIC Problem Bank List or “watch-list”, which of course is not publicly available¹⁵. It rapidly spread to other jurisdictions. For instance, in a report the ECB (2016) indicated that the average Texas ratio for SSM institutions stood just below 60% at the end of 2015, with some banks in a number of jurisdictions, including Italy, recorded values above 100%.

However, this tool has a number of limitations that actually emerge due to its simplicity. This ratio does not take into account (i) the credit portfolio (also known as banking book) composition; and (ii) the collateral. It is clear that both elements have a fundamental role in the asset quality assessment. Having further detail of the banking book, the types of loans included therein, and the risk appetite and lending policies of the bank is needed when assessing the bank's asset quality situation and its exposures to volatile or riskier sectors of activity. Exposures to those sectors are more likely to become defaulted, but, in turn, they are more

¹⁴ On 21 August 2014, Thomas (2014), from the New York Times, reported that Nomura analysts used the Texas ratio in order to list 11 banks in Southern Europe that exceeded the 100% threshold, noting that “three banks stood out with ratios of 150 percent and above: *Piraeus Bank* in Greece, *Banco Popolare* in Italy and *Banco Popular Español* in Spain”.

¹⁵ The FDIC, as a result of running its rating model, CAMELS (acronym referring to Capital adequacy, Asset quality, Management, Earnings, Liquidity and Sensitivity to market risk), only publishes the number of banks and aggregated assets included in the list every quarter in the *FDIC Quarterly Banking Profile*. In order to be included in that list a bank should have a composite rating of 4 or 5 (the worst or second-worst possible rating).

profitable. Actually, the bank could have an adequate risk management framework, even being primarily focused on those sectors of activity. At the end of the day losses only materialise if the borrower defaults and the exposure was not adequately collateralised and/or provisioned.

Therefore, in combination with the deep dive on the credit portfolio we should also assess the collateral policies of the credit institution and the value of the collateral. As it becomes evident that when a borrower defaults if sufficient collateral was posted the losses, if any, would be minimal. On the contrary, when a defaulted exposure was not adequately collateralised or provisioned it would cause significant losses to the credit institution, putting at risk its financial soundness if it has not followed an adequate credit risk management.

2.3. Synopsis of the chapter

When assessing asset quality the use of different definitions of “non-performing” and “forbearance” has made historically difficult to compare banks across countries or even, what is more worrisome, within the same country. Likewise, the treatment and recognition of forborne exposures were significantly diverse.

The concept of “NPE” was coined by the EBA and shortly later adopted by the BCBS in order to overcome the problems stemming from the existence of different definitions for “NPL”. The former contains the latter.

In this dissertation, and in particular in Chapters 3 and 4, we would intend to use the concept of NPE when we refer to the data with reference date as from the entry into force of this definition, whereas NPL remains valid for the timespan before that moment when the dataset were not adjusted. However, this will be dependent on a clear definition of the data sources, as banks still use slightly different definitions for their unregulated reports and scholars continue to use typically the concept of NPL. Likewise, in Chapter 5, when we present the different policy options put forward by Member States in the area of asset management companies we will use both definitions depending on year where they were published and the data sources.

It is worth noting that the concept of NPE builds on the accounting definition of “impairment” and the prudential definition of “default”. However, the NPE concept is broader than the accounting definition of “impairment” and the prudential concept of “default”. In other words, all impaired and/or defaulted exposures are necessarily NPEs, but NPEs can also encompass exposures that are not recognised as impaired or defaulted.

It is composed of a quantitative and a qualitative criteria. The former, also known as “past-due” criterion includes a temporal trigger: all exposures with amounts over 90 days past due are considered to be non-performing. The latter refers to the “unlikelihood to pay” criterion which entitles subjectivity or expert judgement based on a number of indicators.

In turn, the concept of forbearance has two main meanings: the regulatory and the private or lending forbearance. Regulatory forbearance refers to a situation where regulators decide not to take timely action to prevent the negative externalities of failing banks and, consequently, close insolvent banks. That is to say, it is a time buffer regulators grant financial institutions for them to solve their financial problems before the authorities take actions. This discretionary decision, executed in a case-by-case basis, is usually based on the “Too-Big-to-Fail” and “Too-Many-to-Fail” approaches. When it is implemented following sound standards, it should provide credit institutions adequate time to take corrective actions in order to reduce risks and implement structural changes to strength their solvency position. Its use needs to be carefully assessed.

This dissertation focuses on the second meaning of the forbearance concept: the so-called “private forbearance” or “forbearance lending”. It refers to the *ex post* renegotiation of the initial terms of a contract between a credit institution and a borrower facing (temporary) financial difficulties.

The term “forbearance” should not be directly associated to “bad forbearance”. The key factor when considering the recourse to forbearance measures is to evaluate whether a borrower is experiencing temporary or persistent financial difficulties.

When defining this concept the EBA deviated from the purely conceptual debate of “good forbearance” and “bad forbearance” and divided into two main categories: (i) “performing exposures with forbearance measures”, and (ii) “non-performing exposures with forbearance measures”. Also the BCBS published guidelines on the definition of forbearance. Both definitions are structured based on two main components: (i) the concept of “concession”, and (ii) the concept of “financial difficulty”.

In the second part of the chapter, we also touched upon other relevant asset quality concepts that will be used in Chapters 3 and 4: (i) the loan loss provisions, (ii) the coverage ratio, and (iii) the Texas ratio. The importance of setting aside adequate level of provisions is fundamental for a meaningful coverage ratio. This refers to the provision for credit losses as a percentage of total exposures. Finally, the Texas ratio compares the non-productive assets of the bank, gross NPAs, with the financial resources at its disposal to absorb potential losses originated from those assets, i.e. equity and loan loss provisions.

To conclude, based on the survey conducted among the ten largest banks headquartered in the EU, it is observed that banks include references to the regulatory concepts of NPE, forborne exposures or forbearance in their regulated reports. This basically refers to the inclusion of the tables designed by the EBA in their Pillar 3 reports. On the contrary, the use of the NPL concept is still dominant in the unregulated reports. Actually, it still has a relevant footprint in the regulated reporting exercises. Moreover, some banks still prefer to use the “restructured loans” concept instead of “forborne exposures” in their reports. Therefore, despite the policy efforts anchored by the EBA and followed by the EU legislation in the area of reporting there is still significant room for improvement in terms of homogenisation of terminology.

3. REVIEW OF ECONOMIC DETERMINANTS OF NON-PERFORMING EXPOSURES AND FORBEARANCE PRACTICES

3.1. Economic implications of the non-performing exposures

In this section, the economic implications of the non-performing status are studied considering both analyses performed globally and those with a focus on Europe and the EU Member States. Moreover, the macroeconomic and microeconomic determinants of these exposures are reviewed.

3.1.1. Macroeconomic implications

The studies range from cross-country comparison (e.g. global and regional) to country-specific analyses. For the global or regional projects, the most commonly used databases are those of the International Monetary Fund, the World Bank Group and, to a lesser extent, of the OECD. On the contrary, for the European or national research the datasets of the ECB, Eurostat, the ministries of finance or the national central banks are widely considered.

3.1.1.1. Global studies

Ari, Chen, and Ratnovski (2021) studied the dynamics of NPLs during 88 banking crises in 78 countries between 1990 and 2017. For each crisis they considered the NPLs over an 11-year timespan, starting three years ahead the inception of the crisis (the NPLs build-up) and that goes up to seven years (the NPLs resolution). Their findings are twofold. Firstly, the results indicated “similarities across crises during NPL build-ups but less so during NPL resolutions”. Secondly, they identified a “close relationship between NPL problems—elevated and unresolved NPLs—and the severity of post-crisis recessions”. As regards key macroeconomic determinants, they considered high credit growth, high government debt, fixed exchange rates and high corporate debt with short maturity.

Jorda, Schularick and Taylor (2013) examined the economic cycles over 140 years (from 1870 to 2008) for 14 advanced economies, namely the United States, Canada, Australia, Denmark, France, Germany, Italy, Japan, the Netherlands, Norway, Spain,

Sweden, Switzerland, and the United Kingdom. Their dataset was composed of annual observations of national accounts data on nominal GDP and real GDP per capita as well as inflation, investment and the current account. Moreover, in their analysis they also considered data on domestic bank loans, as well as short- and long-term interest rates on government securities.

Their findings showed that compared to normal recessions the financial crisis recessions are “more painful” because the “aftermath of leveraged booms is associated with somewhat slower growth, investment spending and credit growth than usual”. Based on their results, they concluded “if the recession coincides with a financial crisis, these effects are compounded and typically accompanied by pronounced deflationary pressures”. In this regard, the economic negative impact associated to a crisis fluctuates “depending on the run-up in leverage during the preceding boom”.

Beck, Jakubik and PiloIU (2015) with data from 75 countries over the period 2000-2010 analysed the macroeconomic determinants of NPLs. Their findings suggested that real GDP growth is the key driver. In addition, share prices, nominal effective exchange rate and lending interest rates also explain the evolution of NPLs with some caveats. In particular, the effect of share prices was significant in countries with large stock market capitalisation relative to the size of the economy (i.e. GDP). As regards the exchange rates when the share of foreign currency denominated loans in total loans is significant the impact on NPLs was larger.

Nkusu (2011) used a dataset from 26 advanced economies with annual observations between 1998 and 2009. His results confirmed the links between high NPL levels and credit markets frictions and macroeconomic vulnerabilities. In this regard, he considered in his PVAR model and impulse response functions the following variables: GDP growth, unemployment, change in the house price index, change in the equity price index, inflation, nominal effective exchange rate, interest rate, and credit to the private sector. The listed macroeconomic indicators were statistically significant.

Jappelli, Pagano, Di Maggio (2013) studied the determinations of household debt and insolvency following a methodological approach that combined international cross-country analysis (covering 49 countries), the European panel data estimates (including 11 EU Member States) and time series evidence for three countries: Germany, UK, and US. Their results were in line with the financial fragility hypothesis, as “insolvencies tend to be associated with greater households’ indebtedness”. Moreover, the faster the debt growth, the larger the increase in the insolvency rate. Finally, their more relevant contribution to the existing literature refers to the quantification of the impact of “better judicial contract enforcement and information sharing arrangements” on the reduction of “insolvencies to household debt” and their “sensitivity to economic shocks, such as increases in unemployment”.

On a panel of 100 countries with data from 1997 to 2014, Balgova, Nies and Plekhanov (2016) applied a matching model to study the macroeconomic implications of NPLs. They considered three scenarios: (a) implementation of active measures to reduce NPLs stock; (ii) a passive NPL reduction strategy helped by a positive credit shock in the economy, i.e. the V-shaped recovery, and (iii) passive NPL reduction strategy with the persistence of high NPLs over time. As noted by the authors “while a rise in NPLs is a function of a deteriorating economic environment”, the NPL reduction could be driven either by active policy initiatives or by “favourable external conditions”.

Their findings were in line with the abovementioned literature: the reduction of NPLs has a positive impact on GDP growth, facilitates investment growth, increases the labour market participation and reduces the unemployment rate. In case of a V-shaped recovery the positive impact on economic as well as investment growth were the highest among the three scenarios. It also had a larger impact on the reduction of the unemployment rate.

However, as Jorda, Schularick and Taylor (2013) noted exacerbated credit growth has a positive correlation with financial crises. Moreover, the estimated impact of

not addressing the high stock of NPLs had an annual negative impact of circa 2% on “foregone growth” until it would be solved. Finally, based on their findings there is no impact on exports driven by changes on NPLs. They considered that this might stem from the fact that “exporters are more immune to the NPL problem because they enjoy better access to cross-border credit (typically denominated in foreign currency).”

Siakoulis (2017) using a dataset that covered a fifteen-year period (1998-2012) for 31 countries across the globe studied the influence of the fiscal situation in an economy on the NPLs evolution. The results showed that changes in the fiscal policy indicator significantly affected NPL formation, “validating the hypothesis that the fiscal policy has a definite impact on the loan servicing capacity”. Moreover, he identified the low GDP growth and high unemployment as the main drivers of the deterioration of asset quality. Moreover, he argued that an increase in the debt to GDP ratio adversely impacts on the sovereign yield and on the NPLs proliferation.

Ozili (2019) used cross-country as well as regional data to identify commonalities across regions. In particular, he considered data from 134 countries and six regions over the period 2003-2014. In order to study the NPLs determinants he included five bank-specific indicators as well as three financial sector indicators. The latter were composed by (i) size of banking sector, measured as bank deposits to GDP ratio; (ii) extent of financial intermediation, measured as private credit by domestic banks to GDP ratio; and (iii) foreign bank presence, as the ratio of foreign bank assets to total banking assets in the domestic country.

The private credit by domestic banks to GDP ratio indicator was positively significant. This implies that banking sectors with greater financial intermediation activities experience higher NPLs. The author considered that this is driven by “lowering of loan screening standards” and “the use of lax lending criteria by banks to increase lending during good economic times”. Regarding the foreign bank presence the coefficient was positively significant and indicates that countries with greater foreign bank presence have higher NPLs. The author reckoned that this result

opposed his previous study limited to Africa (Ozili and Outa, 2017) which suggested that there was a negative correlation between foreign bank presence and NPLs proliferation. Finally, the size of banking sector measured as bank deposits to GDP ratio was found to be statistically insignificant for the period of observation.

3.1.2. Europe - Cross-country comparison

Makri, Tsagkanos, and Bellas (2014) studied the NPL determinants using a dataset composed of aggregated data from 14 Eurozone Member States from 2000 to 2008. The data points were both macroeconomic and microeconomic indicators. On the former, they included the growth rate of GDP, the inflation rate, the public debt as percentage of GDP, the unemployment rate and the government budget deficit or surplus as percentage of GDP (fiscal situation). They used a dynamic panel regression method (in particular, the difference Generalized Method of the Moments estimation, as most of the existing literature in this regard¹⁶). Based on their findings they concluded that the public debt, unemployment, and the annual percentage growth rate of GDP were statistically significant, whereas the fiscal situation and inflation seemed not to have any significant influence of NPLs.

With a larger sample, Anastasiou, Louri and Tsionas (2016), also using the GMM estimation, on a dataset from 15 Eurozone Member States over the period 1990Q1-2015Q2 examined the NPL determinants. They focused on disaggregated data stemming from quarterly results of commercial banks. Their main contribution refers to the consideration of additional predictors, namely (i) the income tax rate as percentage of GDP, and (ii) the output gap. Their results showed that both of them were statistically significant.

Staehr and Uusküla (2017) used panel data models with macroeconomic and macrofinancial variables to forecast NPLs evolution. For the period 1997Q4-2017Q1 they took into consideration three samples: (i) all EU countries; (ii) Western Member States; and (iii) Central and Eastern Member States. The results showed that for all

¹⁶ The choice of this estimation is also in line with the empirical investigations of Jimenez and Saurina (2006), Louzis, Vouldis, and Metaxas (2011), among many others.

the samples (i) GDP growth, (ii) inflation, and (iii) total private loans in percent of GDP were statistically significant to predict the evolution of NPLs. In turn, only for Western Europe (i) the current account balance, and (ii) the real house prices were significant. Moreover, as regards the unemployment rate its coefficient differed in terms of sign across the two subgroups (e.g. it was negative for the Central and Eastern Member States sample). This, according to the authors, might be explained by “different properties (timing and volatility) in the business cycles in the two regions”.

Roman and Bilan (2015) analysed the macroeconomic determinants of the dynamics of NPLs with a sample of data from the 28 EU countries over the period 2000-2013. The potential explanatory variables included in the econometric model were: those commonly used in the literature, namely the economic activity (annual real GDP growth rate), the inflation rate, and the unemployment rate, the degree of financial intermediation (domestic bank credit to the private sector) and the singularity of this study, two public finance variables: (i) the government budget balance (deficit or surplus), and (ii) the public debt (government consolidated gross debt). In line with the literature the economic activity, the unemployment and the degree of financial intermediation were statistically significant. This was not the case for the inflation.

Their most remarkable contribution refers to the analysis of the effects of the government budget balance and the public debt into the evolution of NPLs. As regards the former, the results showed that it had a positive effect on the NPLs ratio. The authors explained it by acknowledging that the budgetary consolidation efforts could lead to “lower incomes, lower ability of borrowers to repay debts” and consequently an increase in the NPLs.

As regards the public debt, the findings seem to point out that it was a variable not significant. However, they noted that there was a non-linear “quadratic relationship”, being then the coefficients statistically significant. In this regard, they confirmed that after a certain threshold (97% of GDP) the higher the public

debt, the higher the NPLs. Their explanation is the following: “a high public debt may lead to lower confidence of investors, higher interest rates and, thus, a lower ability to repay debts”.

On the contrary, Siakoulis (2017) found that the fiscal stance in an economy has a direct impact on NPL formation. To study the impact of fiscal policy on NPLs he built a dataset composed of NPL ratios as well as macroeconomic data from 31 countries (of which 23 European countries) for the period 1998-2013. His findings corroborated previous research as, he confirmed that low (or negative) GDP growth and high unemployment are main drivers leading to a deterioration of asset quality in the banking sector. Other determinants of NPLs that adversely affect NPL formation are rises of the (i) country debt to GDP ratio, and (ii) sovereign yield as well as reduction in the private debt to GDP ratio. He concluded that austerity measures have a “definite impact on the loan servicing capacity of households and businesses” which justifies the NPL formation. Therefore, he advocated expanding the highlight to the fiscal stance in a given economy, on top of the analyses of the traditional macroeconomic and bank-specific considerations.

Tanaskovic and Jandric (2015) conducted an analysis of the determinants of NPLs in a number of central and eastern European countries, namely Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Lithuania, Montenegro, FYR Macedonia, Romania, Serbia and Slovenia in the period 2006-2013. They ran an econometric model considering both macroeconomic and institutional indicators. As macroeconomic variables, they considered (i) the level of GDP, (ii) the foreign currency loans to total loans rate, (iii) the exchange rate level, (iv) the average lending rate for new loans, and (v) the annual inflation. For building the dataset on institutional factors, they used the annual Executive Opinion Survey of the World Economic Forum. From there they took (i) the strength of auditing and reporting standards, (ii) the financial market developments, and (iii) the soundness of the banking system.

Their findings confirmed that the level of GDP, foreign currency loans ratio, and level of exchange rate were positively related to the increase of the NPL ratio. The latter, according to the authors, “confirms the expectation that countries where domestic currency is not the main medium of credit placements will have larger problems with the level of NPLs, which is even more pronounced in periods of domestic currency depreciation.” Again, the inflation rate was not statistically significant, whereas the average lending rate for new loans was found significant. As regards their main contribution, the institutional variables, only the financial market level of development was also statistically significant. Therefore, as acknowledged by the authors “with a more developed financial market the level of NPLs should be lower”.

Rinaldi and Sanchís-Arellano (2006) examined the NPL determinants using the error-correction model on a dataset of seven Eurozone Member States, namely Belgium, France, Finland, Ireland, Italy, Portugal and Spain. Their observations considered for the fifteen-year period between 1989Q3 and 2004Q2. As explanatory variables they proposed the following: (i) the ratio of total household debt (including mortgages, consumer loans and credit cards) to household disposable income; (ii) the real disposable income per household as well as financial and real wealth; (iii) the ratio of household gross financial assets to disposable income; (iv) the real lending interest rate; (v) the unemployment rate; and (vi) the inflation rate.

All the set of variables were statistically significant in the long-run. However, in the case of income only the real disposable income was included in the long-run equation. According to the authors, this meant that “for most of the indebted households the other components (financial and real wealth) are not really important”. Moreover, they also explained the implications of a combination of an increase in the household debt and the disposable income, by highlighting that “if the rise in the debt ratio is accompanied by a rise in real disposable income, the negative effect is more than offset”. Consequently, the indebtedness needs to be accompanied by an increase in the disposable income in order not to imply a rise in the NPLs.

3.1.3. Studies focusing on a subset of European countries

Chaibi and Ftiti (2015) studied the NPL determinants considering the following hypothesis: “macroeconomic and bank-specific variables have an effect on loan quality, and that these effects vary between different banking systems”. To test it they compared a market-based economy (France) and a bank-based economy (Germany) over the period 2005-2011. They considered both macroeconomic and bank-specific indicators. As regards the macroeconomic determinants the growth of GDP, the exchange rate, the interest rate, the inflation and the unemployment rate were considered. Based on their findings, for both countries only the coefficient linked to the inflation was not statistically significant, so their hypothesis could be rejected.

Messai and Jouini (2013) do not use aggregated cross-country data but a dataset composed of observations from 85 large commercial banks of Greece, Italy, and Spain during the 2004-2008. They also combine macroeconomic and bank-specific variables. The three macroeconomic factors identified, the annual growth in real GDP, the rate of unemployment and the real interest rate, are statistically significant in line with the existing literature. Their main contribution comes from their results on three bank-specific variables that will be covered in the next section.

The analysis of Messai and Jouini was expanded by Castro (2013), who also added Ireland and Portugal to Greece, Spain, and Italy and enlarged the time span to 1997Q1-2011Q3. In this case, only macroeconomic determinants were taken into account in the dynamic panel model. In his model he tested (i) the economic environment via (a) the growth rate of real GDP and (b) the unemployment rate; (ii) the interest rate via (a) the long-term interest rate, (b) the real interest rate and (c) the spread between the long and the short-term interest rate; (iii) the growth rate of the loans provided by banks to the economy; (iv) the private indebtedness via the ratio of total gross loans to GDP; (v) the government public debt as percentage of GDP; (vi) the general financial conditions via the share price indices; (vii) the external competitiveness via the real effective exchange rate; (viii) the

terms of trade via the ratio between the price of exports and the price of imports and (ix) a dummy variable to control for the financial crises period. It is worth noting that contrary to other studies the inflation is not considered, as according to the author “its impact is not clear”. Therefore, he disregarded its inclusion.

His estimates indicated that the GDP growth, the unemployment rate, the interest rates, the growth rate of the credit supply, the real exchange rate, and the dummy variable financial crisis were statistically significant in all scenarios.

Skarica (2014) ran an econometric model based on the fixed effects estimator for exploring the empirical NPL determinants in a dataset from seven Central and Eastern European Member States, namely Bulgaria, Croatia, Czech Republic, Hungary, Latvia, Romania and Slovakia, for the period 2007Q3-2012Q3. The findings showed that both growth rate of GDP and the unemployment rate were the most powerful explanatory variables. Interestingly, in this case, the coefficient on the inflation rate is also statistically significant (but only at 5% and 10% of significance level). Finally, as the author noted “growth rate of loans in previous periods results in higher current growth rate of problem loans, which is in accordance with economic intuition”.

Festic, Kavkler, and Repina (2011) analysed the determinations of NPLs via 285 panel data observations from five EU Member States, namely: Bulgaria, Estonia, Latvia, Lithuania and Romania between 1995 and 2009. Their results confirmed that rapid credit growth has a negative impact on the lagged volume of NPLs. On the contrary, both an increase in the economic activity as well as the boost in the exports positively affects the NPLs ratio. However, they also mentioned the role of the procyclicality theory as “strong economic growth and a decelerating non-performing-loan ratio (...) can be interpreted as a signal for economic overheating and therefore as a potential threat to banking sector performance”.

For the Baltics, Estonia, Latvia and Lithuania, Kjosevski and Petkovski (2017) examined the macroeconomic and bank-specific determinants of NPLs. Their dataset was composed of panel data from 27 banks operating in the region spanning from

2005 to 2014. Their findings were in line with research conducted in other European markets and indicated that the GDP growth, the unemployment rate, the domestic credit to private sector and the inflation rate were the most relevant indicators for studying the evolution of NPLs in the Baltic countries. During the period covered by this study, the variables with the highest explanatory power were GDP growth, inflation and domestic credit to the private sector.

In an extension of their previous research, Kjosevski and Petkovski (2021) studied the NPL determinants in a dataset from observations of 21 commercial banks of Estonia, Latvia and Lithuania during the period 2005-2016. Compared to other studies, they used three different econometric models (i.e. the fixed-effects model, the difference-generalized method of moments and the system-generalized method of moments). Their findings, in line with their previous research, showed that a number of macroeconomic determinants, namely the GDP growth, the unemployment rate, the inflation rate, as well as the public debt were statistically significant over that period.

Ciukaj and Kil (2020) examined the NPL determinants in the seven European countries with the highest NPL ratios at the end of 2017, namely Bulgaria, Croatia, Cyprus, Italy, Ireland, Greece and Portugal. Their dataset with data retrieved from 629 banks spanned from 2011 to 2017. They ran their analysis comparing commercial banks against cooperative and specialised banks. For both groups they found the unemployment rate and GDP growth to be statistically significant and they had similar explanatory power.

Kavkler and Festić (2010) analysed the macroeconomic determinants of NPLs for Romania and Bulgaria between January 1997 and 2008. As explanatory variables, they included in their model the following: nominal exchange rate, rate of inflation, money market interest rate, gross domestic product, unemployment, stock exchange index, net export, M2, and loans to private sector as a percentage of GDP. Interestingly, in the case of Bulgaria they found that “the higher inflation rate (...) deteriorated the NPL ratio dynamics (a coefficient of 0.335)”, whereas in the case

of Romania this variable had a much smaller coefficient (0.184). The focus of their study was on trade, where they concluded “net exports, the interest rate, and money stock dynamics contributed to an increase in the dynamics of the NPL ratio”.

Szarowska (2018) analysed the NPL determinants in eleven Central and Eastern European countries¹⁷ over the period 1999-2015. Her results showed that for that region over the period of observation unemployment was the most important variable. She also found statistically significant the inflation rate, economic growth, the interest rates and the exchange rate. In terms of timing, she noted that the impact “is the strongest with a time lag 1 year”.

3.1.4. European country-specific studies

3.1.4.1. Spain

Salas and Saurina (2002) conducted a study on the macroeconomic and microeconomic determinants of NPLs in the Spanish banking sector. They considered two target groups, the Spanish commercial and the saving bank during the period 1985-1997. Their results showed that the GDP growth, firms and family indebtedness as well as credit expansion were the variables with the highest explanatory power with regard to the evolution of NPLs over the period analysed.

Jimenez and Saurina (2006) used a dataset composed of observations from commercial and saving banks over the period 1982-2002, including two complete economic cycles. Based on their results, they argued that among the macroeconomic variables identified as statistically significant, in line with the dominant literature, the largest explanatory power of the NPL evolution came from the lagged GDP growth, the real interest rates and the loan growth rates. Indeed, their findings showed that an increase of 1% of the rate of GDP growth “(i.e., GDP grows at 3 percent instead of at 2 percent) decreases the NPL ratio by 30.1 percent (i.e., it declines from 3.94 percent to 2.75 percent)”. This impact is lagged several periods, whereas in the case of real interest rates the impact was faster. In the case of the

¹⁷ Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia.

latter, an increase on 1% “brings about a rise in the NPL ratio of 21.6 percent”. Finally, on the loan growth rates, an increase of 1% “has a long-term impact of a 0.7 percent higher problem loan ratio”.

For calculating the ability of households to pay their debts Blanco and Gimeno (2012) estimated a model using dynamic panel data of 50 Spanish provinces for the period 1984- 2009. They took into account two loan categories: secured (loans with real guarantees) and unsecured (loans without real guarantees). Their findings indicated that the “sensitivity to shocks is higher for unsecured loans, a feature that probably reflects the comparatively higher incentives to default for this type of loan”. Moreover, they also identified asymmetric effects of some of the explanatory variables. In particular, in the case of the unemployment rate the impact varies depending on whether it is an increase or a reduction of the unemployment ratio, as they quantified that an increase “has a sharper impact on default ratios than a reduction in unemployment.”

Gila-Gourgoura and Nikolaidou (2017) examined the macroeconomic, country-specific and bank-specific determinants of NPLs in Spain. Their dataset covered the period 1997Q4-2015Q3. Among the macroeconomic variables, they included the consumer price index, the current account, the foreign direct investment stock, the general government debt, the real GDP, the trade balance and the unemployment rate. Their results showed that the real GDP, the Spanish long-term government bond yield and the total credit granted by the Spanish banks were statistically significant and were identified as the main drivers for the evolution of NPLs in the period of observation.

3.1.4.2. Italy

Bofondi and Ropele (2011) analysed the macroeconomic determinants of banks’ loan quality in Italy. Their dataset, covering lending to households and firms, spanning from 1990Q1 to 2010Q2. Their results were in line with the existing literature. They confirmed that the “changes in macroeconomic conditions generally affect loan quality with a lag”. This also varies depending on the type of borrower. In this

regard, their main contribution refers to the analysis of this lag. They estimated that “for households the annual growth rate of real gross domestic product and the short-term nominal interest rate enter with a lag of four and three quarters, respectively”. In the case of lending to firms, “the ratio of net interest expenses to gross operating profits enters with a lag of two quarters”. Interestingly, for both types of borrowers, “the unemployment rate affects the NPL ratio simultaneously”.

Foglia (2022) studied the macroeconomics determinants on NPLs (NPLs) in the Italian banking system over the period 2008Q3-2020Q4. His results indicated that GDP growth, public debt, the unemployment rate were statistically significant in line with the literature. Moreover, he also identified that domestic credit as a key determinant for NPLs. According his estimation, “an increase of 1% in domestic credit generates a rise of 0.49% in the long-run rate of NPLs”. He justified that finding in the so-called “gambling for resurrection” reaction of banks. When they lower lending standards, i.e. via collateral requirements, and consequently assume a higher risk in order to support “zombie” clients. This topic is covered in detail in the next sections of this chapter. Finally, another important finding was that “short-run coefficients have lower values than in the long-run, suggesting that in the short-run the impact of a change in a macroeconomic determinant is less than in the long-run”.

3.1.4.3. Greece

Louzis et al. (2012) examined the macroeconomic and bank-specific determinants of NPLs in Greece between 2003Q1 and 2009Q3. Their main novelty refers to the analysis of the potential diverse effects among different loan categories, namely (i) consumer loans, (ii) business loans, and (iii) mortgages. In a dataset composed of data for the nine largest Greek banks as well as of macroeconomic data, they applied dynamic panel data methods.

Their findings indicated that (i) the real GDP growth rate, (ii) the unemployment rate, (iii) the lending rates, and (iv) the public debt were statistically significant. As regards the loan categories, they concluded that “consumer loans are the most

sensitive to changes in the lending rates and business loans to the real GDP growth rate, while mortgages are the least affected by macroeconomic developments”.

Also for the Greek banking sector, Konstantakis et al. (2016) analysed the NPL determinants using aggregate data on a quarterly basis. The data points they considered spanned from 2001Q4 to 2015Q1. Exploiting VAR models, they studied the effects of the most common macroeconomics variables into NPLs, namely (i) the GDP cyclical component, (ii) the public debt, and (iii) the unemployment rate. Via the Generalized Impulse Response Functions, they concluded that the response of NPLs to a shock in the GDP cyclical component was “negative and statistically significant in the first two quarters, while in the long-run the NPLs return back to their initial equilibrium position”. In the case of a shock in the public debt, it “affects positively the NPLs in the short run, while in the long-run the NPLs return back to their initial equilibrium position.” Finally, a shock in the unemployment rate “affects positively and significantly the NPLs in the short run and for about 6 quarters”. The authors noted that between the 7th quarter and the 10th quarter, the shock in unemployment affected negatively the NPLs, “while in the long run (after the 11th quarter) the NPLs return back to their equilibrium position”.

Monokroussos, Thomakos and Alexopoulos (2016) studied the evolution of Greek NPLs via error correction models to test a number of macroeconomic and banking-specific variables from 2005Q1 to 2015Q4. As regards the macroeconomic determinants real GDP growth, aggregated credit supply, employment rate as well as interest and inflation rates were statistically significant. The authors argued that genuinely for the Greek case their results showed that in “the long-run effect (in absolute terms) of the level of real GDP on the level of non-performing loans is found to be around double in magnitude of the effect of loans provided by the domestic banking system”. In particular, their estimates indicated “a decline of real GDP growth by 1 ppt leads to a c. 0.40 ppts increase” in the NPL ratio, whereas the “the maximum impact of a GDP shock is felt within 3 quarters”. Therefore, they advocated focusing on “restoring the conditions for positive and sustainable economic growth for improving private-sector solvency”, as the most effective tool.

3.1.4.4. Romania

Vogiazas and Nicolaidou (2011) applied time series modelling techniques to study in a monthly dataset ranging from December 2001 to November 2010 the NPL determinants for Romania. As per the potential factors, they went beyond the traditional literature and on top of the macroeconomic and bank-specific indicators; they also considered “Greek fiscal crisis” and “bank-specific indicators”. The study of potential spill-over effects was driven by the fact that Greek banking groups “hold 30.7% of aggregate foreign capital while they account for the second largest market share in the Romanian banking system”.

Within this category they proposed (i) the total loans granted by Greek credit institutions, (ii) the Greek loss loan provisions/total loans, (iii) the Greek leverage ratio, (iv) the loans-to-deposits ratio, (v) the Greek 10-year bond (measured by the secondary market yield of the 10-year Greek government bond), (vi) the spread Greek-German 10-year bond (measured by the spread differential between Greek and German long-term government bond yield), (vii) the ECB Reliance Index I (measured by Greek banks’ financing by European Central Bank to total assets of the Greek banking system as a proxy for the Greek banking system distress as a result of the fiscal crisis), and (viii) the ECB Reliance Index II (measured by Greek banks’ financing by European Central Bank to total loans of the Greek banking system as a proxy for the Greek banking system “liquidity gap”).

The findings were twofold. On the one hand, among the typical macroeconomic indicators, the inflation rate was found to be significant. As the authors noted in this case this indicator “produces the highest t-statistic and the best fit of all univariate regressions. Thus, the hypothesis that inflationary pressures drive up the nonperforming loans cannot be rejected”. On the other hand, half of the indicators that proxy the Greek crises’ dynamics were also significant. In particular, the results showed that the Greek loss loan provisions/total loans, the Greek 10-year bond, the spread Greek-German 10-year bond and the ECB Reliance Index I were statistically

significant. In this regard, Vogiazas and Nikolaidou considered that “the Romanian credit risk is responsive and more specific adversely affected towards risks arising from the neighbourhood”, signalling the manifestation of potential contagion risk.

Hada et al. (2020) studied the macroeconomics determinants of NPLs for the Romanian banking system over the period 2009-2019. Their data was clustered into two periods, namely 2009-2014 and 2015-2019. The turning point was the recommendation of the National Bank of Romania to write-off of uncollectable NPLs. For both periods the exchange rate and the unemployment rate were statistically significant and had the highest explanatory power, followed by the inflation rate.

As regards the exchange rate, the authors highlighted the risk of excessive lending in foreign currencies, which was manifested with the proliferation of CHF loans between 2006 and 2008 and which effects are still palatable more than a decade later. In particular, this risk to financial stability in Romania has not yet been addressed as according to their data 45% of total loans registered in Romania refer to the foreign currency loans. Therefore, they argued that “an uncontrolled transaction of the exposure of RON to foreign currencies could have dramatic consequences”.

3.1.4.5. Cyprus

Christodoulou-Volos and Hadjixenophontos (2017) examined NPL determinants for the Cypriot commercial banks between 2008Q4 and 2014Q2. As variables, they considered the General Government gross debt as percentage of the nominal GDP, the unemployment rate as well as the test for the “effects of real GDP changes with 1, 2, 3 and 4 quarters’ delay (lags)”. Their results showed that all the aforementioned macroeconomic variables were statistically significant, being “the correlation in the case of unemployment is positive while in the case of GDP rate of change, it is negative”, in line with previous research. The novelty of their findings comes from the fact that they argued that “the influence of unemployment is more significant and acts faster” while the “the GDP rate of change influences NPLs with a time lag of 4 quarters and with lesser intensity”. Finally, they highlighted that for

the period of observation the “government debt as a percentage of GDP is the single most important reason for the variability of the dependent variable”.

Ptasica (2020) studied the macroeconomic determinants of NPLs of the commercial banks in Cyprus. Based on her dataset composed of observations retrieved from the Ministry of Finance and the Central Bank, she found that public debt (for the period 2005-2018) and interest rates (with data for the period 2007 and 2018) were statistically significant.

3.1.4.6. Czech Republic

Babouček and Jančar (2005) using a VAR method studied the “the macroeconomic factors that influence the quality of the loan portfolio by impulse response analysis”. As endogenous variables, they included the monetary aggregate M2 as a proxy for the GDP growth, trade indicators via exports and imports, the unemployment rate, the inflation rate, the interest rates, the aggregate bank loans to clients and the real effective exchange rate. The dataset for the Czech economy covered 142 monthly observations, from February 1993 to November 2004. Their findings indicated that growth of real GDP, the unemployment rate and inflation rate are the most relevant indicators for determining the NPLs evolution in Czech Republic.

These findings were corroborated by Petkovski, Kjosevski and Jovanovski (2018), who examined the macroeconomic determinants of the NPLs in the Czech banking system over the period 2005-2016. Applying a difference Generalised Method of Moments model on a dataset composed of observations of 22 Czech banks they concluded that GDP growth, inflation, and unemployment had the highest explanatory power. Moreover, they argued “there are strong feedback effects from macroeconomic conditions, such as domestic credit to private sector, GDP growth, unemployment, and inflation, to NPLs”.

Šulganová (2016) studied the time lags of macroeconomic determinants on NPLs in Czech Republic between 2002Q1 and 2015Q1. Using a dynamic linear autoregressive distributed lag model, she concluded that NPLs “react to the changes in inflation

and in nominal exchange rate of the Czech koruna to euro at first” with a lag of 5 and 6 quarters, respectively.

Interestingly, the impact of real economic growth and unemployment rate were lagged by two years. Her results showed that the lending rate, with a coefficient at 0.87, was the most powerful explanatory variable. She noted, “comparatively smaller effects were captured with real economic growth, unemployment and change in CZK/EUR exchange rate”, whereas she acknowledged that even though that inflation rate was statistically significant at 90% its impact on the NPL ratio was weak (e.g. coefficient at 0.05).

3.1.4.7. Bulgaria

Nikolaidou and Vogiazas (2014) investigated the determinants of credit risk in Bulgaria between December 2001 and December 2010. Moreover, taking into account the sizable presence of Greek banks in the country they also studied the contagion risk of the Greek crisis into the Bulgarian banking system and its consequences. Opposed to their findings in the case of the contagion from the Greek crisis to the Romanian banking sector, they concluded that the situation in Greece did not have a significant impact on the banks in Bulgaria. Therefore, the proliferation of NPLs was driven by the “pronounced role of the global financial crisis and the country’s bank regulatory framework”. In particular, the “construction activity”, the unemployment rate, and the “domestic lending growth” were found to be statistically significant for both the short-term and long-term run.

Golitsis et al. (2019) examined the NPL determinants in the Bulgarian banking sector utilising a dataset with observations spanning from January 2001 to December 2015. They tested 91 variables as potential determinants. Among them, they argued that the interest rates, unemployment rate, M2, the construction index, and wages were the ones with the highest explanatory power, whereas surprisingly GDP growth was found insignificant in this country-specific analysis.

3.1.4.8. Croatia

Erjavec, Cota, and Jakšić (2012) examined how macroeconomic shocks affects the performance of the Croatian banking sector during the period 2000Q2-2010Q2. They considered as variables the Croatian GDP growth, the short-term interest rate and the inflation rate. Their findings showed that the “responses of macroeconomic variables and changes in the ratio of non-performing loans to an adverse demand shock are more persistent than for a contractionary monetary and an adverse supply shock”.

Applying a vector error correction model Žiković, Žiković and Blečić (2015) analysed the NPL determinants for the Croatian households and corporates. They covered the period 2001Q4-2014Q1. Their results showed that the real GDP, the unemployment rate and the industrial production index are the most relevant explanatory variables. Their most significant contribution refers to the interest rates. In the long-term, they identified a positive relationship between this variable and the NPLs ratio. However, in the short-term the model determined a negative relationship. According to the authors, this is because “higher interest rates discourage investments in risky and less profitable ventures”.

Benazić and Radin (2015) studied the macroeconomic determinants on the proliferation of NPLs for the Croatian banking sector from 1997Q1 to 2013Q3. Based on their results they argued that an increase of NPLs is driven by the “decline in GDP, rising unemployment, rising interest rate and the depreciation of the exchange rate”. As regards the latter the authors indicated that the impact of the exchange depreciation is specially material in “countries with a large amount of lending in foreign currency which, as in the case of rising interest rate, affects the ability to service the debt”.

From their point of view, the practice of lending in foreign currency is particularly problematic in times of crisis driven by the fact that “due to insufficient foreign exchange reserves, currency depreciations increases the debt servicing costs in local currency terms for borrowers with loans denominated in foreign currency”. With the

adoption of the Euro as of 1 January 2023, this risk ceases to exist for the Croatian banks for the portfolios denominated in euros.

3.1.2. Microeconomic implications: bank-specific variables

3.1.2.1. Common determinants

The main contribution from Messai and Jouini (2013) referred to the examination of bank-specific determinants of NPLs for 85 Greek, Italian and Spanish commercial banks from 2004 to 2008. In particular, they consider (i) the profitability of assets, (ii) the loan losses reserves and (iii) the change of the loans granted. Their findings show a negative relationship between the profitability, in terms of return of assets, and the NPLs, which is statistically significant at 5%. In turn, the explanatory power of loan losses reserves is positive and significant at the 1% level. As explained by the authors, “banks that anticipate high levels of capital losses may create higher provisions to reduce earnings volatility and strengthen medium-term solvency.”

This is in line with Godlewski (2004), who used return on assets as a performance indicator within his study on the relationship between bank capital and credit risk. He covered the banking sector of 30 emerging markets, including Central and Eastern European economies, between 1996 and 2001. His findings showed that the impact of banks’ profitability is negative on the level of NPL ratio.

Similar results are shown for Greece in Charalambakis, Dendramis and Tzavalis (2017). They analysed quarterly observations of the macroeconomic and bank-specific variables in order to study the NPL determinants for the Greek banking sector over the period 2005Q1-2015Q4. As regards the bank-specific indicators, they concluded that only the return of assets was statistically significant. The other variables considered (i) the percentage change in equity, capturing the effects of bank capitalisation on NPLs; and (ii) the loan-to-deposit ratio, as a proxy for the liquidity risk, were not found statistically significant.

Hou and Dickinson (2007) based on panel data from commercial banks data from 19 jurisdictions (covering USA, Asia and Europe) over the period 1998-2005 studied the

impact of NPLs on the banks' lending behaviour. Their results are twofold and consistent across jurisdictions. Firstly, they indicated that NPLs have negative non-linear effects on the credit supply. They concluded that “higher level of non-performing loans reduces banks' aspiration to increase lending”. Interestingly, depending on the jurisdiction the thresholds or turning points were significantly different due to macroeconomic implications. Secondly, their analysis showed that “the risk-based capital ratio has played a significant role to restrict banks' risky lending”. As such the higher capital ratios are, the higher the incentives to expand lending.

Makri, Tsagkanos, and Bellas (2014) analysed the microeconomic determinants of NPLs for 14 Eurozone Member States between 2000 and 2008. Based on their findings, considering aggregate level data in the Eurozone, they concluded that “the rate of non-performing loans of the previous year, the capital ratio and ROE appear to exert a powerful influence on the non-performing loans rate”. In the same vein, Anastasiou, Louri and Tsionas (2016) using the GMM estimation, on a dataset from 15 Eurozone Member States between 1990Q1 and 2015Q2 studied the NPL determinants in the Eurozone. As regards bank-specific variables, their estimates showed that return on assets as well as return on equity were negatively related to NPLs in most models. They justified this as follows: “A bank that is characterized by strong profitability is less likely to participate in unsafe activities, such as granting risky loans”.

Chaibi and Ftiti (2015) studied the NPL determinants considering both macroeconomic and bank-specific determinants for Germany and France between 2005 and 2011. As regards the latter, they included loan loss provisions, inefficiency, leverage, solvency ratio, non-interest income, size and profitability. They found that the French economy was “more susceptible to bank-specific determinants”, which was presented as an evidence of the “impact of the type of economy (bank-based or market-based) on credit risk”. In particular, they argued that Germany and France had only two bank-specific determinants in common, namely the size and the profitability of banks. In the French case, loan loss provisions and inefficiency were

also found to be statistically significant, whereas for the German banking sector only the banks' leverage was.

Gila-Gourgoura and Nikolaidou (2017) argued that among the bank-specific determinants of NPLs the return on equity and the capital to assets ratio had the highest explanatory power as regards the evolution of NPLs in the Spanish banking system during the period 1997Q4-2015Q3. These results are consistent with the findings of Kjosevski and Petkovski (2021). These authors examined annual data from 21 Baltic commercial banks (from Estonia, Latvia and Lithuania) over the period 2005-2016. They found that equity to total assets ratio, return on assets, return on equity and growth of gross loans were statistically significant as bank-specific determinations of NPLs.

However, using a panel of 129 banks applied in Spain for the period 1993-2000, Garcia-Marco and Robles-Fernandez (2008) indicated that high levels of return on equity are followed by a greater future risk. They argued that the policy of profit maximization is accompanied by high levels of risk, which might end up in high levels of NPLs when there is a deterioration of the financial conditions.

Its rationale was previously explained by Fernández de Lis, Martínez Pagés and Saurina (2000). They analysed the determinations of the credit growth and credit risk in the Spanish economy on a complete dataset, covering 36 years (from 1963 to 1999). In their conclusions, they highlighted that in “a context of strong competitive pressures, there is a tendency for loose bank credit conditions in an upturn in view of the low level of contemporaneous non-performing loans. This may contribute to the build-up of financial imbalances in the non-financial sector”. They were even able to determinate the estimated lag for the proliferations of NPLs in the Spanish economy: “The low quality of these loans will only become apparent with the ex-post emergence of default problems, which will tend to appear during downturns, with an estimated lag of approximately three years in the case of Spain”.

Keeton (1999) already presented similar results for the US analysing three different datasets. For better understanding the business loan growth and business credit

standards he took information from the US Federal Reserve's Senior Loan Officer Survey for two periods, 1967-83 and 1990-98. Moreover, he scrutinised the relationship between business loan growth and business loan delinquencies over the period 1982-1996. He pointed out that it is not the growth of credit in upturns *per se* the driver for higher NPLs, but the "shift in the supply of bank credit" understood as the low quality of these loans by loosing the standards for granting credit. He argued that this evidence was not necessarily related to parallel shifts in the demand of bank credit, which could also explain the increase in lagged delinquencies over time.

For the Czech Republic, Petkovski, Kjosevski and Jovanovski (2018) analysed the macroeconomic as well as the bank-specific determinants of the NPLs in the Czech banking system between 2005 and 2016. As regards the latter, their model showed that "return on assets", "return on equity", "growth of gross loans", "equity to total assets ratio", "size of the banks" and "foreign ownership" had an impact on the amount of NPLs for that period.

Ozili (2019) used cross-country as well as regional data to identify commonalities across regions. In particular, he considered data from 134 countries and six regions over the period 2003-2014. In order to study the NPLs determinants he included five bank-specific indicators as well as three financial sector indicators. The former were composed by (i) bank cost to income ratio, reflecting the efficiency; (ii) bank noninterest income to total income ratio, measuring profitability; (iii) bank regulatory capital to risk-weighted assets ratio, measuring bank capital; (iv) loan loss coverage ratio, reflecting the provisions; and (v) bank credit to bank deposits ratio, covering the liquidity. His results showed that "NPLs are observed to be significantly associated with regulatory capital ratios and bank liquidity, implying that banking sectors with greater regulatory capital and liquidity experience fewer NPLs".

Barra and Nazzareno (2021) studied the macroeconomic and microeconomic determinants of Italian NPLs between 2001 and 2014 with a sample of more than

7,000 observations. As regards the microeconomic variables their model identified the following as statistically significant: (i) growth of loans, for the credit policy; (ii) return on assets, for the profitability; (iii) equity to total assets, for the solvency; (iv) loans to total assets, for the volume of credit; (v) deposits to loans, for the cost of intermediation; and (vi) cost of total assets, as indicator for the efficiency.

For the Czech banking system, Šulganová (2016) analysed the time lags of microeconomic determinants on NPLs over the period 2002Q1-2015Q1. Based on her findings NPLs reacted to changes in the lending concentration and interest rate margin with a lag of 5 quarters, whereas for other variables, such as credit growth, loans to assets ratio and FX lending only were showed after 8, 9 or 10 quarters. As regards the magnitude of the effects she noted that her “result does not confirm economic postulate that rising volume of loans in total assets imposes higher credit risk for the future”, as the estimated coefficient was -0.10 with 5% level of statistical significance, denoting a “rather weak” effect.

3.1.2.2. Other determinants

Beyond the profitability indicators, credit supply, and capital position other studies focused on other determinants such as the role of managers either due to mismanagement or via herd behaviour, as well as the business model and the supervision of shareholders and investors.

3.1.2.2.1. Mismanagement

The managerial incentives also play a significant role in the evolution of NPLs. When managers are rewarded based on the expansion of the balance sheet instead of on profitability terms, this could result on rapid deterioration of the quality of loans as well as on higher operating costs. In this regard, Berger and De Young (1997) conducted a study on US commercial banks for the period 1985-1994. They tested four hypothesis, namely “bad luck”, “bad management”, “skimping” and “moral hazard”. Among them, they concluded that the highest explanatory power came from the mismanagement hypothesis. However, they also acknowledged that moral hazard considerations played a role as banks undercapitalised took higher risks. The

role of the bad management hypothesis in the proliferation of NPLs in the Eurozone was also pointed out by Anastasiou, Louri and Tsionas (2016) on the basis of their study of commercial banks from 15 Eurozone Member States between 1990Q1 and 2015Q2.

Moreover, several studies have also indicated that the exacerbated credit growth is driven by mismanagement considerations. In this regard, some managers have incentives to expand the size of the bank via credit growth and geographical expansion (Williamson, 1963) as they might be rewarded for this before the delinquency figures show the effects of their (poor) managerial decisions. Thus, studying the manager's incentives is key for better understanding the dynamics associated to business cycles and credit risk.

Edwards (1977) already demonstrated this utilising a dataset composed by the banks operating in 44 US metropolitan areas during 1962, 1964 and 1966. His results showed that managers have a preference for an expense model over profit maximization models. This expense model was characterised by hiring more staff and paying higher managerial wages than the companies (or sectors) that follow a profit maximization model. Unsurprisingly, his findings showed that this tendency was exacerbated in the case of monopoly environments within the 44 US metropolitan areas covered by his research. In turn, Boyd and Graham (1991), in their seminal study on banking consolidation in the US, explained that “management compensation is positively, and significantly related to asset size, but not significantly related to profitability”.

Also for the US, Gorton and Rosen (1995) explained that the bank managers since 1970s had to adapt to a changing business environment when more nonbanking competitors entered in some of the business areas monopolised by banks, such as corporate finance. This made banks to adjust their portfolios and consequently their credit risk. However, the authors considered that the main response envisaged by the bank's managers over the 1980s was not the exploitation of the “deposit insurance subsidy”, introducing the concept of moral hazard risk, which ended up in several bank failures. On the contrary, their findings showed that the moral hazard

risk hypothesis could not be excluded but their data indicated that the corporate control problems justified the high level of bankruptcies among US banks in the 1980s. This corporate control problem refers to the lack of alignment between incentives of the shareholders (via the profit maximization function) and the bank managers via exacerbated risk taking.

Burns and Kedia (2006) studied the compensation schemes of managers and the incentives to misreport in financial statements. They focused on 1,500 US listed companies and the announcements of restatements during the period 1995-2002. Their sample included 266 restated firm-years and circa 8000 non-restated firm years. Unsurprisingly their findings showed that “long-term incentives plans make CEO wealth a function of longer-term firm value”, resulting in reduced incentives to misreport. On the contrary, stock options were found to be the component of compensation that was mostly associated with misreporting.

Podpiera and Weill (2008) analysed the Czech banking sector between 1994 and 2005 and concluded that mismanagement led to an increase in NPLs and endangered the financial stability of the Czech banking system. Louzis, Vouldis, and Metaxas (2011) also found similar results in the case of the Greek banking system between 2003Q1 and 2009Q3. They proposed a balanced panel composed of supervisory data from the nine largest banks in the country. Their results showed that in the Greek case the bank-specific variables “performance” and “efficiency” provided an additional explanatory power when added into the baseline model (composed of macroeconomic indicators), confirming the mismanagement hypothesis.

3.1.2.2.2. Supervision of shareholders and investors

Flanagan and Purnanandam (2020) studied the impact of distant and passive investors on NPAs. They took profit from a regulatory change in India that forced banks to disclose hidden losses. Their dataset included data from all commercial banks in India during 2016 and 2017. They argued that in combination to mismanagement the role of investors have a decisive role. Typically, distant investors have a less robust knowledge of the host markets. This information

asymmetry was in some cases addressed by including quantitative performance indicators in managerial contracts. *Ceteris paribus*, they found that “banks with higher shareholding by distant and passive Foreign Institutional Investors (FIIs) hide more”.

This finding was even more adverse for banks with “compensation contracts linked to observable performance measures as a substitute for diluted monitoring”. Therefore, they concluded that instead of addressing the agency problem, this combination of distant and passive shareholders and purely design incentive for top management, in the absence of effective control, would provide “misreporting incentives”. When this is executed by hiding losses via NPA underreporting, this would end up in restatement of financial statements or cliff effects linked to the recognition of those hidden losses.

Abascal and González (2019) studied the risk sensitivity before and after the global financial crisis as a result of the shareholders scrutiny. For this, they considered a dataset from 135 banks from 34 countries (including 16 EU Member States) for the period 2003-2011. Their findings show that “in the absence of shareholder protection, government interventions did not curb risk-taking incentives in management compensation packages”. They argued that to align the incentives of managers and shareholders reforms were needed by “increasing the say of shareholders in approving compensation and electing directors to compensation committees”. They also found that this enhanced scrutiny resulted in a reduction in pay-risk sensitivity which was linked to more solvent banks.

However, for the Czech Republic over the period 2005-2016, Petkovski, Kjosevski and Jovanovski (2018) argued that “foreign ownership contributes to lower NPLs, because foreign ownership improves human capital and management efficiency in the banks by bringing better skills, technologies, and risk management practices”. Therefore, the question at stake here seems to be whether the shareholders have a passive or active role, as this affects the risk proliferation or contention of NPLs.

3.1.2.2.3. Herd behaviour

Closely linked to mismanagement but not as a direct consequence of having the wrong managerial objectives, as presented above, herd or imitation behaviour is another NPL determinant. In this regard, the academia has found three main channels of bank herding: information, regulatory and reputational-based.

Bikhchandani and Sharma (2000) analysed the causes of herd behaviour in the financial global markets. They argued that the “tendency to herd is highly correlated with a manager’s tendency to pursue momentum investment strategies”, whose effects vary as a factor of “how fast new information is incorporated into market prices”. Therefore, as eradicating information asymmetry and the agency problem is not possible, the authors advocate for enhanced “disclosure rules, timely provision of data and better-designed compensation contracts” to facilitate transparency both at the level of the markets and across institutions as an effective tool to navigate the economic cycles.

In this regard, when the whole industry enters into a fight for profit instead of a fight for quality managers tend to approve credit concession to too risky projects during the expansionary phases of the cycles. This is explained by the reputational component within the herd behaviour. Those credit opportunities are often assessed less strictly if most of the peers are entering into these kind of funding, as Jimenez and Saurina (2006) explained based on their analysis for the Spanish commercial and saving banks over the period 1982-2002.

Uchida and Nakagawa (2007) studied the functioning of the Japanese loan market between 1975 and 2000 to look for evidences with regard to herd behaviour within the Japanese banking system. They found that “City banks in Japan had been following a cyclical pattern of herding with one of the peaks around the bubble period in the late 1980s”. They distinguished between rational and irrational behaviour, noting that “irrational herding was observed only in the bubble period” where based on their calculations this behaviour of managers could be quantified as “some 5 trillion yen of loan increase by city banks during the period of 1987-1989”.

They concluded by acknowledging that this herding “might have contributed to the non-performing loan problem in the 1990s”. As Keeton (1999) noted “faster loan growth leads to higher loan losses”. His results for the US based on data from the Federal Reserve for the period 1967-1998 showed that “states experiencing unusually rapid loan growth over the period 1982-96 tended to experience unusually big increases in delinquencies several years later”.

Similarly, for Italy, Foglia (2022) in his study of the determinants of NPLs over the period 2008Q3-2020Q4 found that “an increase of 1% in domestic credit generates a rise of 0.49% in the long-run rate of NPLs”. From his point of view, this is driven by the “risk-taking effect of the Italian banking system” in the absence of effective policies to curb high credit growth.

Acharya and Yorulmazer (2007) proposed a theoretical model to explain the “too-many-to-fail” approach, which shows the incentives that small and medium-size banks have not to differentiate themselves instead of herding. For this type of banks, this could be considered as a market response to the regulatory practices showing that “when the number of bank failures is large, the regulator finds it ex-post optimal to bail out some or all failed banks, whereas when the number of bank failures is small, failed banks can be acquired by the surviving banks.” From a regulatory viewpoint this practice “increases the risk that many banks may fail together” as they are incentivised to adapt their business models to common trends to benefit from potential regulatory forbearance. From their point of view, on the contrary, large banks, which benefit from to “too-big-to-fail” guarantee do have incentives to differentiate themselves driving the market shifts. Consequently, the rapid proliferation of non-performing exposures if the bet is proved to be wrong is facilitated leading to the manifestation of systemic crises.

Acharya and Yorulmazer (2008) presented a theoretical model that describes the information-driven incentives for herding among bankers. They noted that “when bank loan returns have a common systematic factor, the cost of borrowing for a bank increases when there is adverse news on other banks since such news conveys

adverse information about the common factor”. They justified this approach as “the increase in a bank’s cost of borrowing relative to the situation of good news about other banks is greater when bank loan returns have less commonality”. Therefore, to profit from “good news” and minimize the impacts of “bad news” bankers have an incentive to herd via the correlation of investments to keep the cost of funding at its minimum.

Martins et al. (2020) investigated the dynamics in the European housing markets and the role of banks in this regard. They performed two empirical analyses on a sample of 15 Member States. One on the house price dynamics, their fundamentals and the existence of bubbles between 1990 and 2007. In this regard their results identified “asset price bubbles” in Spain, Ireland, UK, Denmark and Sweden, whereas the price evolution in Germany, Austria and Portugal was based on the positive evolution of market fundamentals. The other analysis referred to herd behaviour or “herding” in the European mortgage market during the period 1995-2007. For this, they considered a sample of 550 banks.

Based on their results they considered that in Spain, Ireland, UK, Greece and Denmark “to the extent that it can be argued that a bubble was present, this behavior in the housing market led to herding on the part of banks”. They also argued that the existence of a “less conservative mortgage systems” in this countries in combination with imitation behavior in the loan market was a catalyser for sudden decrease in house prices during recessions. This was a major threat for financial stability, especially in countries with “higher level of owner occupancy and household debt”, such as Ireland, Spain, and UK.

Herring and Wachter (1999) proposed a theoretical model for studying the relationship between real estate cycles and banking crises driven by “disaster myopia”. This concept is defined as “the tendency over time to underestimate the probability of low-frequency shocks”. They argued that this effect appears in combination with herd behaviour as typically credit institutions “take on largely similar exposures” as “being part of a group provides an apparent vindication of the

individual banker's judgment, and some defense against ex post recriminations if the shock occurs.”

From their point of view, what is even more worrisome is that supervisors and regulators might also suffer from disaster myopia as “the conditions that caused disaster myopia among bankers may also have influenced regulators.” and from “disaster magnification”. They defined the latter as “in response to the greatly increased subjective probability of a disaster they may seek to protect the banking system by insisting on higher capital ratios and more aggressive provisioning against potential losses”. This leads to the markets to “feel safer than they should when prices are rising and overreact when prices decline”, generating the perfect environment for rapid non-performing proliferation.

This behaviour could also be explained by the “too-many-to-fail” concept, as banks prefer not to differentiate themselves. If they follow what the group does, in case of losses the supervisors and regulators might be more permissive rather than in a scenario where idiosyncratic risks were taken and this led to losses down the road. In this regard they argued that “authorities cannot terminate all banks or even discipline them harshly. Indeed, the authorities may be obliged to soften the impact of the shock on individual banks in order to protect the banking system”.

3.1.2.2.4. Business model and size

In a global European study, Bussoli, Caputo and Conte (2020) analysed the macroeconomic and bank-specific determinants on NPLs. They considered a dataset composed of a sample of 711 European banks over the period 2013-2017. As regards the bank-specific indicators, their findings indicated that those banks with “higher profitability and capitalisation have a lower level of NPLs and loss reserves”. Another interesting feature of their analysis refers to the study of the business model, as a proxy they used the number of branches. Based on their results, “more branches are negatively associated with credit quality”. However, it is worth noting that this also depends on the size, as “their negative impact is reduced for larger banks”.

Contrary to this, Ghosh (2015) argued that large banks have incentives to support “lower quality borrowers”. He studied the NPL determinants based on data from commercial banks and saving institutions in the US for the period 1984-2013 and concluded that in “states with large-sized banking industry, banks may increase their leverage too much and extend loans to lower quality borrowers”. From his point of view, this is driven by the manifestation of “too big to fail” hypothesis which would prevent regulators to accept the market discipline. In terms of business model he noted that greater diversification was statistically insignificant. Finally, he also pointed out the prolonged effects of any shock affecting the growth of NPLs as he determined that the “year-1” NPLs affects “the present year’s by 52-53%”.

Ghosh’s results in the US could not be always extrapolated to Europe. In this regard, Anastasiou, Louri and Tsionas (2019) studied the configuration of the Eurozone and its impact on NPLs over the period 2003Q1 to 2016Q1. They found that size was also statistically significant to explain the volume of NPLs. However, notably in the European periphery, “larger banks are more cautious and (apparently) have not taken advantage of their too-big-to-fail presence”, whereas their data showed that “smaller banks suffer from higher NPLs”.

Therefore, they concluded that this evidence could justify the banking consolidation in those Member States. They also warned that “this larger negative effect of size in the periphery may also be partly due to the fact that some banks became bigger (systemic) postcrisis by absorbing the good parts of resolved smaller banks”. They argued that Greece was a good example of this situation.

However, in a study of bank concentration and NPLs in ten Central and Eastern European countries¹⁸ between 2000 and 2009, Çifter (2015) concluded that the “empirical analysis shows that the bank concentration is an insignificant factor on the NPLs” in that region. He argued that he found ambiguous results, as in the long-run bank concentration reduced the NPLs in some EU Member States, namely

¹⁸ Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia.

Estonia, Latvia, and Slovakia, whereas it increased the proliferation of NPLs in other countries, namely in Bulgaria, Croatia, Lithuania, Poland, and Slovenia.

The size of the banks was also found statistically significant by Ciukaj and Kil (2020). In their study of the NPL determinants in the seven European countries with the highest NPL ratios at the end of 2017, namely Bulgaria, Croatia, Cyprus, Italy, Ireland, Greece and Portugal, they covered 629 banks with data spanning from 2011 to 2017. They noted that “banks with a higher value of assets are characterized by a better quality of their loan portfolio”. In the same being, for the Czech banking system between 2005 and 2016, Petkovski, Kjosevski and Jovanovski (2018) considered that “size has a negative effect on NPLs, indicating that larger banks are more able to solve problems of information asymmetry than are their smaller counterparts” during the period of observation.

Barra and Nazzareno (2021) contributed to the analysis the macroeconomic and microeconomic determinants of Italian NPLs by differentiating between the typology of credit institutions, namely cooperative, commercial and popular banks. Their dataset covered more than 7,000 observations spanning from 2001 to 2014. Among the variables identified they found that the size of the bank was “negative and significant only once our analysis is performed at macro-area level”. Therefore, they advocated for the “implementation of policies aimed at incentivising banks’ mergers and acquisitions at the local level would be desirable, as they would enhance the stability of local financial systems”. Their results also confirmed that the “higher the branch density is, the higher will be the likelihood of having deteriorated credits”. They considered that this was driven by higher inefficiency, which could be seen as a call for further digitalisation of the provision of banking services. Finally, for the Italian case over the period 2001-2014, based on their estimates, the typology of entities did not have an impact on the NPLs.

In this regard, Elferink (2020) addressed this recurrent topic in the contemporary research, as he conducted a study on the effects of digitalisation of European banks on the credit market. He tested his model on a sample of observations from 20

countries and 116 banks during 1993 to 2018. Over that period he noted that the profitability of banks was eroded despite the increase in the amount of loans driven by a significant rise of NPLs and the pressure of new entrants in the market on the margins. He argued that the effects of digitalisation in the industry favoured a more rapid increase in NPLs compared to the rise of total loans which was driven by “too low credit standards by banks”.

In the same vein, Druhova, Hirna and Fostyak (2021) built a dataset from 87 countries for 2014 and 2017 with data retrieved from the IMF and the Global Findex databases to analyse the impact of digitalisation on the banking industry. They applied structural regression models on the sample and concluded that “in countries with a higher level of Internet use for payments, the riskiness of the banking business increases”. The latter was measured as the “share of problem bank loans”.

Karadima and Louri (2020) analysed the “impact of bank market power on the change in NPL ratios” for the Eurozone members during the period 2005-2017 by covering 646 banks. As regards the business model when comparing among commercial, savings and mortgage banks their model showed that “commercial banks are more prone to creating NPLs” compared to the other business models. Moreover, their findings also suggested that “post-crisis consolidation facilitates the faster reduction of NPLs, while as the situation normalizes competition discourages the growth of new NPLs”. They also noted that the cross-border activities as they facilitate the diversification of portfolios brings about a more robust business model to temper potential NPL threats.

3.1.2.3 Other indicators

Chaibi and Ftiti (2015) analysed the effects on NPL determinants depending on the **type of economy**. To test it they compare a market-based economy (France) and a bank-based economy (Germany) over the period 2005-2011. Based on their findings, there is no difference at the level of the macroeconomic factors. According to the authors, this is because both countries belong to the Eurozone. However, some bank specific determinants differ depending on the type of economy.

In France the loan loss provision and inefficiency are the main determinants whereas for the German banks bank leverage is the key indicator. Moreover, for both economies the size and the profitability of banks are statistically significant as NPL determinants. Their results also indicate that “credit risk is higher in a market-based economy compared to a bank-based economy. Finally, in comparative terms they showed that the French economy was more dependent on the bank-specific determinants of NPLs. They argued that those results exemplified the “impact of the type of economy (bank-based or market-based) on credit risk”.

Anastasiou, Louri and Tsionas (2019) analysed the **configuration of the Eurozone** and its impact on NPLs over the period 2003Q1-2016Q1. They compared two samples stemming from 138 banks from the defined as core region¹⁹ and 88 periphery banks and concluded that over the period analysed there was fragmentation between the core and peripheral groups of countries.

For this, they ran a chi-square test “comparing the estimated coefficients for the core and periphery NPLs rejects the hypothesis of equality revealing another aspect of financial fragmentation in the euro area that leaves the periphery more vulnerable”. Therefore, following their results a one-size-fits-all policy to deal with NPL could have not been the most appropriate. In particular, they noted that “NPLs in the euro area have followed an upward (higher in the periphery) shift after 2008 and are mostly due to worsening macroeconomic conditions, especially with respect to unemployment, growth, and taxes”. Finally, they argued that “fiscal consolidation is positively significant only for periphery NPLs hinting at unwanted effects of austerity policies in these countries.”

For the Spanish banking sector, Jimenez and Saurina (2002) studied the loan characteristics on the default rates (PD). The dataset spans from December 1987 to December 2000. In order to capture the full economic cycle they considered more than three million observations stemming from the month of December of 1987,

¹⁹ Austria, Belgium, France, Germany, Finland, Lithuania, Luxemburg, Netherlands, and Slovakia was defined as “core”, whereas “Greece, Italy, Ireland, Portugal, and Spain” constituted the periphery.

1990, 1993, 1997 and 2000, based on data from the Bank of Spain statistics. Their findings identified the implications of the **bank-customer relationship**. In this regard, they found that “when the customer depends solely on one bank and is a small company, translates into greater credit risk”, as “when there is an exclusive or very close relationship between the bank and its borrowers, the bank is more willing to finance higher risk projects”. In other words, the bank lowers its credit standards for this type of clients.

García-Marco and Robles-Fernández (2008) studied the risk-taking behaviour depending on the **legal configuration** within the Spanish banking sector during the period 1993-2000. They differentiated between commercial banks (privately-owned) and saving banks (publicly-owned). They used a dynamic panel data model on a sample of 1030 observations from 129 banks, of which 50 were saving banks.

Their findings showed that the impact of size in risk-taking differs depending on the legal configuration. In terms of risk-taking for saving banks this was homogeneous regardless of the size, whereas in the case of commercial banks large entities took less risks than the smaller ones. Moreover, the moral hazard had a more significant impact on commercial banks compared to saving banks due to the fact that the “owners’ incentive to take risk increases”. Interestingly in the case of commercial banks the turnover in governing bodies led to a reduction in risk, whereas in the saving banks “the opposite effect is observed, as this appears to suggest that in saving banks such changes are made with a different purpose in mind”.

Anastasiou, Louri, and Tsionas (2016) analysed the NPL determinants via a sample of observations stemming from Eurozone banks for the period 990Q1-2015Q2. The novelty of this study comes from the inclusion of **taxes** as a potential explanatory variable. Their results showed that in fact the income tax rate affects negatively the NPLs as by reducing the disposable income the capacity to repay loans is constrained. In this regard, these authors indicated that austerity programmes introduced as a result to deal with the great financial and sovereign debt crises could have had detrimental effects on NPLs.

3.1.2.4 Concluding remarks of this section

Several authors have highlighted that the explanatory power of macroeconomic determinants of NPLs is higher than other indicators. In this regard, Klein (2013) examined the macroeconomic and bank-specific determinants of NPLs in sixteen countries²⁰ of the Central, Eastern and South Eastern Europe (hereinafter, also “CESEE”) region over the period 1998-2011. He concluded that both groups of variables were statistically significant. However, the explanatory power of the bank-specific variables was significantly lower than the macroeconomic determinants.

Monokroussos, Thomakos and Alexopoulos (2016) could not find empirical support for the potential impact of managerial decisions on “aggressive lending practices” nor on “systematic efforts to boost current earnings by extending credit to lower credit quality clients” on the Greek NPLs level. In their view, this was not driven by the fact that the macroeconomic factors examined had a better explanatory power.

This limitation was also highlighted by Charalambakis et al. (2017), who, as noted, considered that there are bank-specific and macroeconomic factors that should be treated as NPL determinants. However, on the former and based on their findings for the Greek economy most of the bank-specific variables used were not significant across the period of observation. In fact, with the exception of the ROA indicator, which seems to confirm the bad management hypothesis, other bank-specific variables such as equity levels and loan-to-deposit ratio (used as a proxy for liquidity risk) did not have a significant effect on NPLs in turmoil times. As per the results, they argued that those variables seemed to explain NPL variation only under normal circumstances.

3.2. Empirical studies regarding the effects of forbearance practices

This section explains two fundamental aspects of private forbearance or forbearance lending. One refers to its implications for the economy where these practices are

²⁰ Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, and Ukraine.

implemented. The other one focuses on better understanding the roots of these practices.

3.2.1. Economic implications of lending forbearance

Academic research has traditionally encountered some field-related limitations. As Kobayashi et al. (2003) acknowledged there was not a unique definition of forbearance lending used affecting the comparability among studies. From their point of view, there are two determinants: theoretical and empirical. The former refers to the rationale followed by banks in order not to write off bad loans. The latter focuses on the lack of data proving that despite banks might have concluded that borrowers are not able to repay those bad loans they still do not write them off.

In this vein, as explained by Caballero et al. (2008) “the challenge for our approach is to use publicly available information to determine which firms are receiving subsidized credit” as “banks and their borrowers have little incentive to reveal that a loan is miss-priced”. This might have posed additional difficulties for researchers, being most likely one of the factors explaining the reduce number of studies in this area.

In a study of SME forbearance conducted on UK banks, Arrowsmith et al. (2013) clearly stated the rationale behind forbearance, as it “can be helpful in providing assistance to borrowers suffering from temporary problems”. This is a matter of judgement and particularly important in times of economic turbulences. However, taking into account the implications this support has when provided at large scale for the financial stability it is key to conduct a thorough assessment.

As Hellwig, et al. (2012) acknowledged “from a regulatory perspective, the question is not whether banks are properly distinguishing between “good forbearance” and “bad forbearance”, practicing the first and avoiding the second”, but to examine whether credit institutions have the correct incentives or whether their incentives could “be distorted by extraneous considerations”.

This was already argued by Kobayashi et al. (2003) when they advocated for the implementation of structural reforms in the Japanese economy to remove any incentive for banks to practice massive forbearance, i.e. (i) “increasing the market share of profitable firms by encouraging the smooth exit of inefficient firms”; and (ii) “mitigating information asymmetries by enhancing the transparency of the corporate accounting system as well as improving banks’ screening and monitoring functions”. They also argued that streamlining bankruptcy procedures and introducing more flexibility in the labour market would be key.

Research, as outlined below, has clearly shown that providing assistance to businesses that will not recover implies a misallocation of resources that could be channelled to healthier businesses. Consequently, it has an impact on productivity, employment and growth due to the poor allocation of credit to the economy (Caballero et al, 2008; Blattner et al., 2019; Foglia, 2022, among others).

Tracey (2021) studying the European firms during the European sovereign debt crisis over the period 2011-2014 designed a firm equilibrium model which considers endogenous both liquidation and forbearance lending. She found that “average of firms’ growth, investment rates and total factor productivity are higher in the counterfactual scenario with no forbearance lending”. McGowan, Andrews, and Millot (2018), based on a dataset composed of observations over the period 2003-2013 from bank-firm relationships in nine OECD countries,²¹ concluded that “higher share of industry capital sunk in zombie firms is associated with lower investment and employment growth of a typical non-zombie firm”.

Becker and Ivashina (2022) in a study of the US, UK and European economy during 2004-2020 argued that a misuse of forbearance “prolongs economic downturns”. Furthermore, Acharya, Lenzu, and Wang (2021) noted that “congestion externalities imposed by zombie lending on healthier firms” trigger “economic sclerosis”. This

²¹ Belgium, Finland, France, Italy, Korea, Slovenia, Spain, Sweden and the United Kingdom.

has important implications as it “delays the recovery from transitory shocks, and can even lead to permanent output losses”.

For the case of the Japanese 1990s crisis Okamura (2011) quantified the “direct costs of increased bad debts due to forbearance at 4.2% of nominal Japanese GDP in 1997 or US\$181 billion”. Similarly, Saita and Sekine (2001) argued that the application of forbearance lending practices negatively affected the growth indicators of the Japanese economy. Based on data from the period 1990Q1-2001Q1, they concluded that the “decline in sectoral credit shifts in the 1990s stemmed from weaker financial intermediation and in turn dampened real growth”. In particular, the negative contribution of lending forbearance amounts to -0.6% during 1990Q1-1994Q4 and -0.4% during 1995Q1-2001Q1.

Acharya et al. (2019) studied the effects of the ECB’s unconventional monetary policy on the European economy via the recourse to the ECB’s OMT. These authors built their dataset, between 2009 and 2014, on loans granted to all EU firms based on those available at Thomson Reuters DealScan. They concluded that “Europe’s slow economic recovery can be at least partially explained by zombie lending of banks that regained some lending capacity after the OMT announcement but which still remained weakly capitalized post-OMT”. This was due to the wrong incentives, as banks targeted unhealthy borrowers²² (8% of total granted loans during the period) instead of the healthiest ones. From their point of view, this inefficient credit allocation was driven by poor capitalisation of banks, which have incentive to forbear pre-existing customers instead of write their loans off. It “distorted market competition and caused detrimental effects on employment, investment, and growth. Interestingly, this effect was more significant in Italy, Spain, and Portugal, where on aggregated terms there was an “investment loss corresponding to on

²² Acharya et al. (2021) use another denomination to the same type of companies. For them “zombie firms”, following Caballero et al. (2008), are companies whose “interest coverage ratio is below the median and leverage ratio above the median at the industry-country-year level”

average 1.5 years of investment capital and an on average 7 pp lower employment growth”.

Arrowsmith et al. (2013) identified three key channels that explain why massive forbearance practices lower the aggregated productivity. There is a direct channel as lending forbearance granted to companies with productivity lower than the average lead to the deterioration of the general indicator. Moreover, there are two indirect channels. Firstly, as firms with lower productivity are kept artificially alive, this prevents other competitors to gain market share at the expense of those companies that could otherwise exit the market. Secondly, the fact that those firms are still competing in that particular sector makes it less attractive for new entrants, jeopardising the natural dynamics within markets.

For the Portuguese market, Correira et al. (2021) obtained similar conclusions. They conducted a large study with data from manufacturing and services SMEs spanning from 2004 to 2017 and found that “a 1% decline in the share of highly indebted and unprofitable firms (i.e. zombies) is estimated to increase the average labour productivity” (by 3.1%).

Furthermore, the misallocation of credit to less productive industries or sectors jeopardises the aggregated productivity and it has an “opportunity cost”. The lending practices of banks towards the construction and real estate sectors were good examples of this in both the Japanese and, as discussed in the next chapter, the Irish or Spanish saving banks crises. Kobayashi et al. (2003), applying its model to firm-level data (580 companies) spanning from 1984 to 1999, concluded that data showed that Japanese banks regularly applied forbearance lending in these two sectors over the period 1993-1999.

In terms of influence the overall productivity, Blattner et al. (2019) analysed the low productivity growth in Europe after the sovereign debt crisis. For their sample they focused in the case of Portugal for the period 2009-2015. They used a dataset that covered 45 banks, 144,050 non-financial firms, and 380,286 lending relationships (more than 90% of the loans originated in the country during that

period). Their findings led them to argue that the misallocation of credit “accounts for 20% of the decline in productivity in Portugal in 2012”. Their model is particularly relevant in economies where the banking sector dominates the credit supply to the private sector (e.g. in European countries), as their data shows that the “(mis)allocation of credit feeds through to the (mis)allocation of production factors”. Therefore, in economies where there is not a flourishing corporate bond market this dynamic is exacerbated.

In another study and in practical terms, Acharya et al. (2021b) considered a firm level data set composed of 1.1 million firms across 65 sectors within 12 European countries²³. They noted that the “low-growth low-inflation environment” in Europe during the last decade resembles the so-called “lost decade” in Japan. This justifies that empirical conclusions outlined in this section are *ceteris paribus* equivalent for the studies with data from the Japanese 1990s and the European 2010s. In particular, Acharya et al. (2021b) argue that “policy measures that make cheap debt financing readily available to impaired firms have a disinflationary side effect, thereby providing an explanation for the persistent low inflation rates in Europe” until 2021. They argued that ““zombie credit” can create excess production capacity, and in turn, put downward pressure on markups and prices”. Their results quantified this impact at -0.4% inflation rate.

The academic studies even jumped to the most prominent economic outlets. For instance, in Europe, taking into account IMF’s data, the Economist (2013) reported in October 2013 that in Portugal, Spain, and Italy, respectively 50%, 40%, and 30% of its privately owned debt referred to companies which “cannot cover their interest payments out of pre-tax earnings”. They referred to the Japanese crisis and named them as “zombie companies”, while outlining the impact on invest and growth for those European economies.

²³ Austria, Belgium, Germany, Denmark, Spain, Finland, France, Italy, Poland, Portugal, Sweden, and Slovakia.

In this regard, Bargagli-Stoffi, Riccaboni, Rungi (2020) applied machine-learning technics to the analysis of zombie firms. They cover the period 2008-2017 with a dataset of more than 300,000 Italian firms. Their findings show that these companies “are on average 21% less productive, 76% smaller, and they increased in times of financial crisis”. In particular, Banerjee and Hofmann (2022) using firm-level data (32,000 listed companies from 14 OECD countries) since 1980, determined that the share of this type of companies increased significantly over time, “from 4% in the late 1980s to 15% in 2017”. They acknowledged that this figure should be significantly higher as “small firms are more likely to be zombified”. This has fundamental repercussions as their results also show that “amongst listed SMEs, the share of capital and employment sunk in zombie firms is 50% and 20%, respectively”.

3.2.2. The roots of lending forbearance practices

From a financial point of view, banks need to apply carefully this tool as it has a direct impact on the non-performing categorisation. Therefore, only when there are realistic chances of recovery an exposure could be forborne. That is to say, as Okamura (2011) argued, generally speaking, a company that consistently posts losses should be liquidated, whereas a firm, which still generates cash flows but “requires a straight debt reduction as the burden of debt servicing is too great is a candidate for formal debt forgiveness”. Moreover, he considered that this debt forgiveness should have a cost on some market participating. Consequently, he advocated for the dilution of former equity holders via the application of debt for equity swaps.

On the contrary, the misuse of this tool would artificially reduce the stock of non-performing exposure and would endanger both the financial position of the bank and the fragility of the financial system as a whole. As Ota (2014) explained, it could serve banks not to recognise the deterioration of assets and contain credit losses. This “contribute to ‘make up’ the banks’ capital higher than these should be” and the use of collateral in an approach that several authors (Kobayashi, et al., 2003; Caballero et al., 2008, among others) highlighted and that could be denominated: “extend and pretend” behaviour.

Several studies have highlighted some of the key considerations that should be taken into account in order to better assess the malpractices around the application of forbearance practices and their rationale.

Homar and Van Wijnbergen (2014) analysed 68 systemic banking crises during the period 1980-2013 and concluded that the **solvency position** of a bank has a significant impact on the bank's decision with regard to whether the exposure should be carried over or it should be written off. In this regard, a bank has a clear incentive to forbear in the case that it has not adequate capital buffers that could be utilised to cancel exposures that are not temporary under difficulties but for which there is a significant likelihood of permanent deterioration, showing that they should be assessed as non-performing. Banks undercapitalised, instead of booking this deterioration of the exposure (which would impact the bank's capital position), prefer to extend the maturity of the exposure and even provide short-term funding to those firms, where needed.

Along the same line, for the Japanese market Watanabe (2010), with a sample of 126 banks over the period 1974-2000, showed that when the capital position of banks deteriorates “a fall below the regulatory minimum is a real threat”, as it is a “perverse incentive to evergreen unhealthy firms”. Similarly, Peek and Rosengren (2005), using data at Japanese firm-level over the period 1993-1999, argued that banks with capital levels close to the regulatory minima applied forbearance practices to avoid the deterioration of the financial position of companies that would entail the booking of losses in their accounts and the report of those exposures as non-performing. This is theoretically corroborated by Bruche and Llobet (2014) for Japan. Their model could be applied to other similar crises, such as the European sovereign debt crisis.

Acharya et al. (2021c) also confirmed Peek and Rosengren thesis outlined above, as they concluded that based on their model “low-capitalization banks extend new credit or evergreen existing loans to low-productivity firms”. In turn, Okamura (2011) studied the period between 1997 and 2003 on a sample of 110 listed firms

and focused on 117 events, which ended with 70 firms entering bankruptcy and 47 receiving debt forgiveness. He identified what he called “gamble for resurrection”. He argued that this phenomenon is driven not because of the purely existence of low-productivity firms but due to undercapitalised banks. His results showed that well capitalised banks recourse to forbear those firms is significantly lower than in the case of undercapitalised banks. That is to say, bank capitalization is “the driving force behind “zombie” firms”.

For Europe, Andrews and Petroulakis (2019) studied the role of banks capitalisation, zombie lending and the implications for the aggregate productivity from 2001 to 2013 in 11 European countries²⁴. They argued that “around one-third of the impact of zombie congestion on capital misallocation can be directly attributed to bank health”. Therefore, prompt banks recapitalisation constitutes a decisive factor, as previously outlined by Okamura.

Watanabe (2010) highlighted that in the Japanese crisis data shows that the “infusion of large amounts of public capital into large banks in FY 1998 seems to have assisted these banks in redirecting their lending portfolios”. With this reinforced capital position, banks were able to revigorate the “the quality of the lending supply” towards “healthier firms”. However, Acharya, Lenzu, and Wang (2021) warned that “not raising capital requirements upfront but raising them significantly upon the arrival of shocks can also backfire by encouraging zombie lending”. Moreover, with Japanese data over the period 1998-2004, Giannetti and Simonov (2013) argued that “capital injections may increase the misallocation of credit if they are not appropriately designed”.

Therefore, those capital injections are a *conditio sine quanon* for enhancing the quality of the lending supply that needs to be accompanied by clear incentives from policymakers to redirect “lending away from less productive industries”. From a public policy point of view, this stance was followed by the Bank of England and HM

²⁴ Austria, Denmark, Estonia, France, Germany, Greece, Latvia, Slovenia, Spain, Portugal, United Kingdom.

Treasury when they launched the *Funding for Lending Scheme* on 13 July 2012 to incentivise the lending to UK households and private non-financial corporations (Churm et al., 2012).

Storz et al. (2017) shared also these views in their analysis on whether banks in distress delay the deleveraging of the corporate sector. They focused on lending practices to SMEs in seven Eurozone countries²⁵ over the period 2010-2014 and created a dataset composed of observations from more than 400,000 SMEs and around 900 banks. Their results showed that targeting bank weaknesses would support the deleveraging of the corporate sector and avoid “crowding out growth opportunities of productive firms”.

Another reason for forbearance lending refers to the negative effects of **risk concentration**; that is to say the lack of diversification. This is typically the case of lending to the real estate sector. As Watanabe (2010) showed banks overinvest in the real estate upturn, which makes them “extremely vulnerable to the downward real estate price risk and causes a devastating negative impact on their balance sheet when real estate prices actually fall”. This trend has been repeatedly observed during the run-up to the crises occurred in the most advanced economies during the last decades, spanning from Japan, to Europe or the US.

This overexposure to some damaged sectors and firms results in a tightening of the credit conditions, which could exclude, according to Anderson et al. (2019), from the market the companies that were not in the “lower tail of the productivity distribution”. For the UK in the post-global financial crisis scenario, these authors concluded that “restricted credit availability increased the rate of business failure” which due to the forbearance action of weak banks affected more significantly companies more profitable than zombie firms. Thus, their data (covering the period 2002-2012) showed that the market discipline was eroded in this occasion as a result of a failure in the selection mechanism.

²⁵ France, Germany, Greece, Ireland, Portugal, Spain, and Slovenia.

Schivardi, Sette, and Tabellini (2022) also corroborated this finding for the Italian market in the aftermath of the great recession (2008-2009) and the European sovereign debt crises. For their study they relied on a robust dataset (over 2.2 million observations) extracted from the Italian Firm Register as well as the Central Credit Register and supervisory reports collected by the Bank of Italy over the period 2008-2013. They argued that in sectors “where lending is predominantly done by weaker banks, zombie firms are more likely to survive, and healthy firms are more likely to fail, compared to province sectors with stronger banks”

Another novel explanation of forbearance lending is the one provided by Hu and Varas (2021) on the dynamic lending relationship and the effects of **asymmetric information**. They deviated from the dominant theory which explains zombie lending as a result of solvency considerations as they argued that regardless of the capital position of banks “zombie lending is inevitable but self-limiting”. This is driven by the fact that banks temporarily will rely on historical data for existing borrowers as the “the borrower’s quality probably arrives in multiple rounds and is imperfect during each round”.

Hosono and Sakuragawa (2005), as well as Watanabe (2010), also mentioned another factor for the existence of massive forbearance practices applied industry-wise. This was driven by a sort of forbearance where the public authorities play a key role. In fact, this is the combination of both lenient supervision and **regulatory arbitrage** (e.g. between the accounting and solvency rules). Watanabe noted that the “perverse incentive of evergreening was created in part by the ample opportunities for the regulatory arbitrage under the Basel I framework and in part by the weak enforcement of accounting standards”.

Hosono and Sakuragawa analysed theoretically and empirically all Japanese banks from March 1991 to March 1999. They studied whether “lax enforcement of capital adequacy requirements, accompanied with discretionary accounting practices” promoted zombie lending. Their findings showed that “banks had the perverse incentive of extending unprofitable loans”. However, they noted that “the

government exercised greater forbearance toward major banks than regional banks”, suggesting that the authorities followed a “too-big-to-fail” approach in this regard.

Bonfim et al. (2020) also mentioned a **lenient supervision** as one of the causes for massive forbearance practices, which are drastically reduced in case of dedicated inspections. In particular, for the Portuguese market they studied, with data spanning from 2011Q3 to 2014Q3, how “unconventional bank supervision can mitigate zombie lending by banks”. They compared large-scale on-site inspections conducted during 2012 on the construction and real estate sectors to a general inspection covering all sectors performed during 2013. They found that *ceteris paribus* “an inspected bank becomes 20% less likely to refinance a zombie firm”. Interestingly, they argued that “banks change their lending decisions only in the inspected sectors, and not in uninspected sectors”. Therefore, in order to modify banks’ behaviour general inspections are preferred over sectorial ones, but as they are too costly setting up policies that promote prompt recognition of losses as well as close monitoring by the supervisor are fundamental for dealing lending forbearance in the long-run.

Passalacqua et al. (2021) also studied the usefulness of bank supervision as a complement to bank regulation in reducing zombie lending. For this, focusing on the Italian market, they used a dataset with observations spanning from 2010 to 2017. It is composed of unexpected on-site inspections on cooperative banks performed and supervisory reports collected by the Bank of Italy, as well as entries into the Italian Credit Registry and Firm Register. Their research showed that “after an inspection, audited banks increase the stock of NPLs and the loan loss provision” due to the identification of findings that need to be addressed. Once the “extend and pretend” behaviour is eradicated, they found that there was a “reallocation channel for which inspected banks re-optimize their portfolio of loans by investing more on healthy firms or on new firms”.

This phenomenon of the interplay between undercapitalised credit institutions and misallocation of credit is not only related to the Japanese crisis in the 1990s or the European crises in the period 2008-2014. As explained above the role of the public sector to effectively tackle this is key. For instance, we could cite the cases of Brazil, China or India, where the role of public administrations in providing regulatory forbearance had a decisive impact from a political economy viewpoint.

For India over the period 2008-2015, Chari, Jain and Kulkarni (2021) showed that “lending to healthy firms falls significantly in industries with higher proportions of zombies and by banks with higher proportions of zombie-borrowers”. In a banking sector dominated by state-owned companies (circa 70% of total assets), the government incentives to apply regulatory forbearance are clear as they would facilitate not to incur in what the authors denominated “costly bank recapitalization”. In turn, this translated into the corporate world means that banks have a clear incentive to “extend and pretend” distressed loans and they are confident that the public and private incentives are aligned in this regard when the “fiscal space” of the sovereign is limited and there is not advanced resolution framework in place. Chora et al. (2021) conducted a study on the lending practices to more than 5,600 listed companies between 2013 and 2019 and concluded that “undercapitalization leads to underinvestment and risk-shifting through zombie lending”.

For China, Cong et al. (2019) took into account two databases (i) of the loans originated by the nineteen largest Chinese banks to large companies between October 2006 and June 2013, and (ii) of the manufacturing sector from 1998 to 2013, which combined are used to examine the lending practices to the largest companies within the manufacturing sector. Their results showed how the Chinese economic stimulus plan of 2009-2010 shifted the allocation of credit from high-productivity private companies (with relative higher productivity levels) to state-owned firms (with lower productivity levels) due to the “implicit government guarantees for state-connected firms” as a result of the global recession of 2008.

Focusing on the **timing** of the forbearance practices, for Brazil, Mourad et al. (2020) followed a revolutionary approach by studying the forbearance practices with regard to bank loans without a sample but with the almost total population of Brazilian industrial and commercial loans that were in arrears for more than 60 days (as per data from the Brazilian Central Bank between April 2012 to October 2018). This refers to over 13 million exposures, from which 1.1 million were restructured. Their findings showed that “that more than 70% of forbearance events in our sample occur up to three months after the loan becomes distressed”. This could be understood as the banks’ efforts of not reporting those exposures as non-performing in the next quarterly report.

Moreover, they observed that “loans collateralized under fiduciary lien, which allow for extrajudicial **collateral recovery**, are less prone to be restructured”. This is justified by the fact that the easier the collateral recovery is, the lower incentives a bank has to apply forbearance practices. In particular, the study of their dataset indicated that this probability is 3.6% lower than the probability to forbear a mortgage. Finally, another interesting finding of this study is that “larger loans are more prone to be forborne” as the variable of “loan value” is statistically significant at 1% level as a positive factor for forbearance in their model (1.6% more likely to be forborne).

In the same vein, Jorda et al. (2022), with data from 1916 to 2019, concluded that the **inefficient legal processes and the cost of liquidation** are key factors for forbearance lending, as “business investment is negatively affected by high debt when inefficient legal processes and institutions lead to high costs for restructuring and liquidation” and consequently banks have an incentive to apply the “extend and pretend” behaviour. This perverse incentives are also explained by Andrews and Petroulakis (2019) who noted that “the effect of bank health on zombie status is amplified under insolvency regimes that do not unduly inhibit corporate restructuring”.

McGowan, Andrews and Millot (2017) obtained similar results. They studied cross-country differences in the design of insolvency regimes and their implications for the survival of “zombie” firms and capital misallocation in 14 OECD countries²⁶ and 40 sectors over the period 2003-2013. Their findings showed that “insolvency regimes that do not unduly raise barriers to corporate restructuring (...) can reduce the capital sunk in zombie firms and spur productivity enhancing capital reallocation”.

This could be particularly significant in countries such as Greece, Portugal and Spain, where “reducing barriers to restructuring in Greece and Italy and the personal cost to failed entrepreneurs in Spain to the sample minimum in 2010 could translate into a decline in the zombie capital share”, amounting to circa 9% per country. Similarly, Altman, Dai and Wang (2021) studied the bankruptcy reforms in eight countries²⁷ over the 2000-2009, and found that “countries that make major reforms to their bankruptcy law on average experience a 1.4-percentage-point reduction in the fraction of zombie firms, representing a 25-30% reduction in the historical average across countries”.

Most of the studies covered so far focused on the relationship between banks and individual borrowers and try to prove the existence of forbearance practices. Ogura, Okui and Saito (2019) provide another explanation for the forbearance practices applied during the Japanese crisis and focused their research on the mechanism that leads to the application of those practices. From their point of view, over the period 2005-2013, the key factor was the **position of the borrower** within “an inter-firm supply network” or “the network effect”. They noted that an “influential firm generates a positive externality, and its exit damages the sales in the supply network”. In this regard, banks were not only looking at individual considerations

²⁶ Austria, Belgium, Finland, France, Germany, Greece, Italy, Japan, Korea, Portugal, Slovenia, Spain, Sweden and the United Kingdom.

²⁷ Brazil, China, France, India, Japan, Italy, Spain, and the United Kingdom.

but also analysed the role of the borrowers within their industry and the bank's loan book.

The rationale behind this assumption was as follows: “banks may forbear (...) such influential firms when the cost to support the loss-making influential company can be recouped by imposing high interest on less influential companies”. Moreover, this network effect has also implications in terms of employment. For the Italian market between 1997 and 2006, Murro et al. (2022) noted that “in the wake of negative shocks on sales, firms with long-lasting lending relationships reduce their workforce significantly less than other companies”.

Albertazzi and Marchetti (2010) studied the bank-firm relationships in Italy from September 2008 to March 2009. They built a dataset composed of more than 19,000 observations from circa 500 banks and 2,500 firms. They argued that the **size of the bank** affects the credit practices. Whereas “larger less-capitalized banks reallocated loans away from riskier borrowers”, this trend was not followed by “smaller less-capitalized banks”. Therefore, their data showed the two sides of the same coin, as some banks apply “fight to quality” policies whereas others with the same capital situation prefer to the “extend and pretend” approach. The authors noted that “evergreening is arguably easier for smaller banks, whose lending decision processes are more flexible and less constrained by credit scores”.

3.3. Synopsis of the chapter

This chapter is divided into two main sections. The first one refers to the macroeconomic as well as bank-specific determinants of non-performing exposures. It provides an overview of the studies either conducted with a global scale or focused on the EU as a whole or on a subset of its Member States. The second section includes an overview of the roots of the lending forbearance and covers the empirical studies regarding the effects of forbearance practices.

Table 3.1. Overview of studies with a focus on macroeconomic determinants

Study	Period of analysis	EU Member States included	Variable(s) statistically significant
Global scale			
Ari, Chen, and Ratnovski (2021)	1990-2017	All, except for Malta	Credit growth, high government debt, fixed exchange rates and high corporate debt with short maturity
Jorda, Schularick and Taylor (2013)	1870-2008	Denmark, France, Germany, Italy, the Netherlands, Spain, and Sweden	GDP per capita, real investment per capita, CPI prices, real lending per capita, government short and long term rates, and current account to GDP ratio
Beck, Jakubik and PiloIU (2015)	2000-2010	All, except Malta and Cyprus	Real GDP growth, share prices, nominal effective exchange rate and lending interest rates
Nkusu (2011)	1998-2009	Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Italy), Luxembourg, Netherlands, Portugal and Spain	GDP growth, unemployment, change in the house price index, change in the equity price index, inflation, nominal effective exchange rate, interest rate, and credit to the private sector
Jappelli, Pagano and Di Maggio (2013)	1994-2005	11 Member States	GDP growth, debt to GDP, unemployment rate, real interest rate
Balgova, Nies and Plekhanov (2016)	1997-2014	N/A	GDP growth, investment growth, labour market participation and unemployment rate
Siakoulis (2017)	1998-2012	14 Eurozone Member States	GDP growth, unemployment rate and fiscal policy
Ozili (2019)	2003-2014	N/A	Extent of financial intermediation and foreign bank presence
Europe: cross-country comparison			

Makri, Tsagkanos, and Bellas (2014)	2000-2008	14 Eurozone Member States	Public debt, unemployment, and the annual percentage growth rate of GDP
Anastasiou, Louri and Tsionas (2016)	1990-2015	15 Eurozone Member States	Unemployment rate, GDP growth, income tax rate to GDP and the output gap
Staehr and Uusküla (2017)	1997-2017	all EU countries	GDP growth, inflation and total private loans in percent of GDP
Roman and Bilan (2015)	2000-2013	all EU countries	Economic activity, the unemployment rate, degree of financial intermediation and government budget balance
Siakoulis (2017)	1998-2013	Most European countries	GDP growth, unemployment rate, country debt to GDP ratio and sovereign yield
Tanaskovic and Jandric (2015)	2006-2013	Bulgaria, Croatia, Hungary, Romania, and Slovenia	The level of GDP, foreign currency loans ratio and level of exchange rate, average lending rate for new loans
Rinaldi and Sanchís-Arellano (2006)	1998-2004	Belgium, France, Finland, Ireland, Italy, Portugal and Spain	The ratio of total household debt to household disposable income, the real disposable income per household, the ratio of household gross financial assets to disposable income, the real lending interest rate, the unemployment rate and the inflation rate
Selection of European countries			
Chaibi and Ftiti (2015)	2005-2011	Germany and France	GDP growth, the exchange rate, the interest rate, the unemployment rate
Messai and Jouini (2013)	2004-2008	Greece, Italy, and Spain	Real GDP growth, unemployment rate and real interest rate
Castro (2013)	1997-2011	Ireland, Portugal, Greece, Spain, and Italy	GDP growth, the unemployment rate, the interest rates, the growth rate of the credit supply, the real exchange rate, and the dummy variable financial crisis
Skarica (2014)	2007-2012	Croatia, Czech Republic, Hungary, Latvia, Romania and Slovakia	GDP growth, inflation rate, the unemployment rate, and growth rate of the credit supply

Festic et al. (2011)	1995-2009	Bulgaria, Estonia, Latvia, Lithuania and Romania	Growth rate of GDP and growth rate of the credit supply
Kjosevski and Petkovski (2017)	2005-2014	Estonia, Latvia and Lithuania	GDP growth, the unemployment rate, the domestic credit to private sector and the inflation rate
Kjosevski and Petkovski (2021)	2005-2016	Estonia, Latvia and Lithuania	GDP growth, unemployment rate, inflation rate, and public debt
Ciukaj and Kil (2020)	2011-2017	Bulgaria, Croatia, Cyprus, Italy, Ireland, Greece and Portugal	Unemployment rate and GDP growth
Kavkler and Festić (2010)	1997-2008	Bulgaria and Romania	Nominal exchange rate, inflation rate, money market interest rate, gross domestic product, unemployment, stock exchange index, net export, M2, and loans to private sector to GDP
Szarowska (2018)	1999-2015	Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia	Unemployment rate, inflation rate, economic growth, interest rates and exchange rate
European country-specific studies			
Salas and Saurina (2002)	1985-1997	Spain	GDP growth, firms and family indebtedness and credit expansion
Jimenez and Saurina (2006)	1982-2002		GDP growth, the real interest rates and the loan growth rates
Blanco and Gimeno (2012)	1984-2009		Unemployment rate, credit growth, and interest debt burden
Gila-Gourgoura and Nikolaidou (2017)	1997-2015		The real GDP, the Spanish long-term government bond yield and the total credit granted

Bofondi and Ropele (2011)	1990-2010	Italy	Real GDP growth, unemployment rate and the short-term nominal interest rate
Foglia (2022)	2008-2020		GDP growth, public debt, the unemployment rate
Louzis et al. (2012)	2003-2009	Greece	Real GDP growth rate, unemployment rate, lending rates, and public debt
Konstantakis et al. (2016)	2001-2015		GDP cyclical component, public debt, and unemployment rate
Monokroussos, Thomakos and Alexopoulos (2016)	2005-2015		Real GDP growth, aggregated credit supply, employment rate, interest rate and inflation rate
Vogiazas and Nicolaidou (2011)	2001-2010	Romania	Romanian indicators (the unemployment rate, the consumer price index, the construction and the gross fixed capital formation, the ratio of gross external debt to GDP, M2) and Greek indicators (loss loan provisions/total loans, Greek 10-year bond, spread Greek-German 10-year bond and ECB Reliance Index I)
Hada et al. (2020)	2009-2019		Exchange rate, unemployment rate and inflation rate
Christodoulou-Volos and Hadjixenophontos (2017)	2008-2014	Cyprus	General Government gross debt to nominal GDP, unemployment rate and lagged GDP growth
Ptasica (2020)	2005-2018		Public debt and interest rates
Babouček and Jančar (2005)	1993-2004	Czech Republic	Growth of real GDP, the unemployment rate and inflation rate
Šulganová (2016)	2002-2015		Lending rate, real economic growth, unemployment, exchange rate and inflation rate
Petkovski, Kjosevski and Jovanovski (2018)	2005-2016		GDP growth, inflation rate, and unemployment rate
Nikolaidou and Vogiazas (2014)	2001-2010	Bulgaria	Construction activity, unemployment rate and domestic lending growth

Golitsis et al (2019)	2001-2015		Interest rates, unemployment rate, M2, the construction index, and wages
Erjavec, Cota, and Jakšić (2012)	2000-2010	Croatia	GDP growth, short-term interest rate and inflation rate
Žiković, Žiković and Blečić (2015)	2001-2014		Real GDP, unemployment rate, industrial production index and interest rates
Benazić and Radin (2015)	1997-2013		GDP growth, unemployment rate, interest rate and exchange rate

Source: Own elaboration.

Several authors have highlighted that the explanatory power of macroeconomic determinants of NPLs is higher than that of other indicators, such as bank-specific indicators (e.g. Klein, 2013, Monokroussos, Thomakos and Alexopoulos, 2016 or Charalambakis et al., 2017). However, to have a more complete picture of the NPL determinants there is the need to take into account both sets of indicators. This is, actually, the approach taken by many studies either at global, regional or local level.

Within the bank-specific determinants, for methodological purposes, this dissertation distinguishes between quantitative indicators linked to profitability, solvency and efficiency (Table 3.2), and other qualitative indicators supported by quantitative studies, such as mismanagement, herd behaviour, role of shareholders, etc. (Table 3.3.).

Table 3.2. Overview of studies with a focus on common bank-specific determinants

Year	Study	Period of analysis	EU Member States included	Variable(s) statistically significant
2007	Hou and Dickinson	1998-2005	France, Poland, Croatia, Latvia, Romania, Czech Republic, Hungary and Slovakia	Capital ratio and credit supply
2008	Garcia-Marco and Robles-Fernandez	1993-2000	Spain	Return on equity

2013	Messai and Jouini	2004-2008	Greece, Italy and Spain	Profitability of assets, loan losses reserves and credit supply
2014	Makri, Tsagkanos, and Bellas (2014)	2004-2008	Greece, Italy, Portugal, Spain, France, Ireland, Germany, Belgium, Finland, Austria, Netherlands, Luxembourg, Estonia, and Malta	Capital adequacy ratio and return on equity
2015	Chaibi and Ftiti (2015)	2005-2011	Germany and France	Return on equity and size
2016	Šulganová (2016)	2002-2015	Czech Republic	Lending concentration, interest rate margin, credit growth, loans to assets ratio and FX lending
2016	Anastasiou, Louri and Tsionas (2016)	1990-2015	15 Eurozone Member States	Return on equity and return on assets
2017	Charalambakis, Dendramis and Tzavalis	2005-2015	Greece	Return on assets
2017	Gila-Gourgoura and Nikolaidou	1997-2015	Spain	Return on equity and the capital to assets ratio
2018	Petkovski, Kjosevski and Jovanovski	2005-2016	Czech Republic	Return on assets, return on equity growth of gross loans, and equity to total assets ratio
2019	Ozili (2019)	2003-2014	N/A	Profitability, bank capital, liquidity ratio, and loan loss coverage ratio
2021	Kjosevski and Petkovski	2005-2016	Estonia, Latvia and Lithuania	Equity to total assets ratio, return on assets,

				return on equity and growth of gross loans
2021	Barra and Nazzareno	2001-2014	Italy	Growth of loans, return on assets, equity to total assets, loans to total assets, deposits to loans, and cost of total assets

Source: Own elaboration.

Table 3.3. Other bank-specific determinants

Determinant	Period of analysis	Study
Mismanagement	1985-1994	Berger and De Young (1997)
	1995-2002	Burns and Kedia (2006)
	1994-2005	Podpiera and Weill (2008)
	2003-2009	Louzis, Vouldis, and Metaxas (2010)
Supervision of shareholders	2005-2016	Petkovski, Kjosevski and Jovanovski (2018)
	2003-2011	Abascal and González (2019)
	2016-2017	Flanagan and Purnanandam (2020)
Herd behaviour	Theoretical model	Bikhchandani and Sharma (2000)
	1982-2002	Jimenez and Saurina (2006)
	1975-2000	Uchida and Nakagawa (2007)
	Theoretical model	Acharya and Yorulmazer (2007)
	Theoretical model	Acharya and Yorulmazer (2008)
	1990-2007	Martins et al. (2020)
	2008-2020	Foglia (2022)
Business model and size	2000-2009	Çifter (2015)
	1984-2013	Grosh (2015)
	2005-2016	Petkovski, Kjosevski and Jovanovski (2018)
	2003-2016	Anastasiou, Louri and Tsionas (2019)
	2005-2017	Karadima and Louri (2020)
	2013-2017	Bussoli, Caputo and Conte (2020)
	2011-2017	Ciukaj and Kil (2020)
	1993-2018	Elferink (2020)
	2001-2014	Barra and Nazzareno (2021)
	2014-2017	Druhova, Hirna and Fostyak (2021)

Source: Own elaboration.

As noted, the second main building block of this chapter refers to the lending forbearance. Firstly, it provides an overview of the implications for the economy where these practices are massively implemented. Secondly, this review aims at better understanding the roots of these practices with the assistance of the main research trends and studies conducted up to date, as presented in Table 3.4.

Table 3.4. The roots of lending forbearance practices

Indicator	Period of analysis	Country	Study
Solvency position / undercapitalisation	1980-2013	Global	Homar and Van Wijnbergen (2014)
	1974-2000	Japan	Watanabe (2010)
	1993-1999	Japan	Peek and Rosengren (2005)
	1997-2003	Japan	Okamura (2011)
	2001-2013	Europe	Andrews and Petroulakis (2019)
	1998-2004	Japan	Giannetti and Simonov (2013)
	2010-2014	Europe	Storz et al. (2017)
	2013-2019	India	Chora et al. (2021)
Risk concentration	1974-2000	Japan	Watanabe (2010)
	2002-2012	UK	Anderson et al. (2019)
	2008-2013	Italy	Schivardi, Sette, and Tabellini (2022)
Asymmetric information	Theoretical model	Global	Hu and Varas (2021)
Regulatory arbitrage	1991-1999	Japan	Hosono and Sakuragawa (2005)
	1998-2013	China	Cong et al. (2019)
	2008-2015	India	Chari, Jain and Kulkarni (2021)
	1974-2000	Japan	Watanabe (2010)
(Lenient) supervision and reporting	2011-2014	Portugal	Bonfim et al. (2020)
	2012-2018	Brazil	Mourad et al. (2020)
	2010-2017	Italy	Passalacqua et al. (2021)
Legal processes and collateral recovery	2003-2013	Global	McGowan, Andrews and Millot (2017)
	2012-2018	Brazil	Mourad et al. (2020)
	1916-2019	Global	Jorda et al. (2022)
	2001-2013	Europe	Andrews and Petroulakis (2019)
	2000-2009	Global	Altman, Dai and Wang (2021)

Influence of the borrower	2005-2013	Japan	Ogura, Okui and Saito (2019)
	1997-2006	Italy	Murro et al. (2022)
Size of the lender	2008-2009	Italy	Albertazzi and Marchetti (2010)

Source: Own elaboration.

To conclude, based on the roots listed above, it is key to examine whether credit institutions have the correct incentives to apply sound policies in the area of lending forbearance. This is not only driven by regulatory and supervisory measures, but also by the constituent features of the insolvency and judicial systems, such as adequate enforcement processes, reduce cost of liquidation, efficient judicial and extrajudicial procedures, among others.

4. THE EVOLUTION OF NON-PERFORMING LOANS IN THE EU (FROM THE GFC TO THE COVID-19 CRISIS).

In this chapter the evolution of NPLs from 2007 to 2022 is presented leveraging on graphical representations either at regional or at country level. The first section covers the economic consequences of the GFC and the European sovereign debt crisis, whereas the second section provides an overview of the evolution of NPLs in the EU Member States since the start of the so-called COVID-19 crisis in year-end 2019 to the latest available data at year-end 2022.

4.1. The aftermath of the GFC and the European sovereign debt crisis and their impact on NPLs in the EU

4.1.1. Evolution of NPLs between 2007 and 2009

In 2007, the combination of a number of economic imbalances led to the US economy to collapse. It was the onset of the so-called subprime mortgage crisis and a result of the violent explosion of the housing bubble in the US. This was rapidly affecting most of the advanced economies and, in turn, had several global ramifications driven by existing macroeconomic imbalances and excessive risk-taking by many financial institutions that caused the so-called GFC of 2007 and 2008.

The domino effect was enormous and this led to the failure of several financial institutions not only in the US but also in many European countries. This was exacerbated by the filing for bankruptcy of, at the time, the fourth largest US investment bank, Lehman Brothers on 15 September 2008. These two major shocks triggered and augmented the Great Recession, over the period December 2007 to June 2009, which was the largest after the Great Depression of the 1930s.

This financial and economic turmoil, accompanied by other underlying economic factors as well as national specificities, derived into the European sovereign debt crisis. As such this crisis was a direct consequence of the imperfect construction of the Eurozone and, even more importantly, the existing imbalances within it as well as the high level of government and private debt in several EU Member States.

Particularly, in Greece, the first case where this crisis was palatable, this was the result of lack of adequate fiscal rules (e.g. overspending and severe deficiencies in the collection of taxes), which was also combined with the burst of the housing bubble, common denomination of the crises in several countries in the periphery of the Eurozone.

Consequently, investors started the cast doubts about the fiscal sustainability of a number of Eurozone Member States; that is to say, about whether those countries would be able to repay their debts when they were due. This affected severely not only the Greek economy, but also many other countries, such Italy, Ireland, Portugal or Spain. To deal with it the EU as well as international bodies considered that a combination of austerity measures and the implementation of structural reforms in those countries were the most effective tools to deal with this situation.

Of course, the deterioration of the economy and the doubts on the fiscal capacity of the sovereigns had a prompt impact on the credit institutions. This resulted in the rapid increase of the risk exposure, the tightening of credit supply and the proliferation of non-performing loans.

As one could derive from this brief introduction not all EU Member States had the same degree of macroeconomic imbalances ahead of the GFC and, consequently, their impact on them varied significantly. That rationale is also valid for the starting point of NPL levels, which was also uneven across the EU, as presented in the table below, but in any event worrisome for 2007 and 2008 in most EU Member States. However, the NPL ratio moved in the same direction in all Member States. Therefore, either a significant impact or a rather limited one, but in all national banking sectors the accumulation of NPLs compared to the total loans increased between year-end 2007 and 2009.

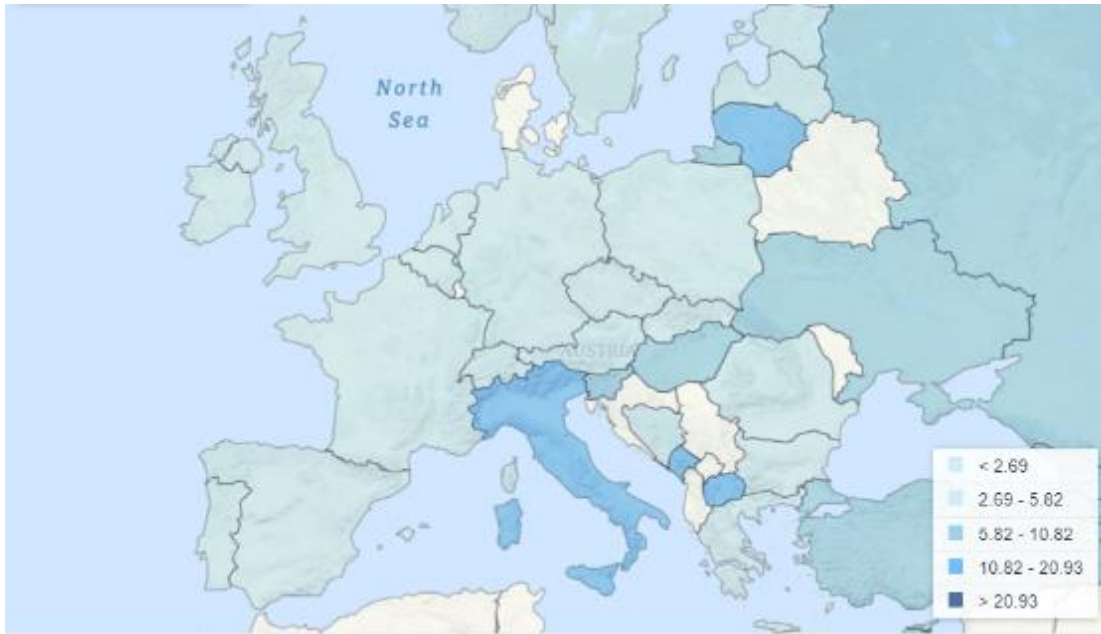
Table 4.1. Overview of NPL ratio in EU Member States between 2007 and 2009²⁸

NPL ratio			
Country	2007	2008	2009
Austria	0.8%	1.6%	2.8%
Belgium	0.9%	1.1%	2.7%
Bulgaria	2.1%	2.4%	7.8%
Croatia	3.4%	5.5%	8.8%
Cyprus	1.1%	1.4%	2.3%
Czech Republic	2.5%	2.6%	3.5%
Denmark	0.8%	1.5%	2.9%
Estonia	2.1%	4.7%	6.7%
Finland	0.3%	0.6%	1.8%
France	1.8%	2.5%	3.4%
Germany	2.7%	2.8%	4.4%
Greece	2.5%	2.0%	5.3%
Hungary	2.2%	7.1%	11.7%
Ireland	0.9%	2.5%	6.1%
Italy	4.6%	4.8%	9.5%
Latvia	0.8%	3.8%	16.4%
Lithuania	2.9%	4.6%	19.3%
Luxembourg	0.4%	0.6%	0.7%
Malta	5.2%	4.9%	5.6%
Netherlands	0.9%	1.0%	1.7%
Poland	5%	5.5%	6.3%
Portugal	2.6%	3.2%	4.5%
Romania	3.3%	4.7%	7.9%
Slovakia	1.8%	2.2%	5.7%
Slovenia	1.4%	2.4%	4.5%
Spain	0.8%	3.0%	5.2%
Sweden	0.5%	0.8%	1.5%
United Kingdom	0.6%	1.0%	2.5%

Source: Own elaboration based on information retrieved from central banks, EBA and IMF.

²⁸ The comparability of the data across Member States for this period needs to be carefully considered due to existing limitations at the time driven by the use of slightly different NPL definitions and consolidation perimeters of national banking sectors. This is applicable to data included in this chapter until 2014, when the common definition of NPE was approved by the EU authorities.

Figure 4.1. Visual representation of NPLs in the EU as at 2008



Source: IMF, Financial Soundness Indicators 2023.

4.1.2. Evolution of NPLs from 2009 until the COVID-19 outbreak

In many EU Member States the proliferation of NPLs started to completely change the picture in 2009, as presented in the last column of Table 4.1. It continued to deteriorate during the following years, reaching a peak in most countries between 2013 and 2016, as indicated in the following table.

Table 4.2. NPL ratio peak in the EU Member States after the GFC

Member State	NPL Ratio (%)	Peak year
Austria	8.1%	2015
Belgium	5.7%	2015
Bulgaria	18.1%	2015
Croatia	19.5%	2015
Cyprus	57.8%	2016
Czech Republic	6.4%	2014
Denmark	6.7%	2013
Estonia	6.0%	2010
Finland	6.2%	2016
France	4.7%	2016

Germany	3.3%	2009
Greece	46.6%	2016
Hungary	18.1%	2014
Ireland	33.0%	2013
Italy	16.4%	2015
Latvia	19.4%	2010
Lithuania	19.7%	2010
Luxembourg	1.9%	2016
Malta	9.5%	2012
Netherlands	5.5%	2013
Poland	13.6%	2014
Portugal	18.0%	2016
Romania	22.5%	2014
Slovakia	9.5%	2015
Slovenia	19.7%	2013
Spain	13.6%	2013
Sweden	1.2%	2014
United Kingdom	4%	2011

Source: Own elaboration based on information retrieved from central banks, EBA and IMF.

In the case of the Euro Area, the fragmentation between the so-called periphery and core group of countries was remarkable, presenting a large dispersion as regards NPLs. Karadima and Louri (2020) defined these groups as presented in the table below.

Table 4.3. Identification of the fragmentation in the Eurozone

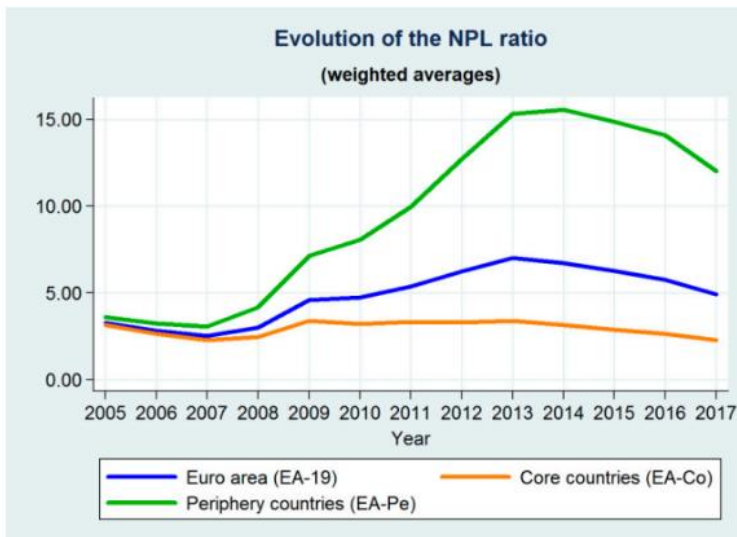
Euro Area Core Countries (EA-Co)	Euro Area Periphery Countries (EA-Pe)
Austria	Cyprus
Belgium	Greece
Estonia	Ireland
Finland	Italy
France	Malta
Germany	Portugal
Latvia	Slovenia
Lithuania	Spain

Luxembourg	
Netherlands	
Slovakia	

Source: Karadima and Louri (2020).

As presented in the figure below, the NPL ratio in EA-19 peaked in 2013 at 8%, whereas it continued growing for the EA-Pe countries until 2014, when they recorded 15.6%. In the case of EA-Co their NPL ratio already peaked at 3.4% in 2009 and remained almost stable until 2013, from 2014 onwards it declined being already in 2015 lower than before the GFC (period 2005-2007), whereas in the case of the EA-Pe still in 2017 the NPL was almost three times higher than before the GFC.

Figure 4.2. Evolution of NPLs in the Euro Area



Source: Karadima and Louri (2020).

As displayed in the figure, the fragmentation in the Eurozone peaked during the onset of the European sovereign debt crisis (2010-2013) and only started to decline shortly after the ECB its intention to take unconventional policies other than the extremely low interest rate policy. As Al-Eyd and Berkmen (2013) highlighted via the *Securities Markets Program* and *Covered Bond Purchase Program* the ECB and national central banks had “direct interventions in select securities markets (...), these actions have alleviated some funding problems for banks, reduced sovereign and private risk, removed tail risks related to the euro”.

A singular case is the one of the Baltic states, in particular the cases of Lithuania and Latvia, where NPLs peaked at circa 20% in 2010. It exemplifies how promptly identification of the problematic situation and decisive measures, accompanied by V-shaped GDP growth recovery facilitates the NPL workouts. Moreover, according to Zakulis (2018) there were three factors that contributed to this success: (i) timely recapitalisation, strong and supportive shareholders, (ii) banks quickly set up "internal" specialized asset management companies for NPL workouts; (iii) pre-crisis structural reforms on the insolvency regime and judicial system were already completed in 2010. All those decisive actions clustered them in the Euro Area core countries when the European sovereign debt crisis emerged.

As shown in the figure below in 2010 the highest level of NPL ratio among EU countries where reported by these Baltic states, whereas in most of the Euro area periphery the situation was not that problematic. However, in several EU countries the sharp increase in NPLs they would experience during the European sovereign debt crisis was already visible.

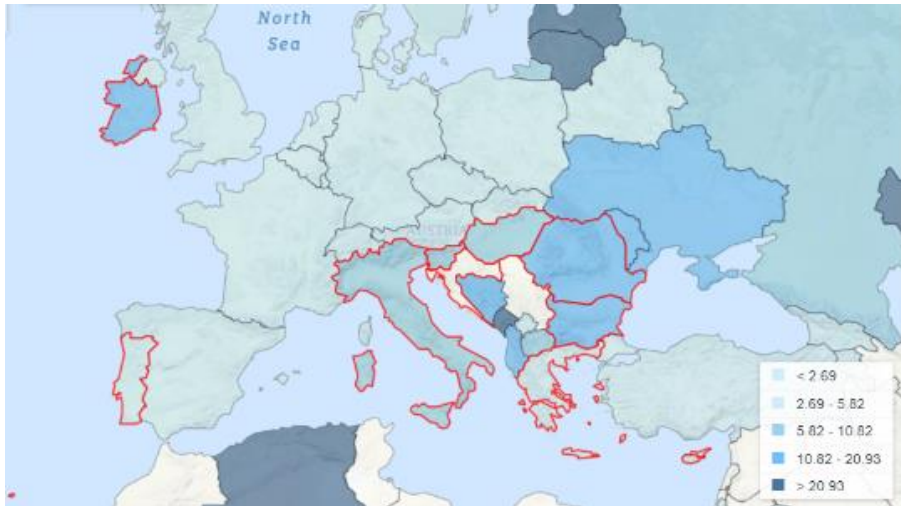
Table 4.4. NPL ratio in 2010 in a selection of EU Member States

Country	NPL ratio
Cyprus	5.82%
Greece	9.12%
Portugal	5.13%
Ireland	13.05%
Italy	10.03%
Slovenia	5.79%
Bulgaria	11.9%
Croatia	8.1%
Hungary	10%
Romania	11.9%

Source: Croatian Central Bank and IMF (Financial Soundness Indicators), 2023.

This is clearly depicted in the visual representation of the NPLs in the EU as at 2010 as presented in the figure below.

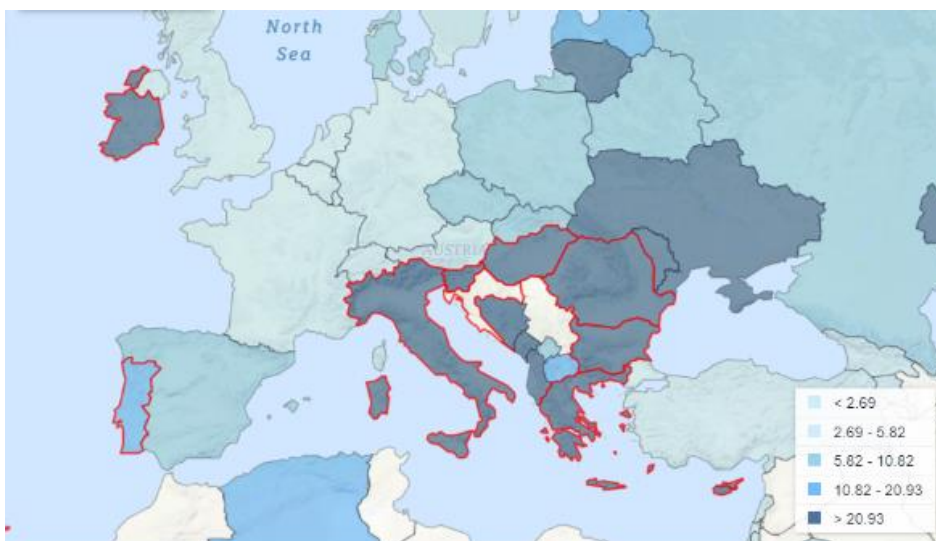
Figure 4.3. Visual representation of NPLs in the EU as at 2010



Source: IMF (Financial Soundness Indicators), 2023.

The rapid deterioration of the macroeconomic conditions in a number of EU countries accompanied by the pre-crisis imbalances provoked a turnaround when we compared the situation in 2010 and in 2012, as presented in the figure below, with most of the selected countries as per Table 4.4 with NPL ratio around or above 20%.

Figure 4.4 Visual representation of NPLs in the EU as at 2012



Source: IMF (Financial Soundness Indicators), 2023.

During 2012 and 2013 the deterioration continued in most of those countries, which manifested that the macroeconomic situation was still fragile and the national governments refrained to take decisive actions to deal with the proliferation of NPLs, with the exception of Ireland where a systemic asset management company was established in 2009.

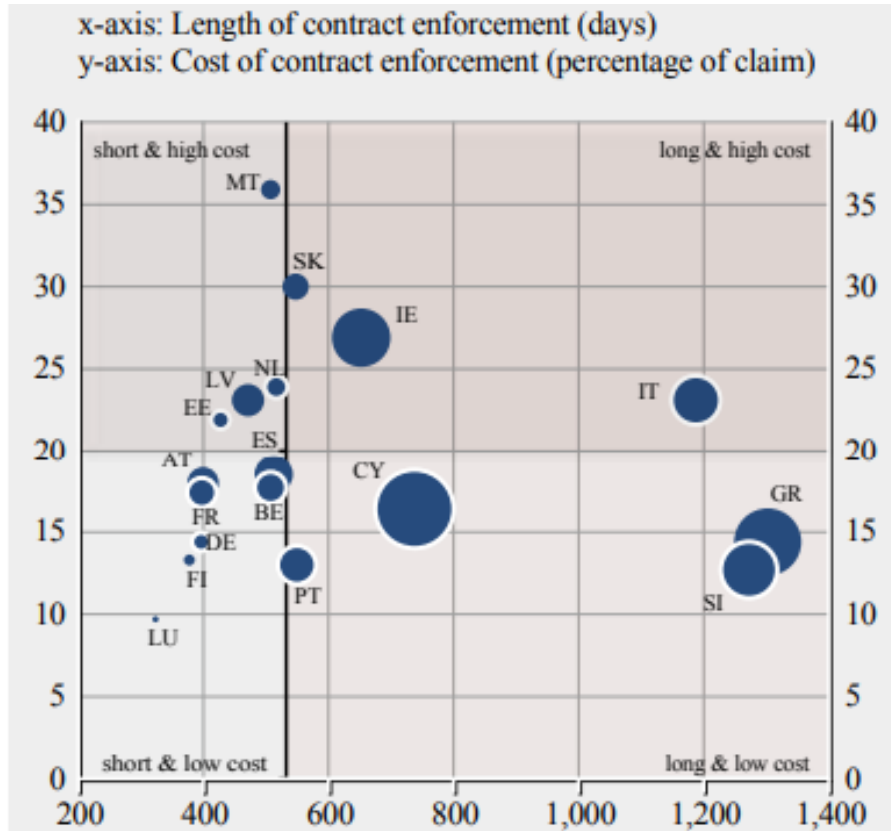
Table 4.5. NPL ratio between 2011 and 2013 in a selection of EU Member States

Country	NPL ratio in 2011	NPL ratio in 2012	NPL ratio in 2013
Cyprus	9.99%	18.37%	38.56%
Greece	14.43%	23.27%	31.90%
Portugal	7.47%	9.74%	10.62%
Ireland	16.12%	24.99%	25.71%
Italy	11.74%	13.75%	16.54%
Slovenia	8.21%	11.81%	15.18%
Bulgaria	15%	16.6%	16.9%
Croatia	10.4%	11.9%	14.2%
Hungary	13.7%	16%	16.8%
Romania	14.3%	18.2%	21.9%

Source: Croatian Central Bank, World Bank and IMF, 2023.

For most of the countries included in our sample, this was driven by the lengthy and costly contract enforcement and the lack of a credible out-of-court alternative to deal with this. For the Eurozone countries, this was clearly highlighted by the ECB (2014), noting “the cleaning-up of bank balance sheets should be fostered at the national level by removing legal and judicial obstacles to timely NPL resolution”, whose rationale is presented in the figure below. The situation in Hungary, Croatia, Bulgaria and Romania could be easily extrapolated from this one.

Figure 4.5. Length and cost of contract enforcement and stock of NPLs (as at December 2013)



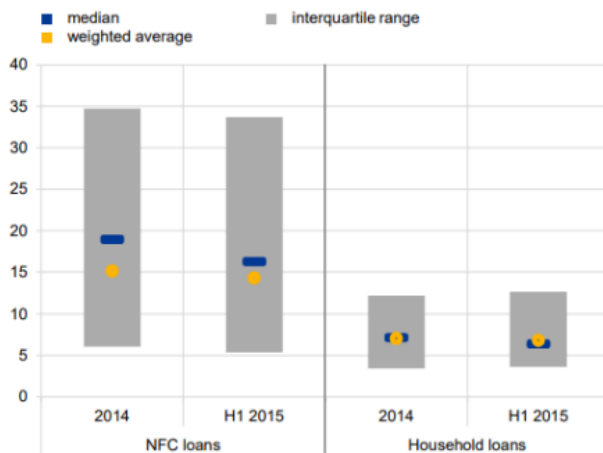
Note: The size of the bubble referred to the magnitude of the NPL ratio as at December 2013.

Source: ECB (Financial Stability Review - May), 2014 and World Bank Doing Business, 2014.

In 2014 the NPL situation was still a cause for concern in many EU Member States, especially in the aforementioned ones. They continued to pose a significant risk to the credibility of the banking sector in those countries, which was a drag on the economic growth as the tightening of the credit conditions persisted. At the time, it was also commonly mentioned that some countries still had structural weaknesses in their banking sectors, driven by high concentration of NPLs in certain sectors and the persistence of weak risk management practices.

For the Eurozone, the accumulation of NPLs was more severe (almost three times more) in the non-financial corporate sector (hereinafter, also “NFC”) than in households, as presented in the figure below.

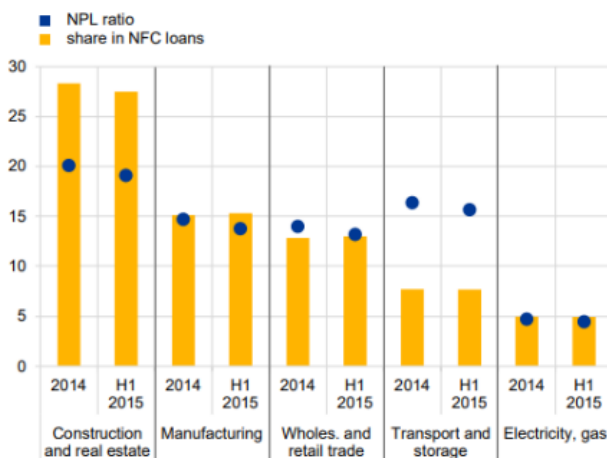
Figure 4.6. NPL ratios for NFC and households in 2014 and H12015



Source: ECB (Financial Stability Review - November), 2015.

Moreover, the deterioration of credit quality came from companies unable to pay back the loans they received, with a significant concentration in a few sectors, namely construction and real estate sectors, as a result of the burst of the housing bubble originated pre-GFC in several EU Member States. As the ECB (2015) highlighted “further breakdown of NFC exposures, by economic activity, reveals that the construction and real estate sectors account for around 40% of euro area banks’ corporate NPLs, with an average NPL ratio of nearly 20%”. In fact, only the “electricity and gas sector accounts for only 5% of total NFC loans and has a below-average NPL ratio”.

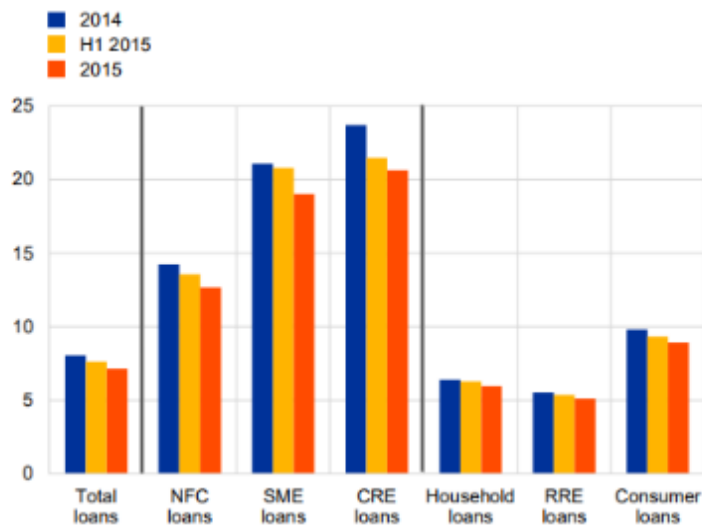
Figure 4.7. Breakdown of NFC NPLs by economic activity in 2014 and H12015



Source: ECB (Financial Stability Review - November), 2015

Among NFC sector the SMEs and the commercial real estate (CRE) loans showed the highest levels of NPEs, whereas the lowest were recorded by the residential real estate (RRE) loans. Between 2014 and 2015, the most significant improvement was perceived in the case of the CRE loans whereas in the second half of 2015 there was a significant improvement in the SME loans. This was not accompanied by significant changes as regards household, RRE nor credit consumer loans, which ended 2015 with ratios around 6%, 5% and 9%, respectively.

Figure 4.8. Breakdown of NPEs by type of loan (2014-2015)



Source: ECB (Financial Stability Review - May), 2016.

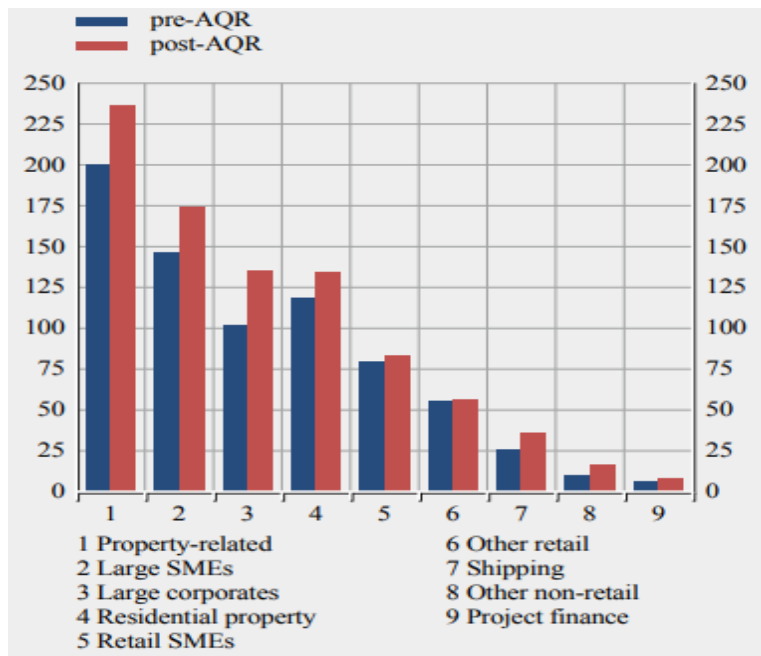
One of the factors perceived at the time as causing the proliferation of NPLs was the poor supervision, lack of transparency and deficiencies in the existing regulatory framework. To deal with these reasons, the EBA launched its EU-wide transparency exercised in 2011, accompanied by its decisive work on preparing a common definition for non-performing exposures for the EU.

The most crucial development achieved in 2014 was the launch of the comprehensive assessment of the largest banks in the Euro area, via an Asset Quality Review (hereinafter, also “AQR”) and a Stress Test Exercise. They included a detailed assessment of their loan portfolios and a review of their capital adequacy ahead of placing the largest European banks under the direct supervision of the ECB with the

establishment of the so-called Single Supervisory Mechanism (hereinafter, also “SSM”) in November 2014.

As part of the AQR the ECB (2014) reported EUR 136bn of additional NPEs (an increase of around 18%), mostly stemming from three categories, namely property-related, large corporate and large SME exposures. This exemplified the existing weak risk management practices in some banks and the issues linked to reporting and diverse supervisory and regulatory frameworks. This exercise, performed by the ECB and the national competent authorities, considered as reference date the banks’ balance sheets as at 31 December 2013. It could be considered as a crucial milestone for the NPL reduction path that was seen in the EU since 2014, as the ECB (2014) acknowledged, “it made banks comparable across national borders by applying common definitions for previously diverging concepts and a uniform methodology when assessing balance sheets”.

Figure 4.9 Impact of the AQR on NPE by asset class (in EUR bn.)

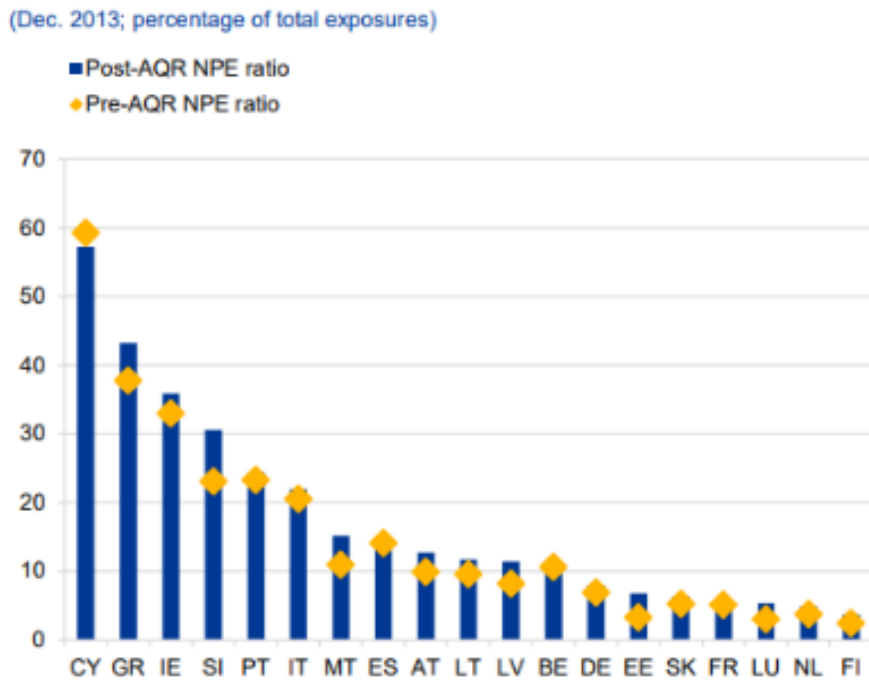


Source: ECB (Financial Stability Review - May), 2015.

As regards the impact of the AQR on the NPE ratio in the Euro area Member States it is worth noting that in Greece, Ireland, Slovenia, Malta, Letonia, Estonia and

Luxembourg it was revised upwards, whereas Cyprus was the sole exception of the opposite.

Figure 4.10. Impact of the AQR on NPE by Euro Area Member State

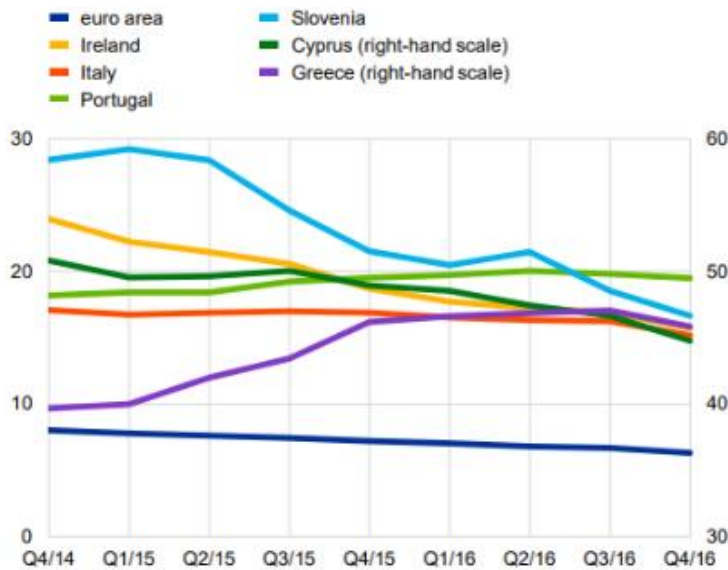


Source: ECB (Financial Stability Review - May), 2015.

The AQR was an enormous effort as more than 6,000 experts assessed 130 banks, with more than 800 individual portfolios and more than 119,000 debtors. However, this paid off as it served as a founding block of the common supervision from that point in time onwards and clear set the scene of the work many banks need to conduct to deal with the NPLs stock, especially in the countries more affected.

However, between 2014 and 2016, with the exception of Slovenia, the progress in reducing the level of NPLs was rather slow and clearly insufficient in most countries. In this context, the ECB decided to react and published its first Guidance to deal with high level of NPLs in March 2017, which urged banks to put in place realistic but, at the same time, ambitious strategies for addressing NPL issues.

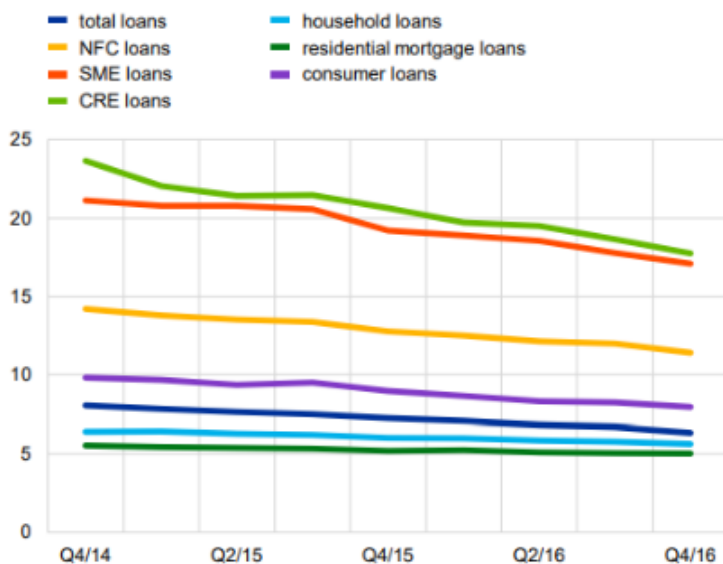
Figure 4.11. Evolution of NPLs in the Eurozone countries with the highest levels (2014-2016)



Source: ECB (Financial Stability Review - May), 2017.

The NPL ratio was clearly descending across all types of loans since 2014. This reduction trend was more significant among corporate sector loans, especially as regards CRE and SME loans.

Figure 4.12 Evolution of the NPE ratio and its breakdown (2014-2016)

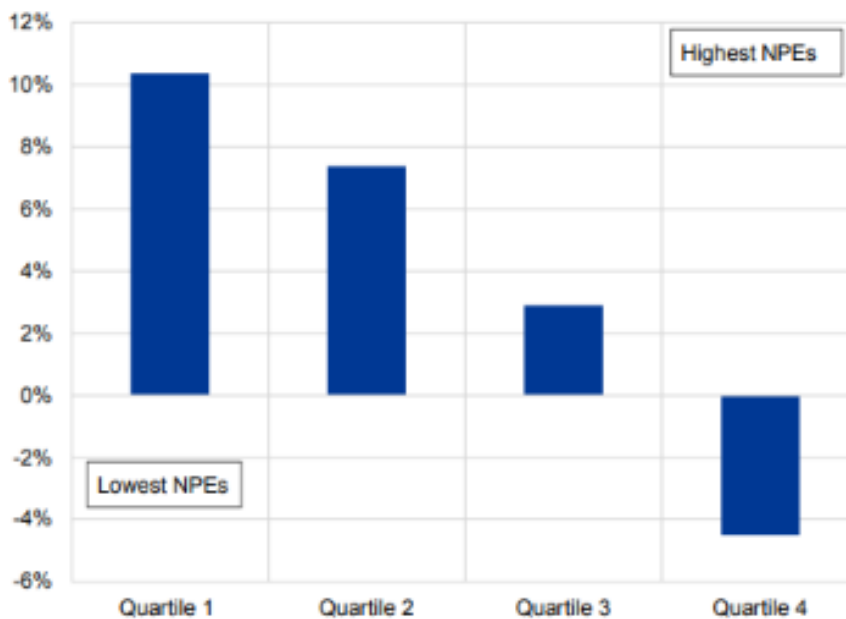


Source: ECB (Financial Stability Review - November), 2017.

As the ECB (2017) explained the “decline in the aggregate NPE ratio was due to a combination of a 2% decline in NPEs and a 3.7% increase in total loans”. However, the level of NPEs was still a source of concern, as they “hinder effective intermediation and, through lower profitability and profit retention, reduce the internal capital-generation capacity of banks” and the supervisor acknowledged that high level of NPEs “suppressed credit supply, as many borrowers remain distressed and overindebted in the absence of viable long-term restructuring solutions”.

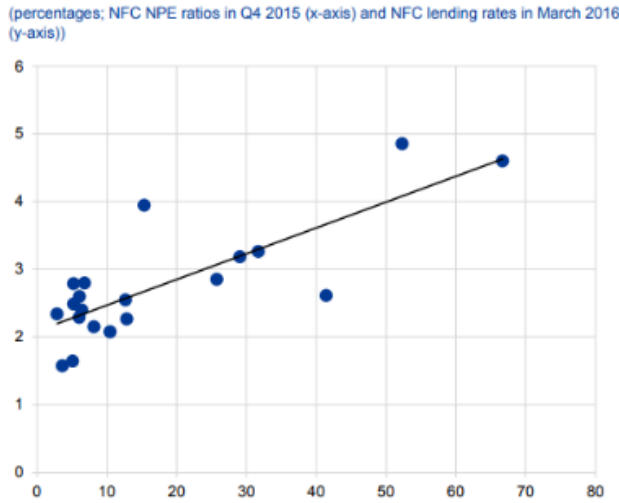
This situation of a prolonged period of elevated NPEs resulted in the misallocation of bank resources, which eroded banks’ capacity to provide credit to the economy and increased the cost of credit, resulting in hindering economic growth in the most exposed countries.

Figure 4.13. Loan growth by NPE ratio per quartiles (2014-2015)



Source: ECB (Financial Stability Review - May), 2016.

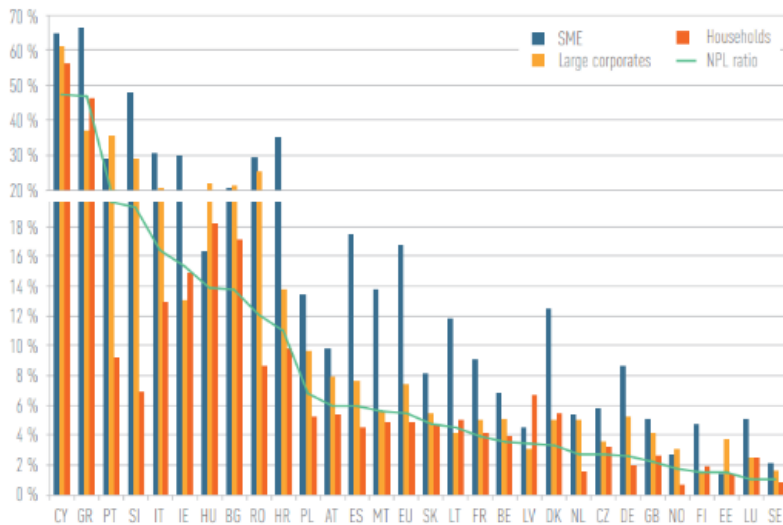
Figure 4.14. Interest rates on loans to NFCs versus NPE ratios as at Q12016



Source: ECB (Financial Stability Review - May), 2016.

This fragmentation in the interest rates imposed in new lending to corporate loans was also driven by the higher perceived risk of several sectors and countries. It did not facilitate the improvement on the asset quality metrics of banks in those Member States, as showed in the figure below. A common feature perceived, regardless of the NPL ratio in a given country, was that the worst quality was within the SME sector, whereas, depending on the Member State, NPL ratios were higher for large corporates or for households.

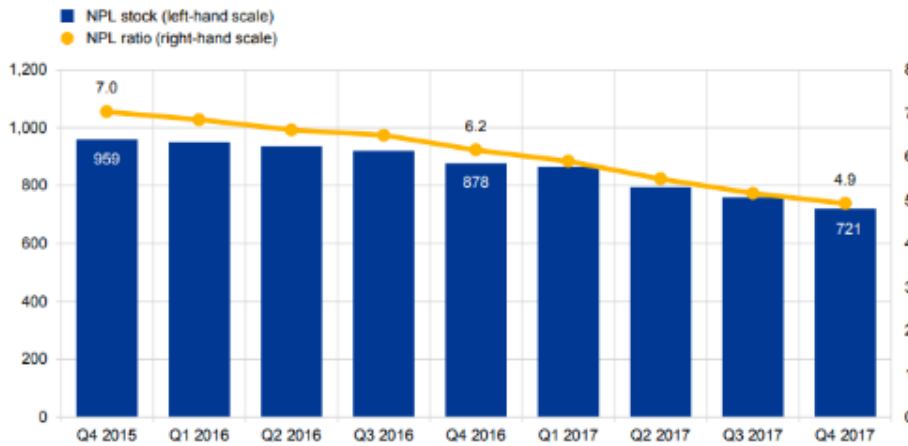
Figure 4.15. Breakdown of NPEs by sector and country (as at June 2016)



Source: EBA, 2016.

The reduction trend gained momentum in 2017, as the NPL ratio moved from 6.2% in 2016 to 4.9% in 2017, compared to an accumulated reduction of 0.8 percentage points between 2015 and 2016. In terms of stock in the Eurozone, the NPLs moved from EUR 878bn to EUR 721bn in twelve months.

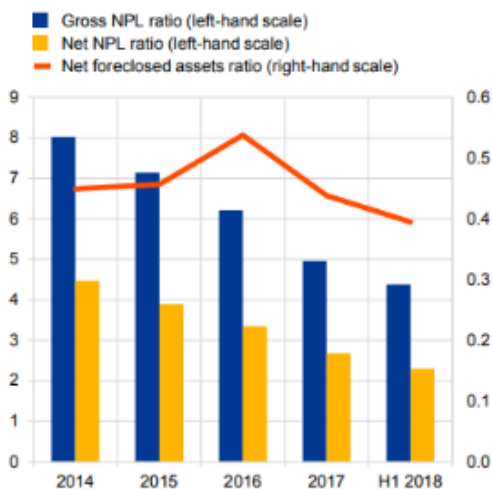
Figure 4.16. Evolution of NPL stock and ratio in the Eurozone (2015-2017)



Source: ECB (Financial Stability Review - May), 2018.

Since the end of 2014 to June 2018 the net NPL ratio was reduced by a third whereas the gross NPL ratio halved during the same period thanks to an acceleration of the downward trend, with positive contribution from almost all high-NPL countries, except for Greece.

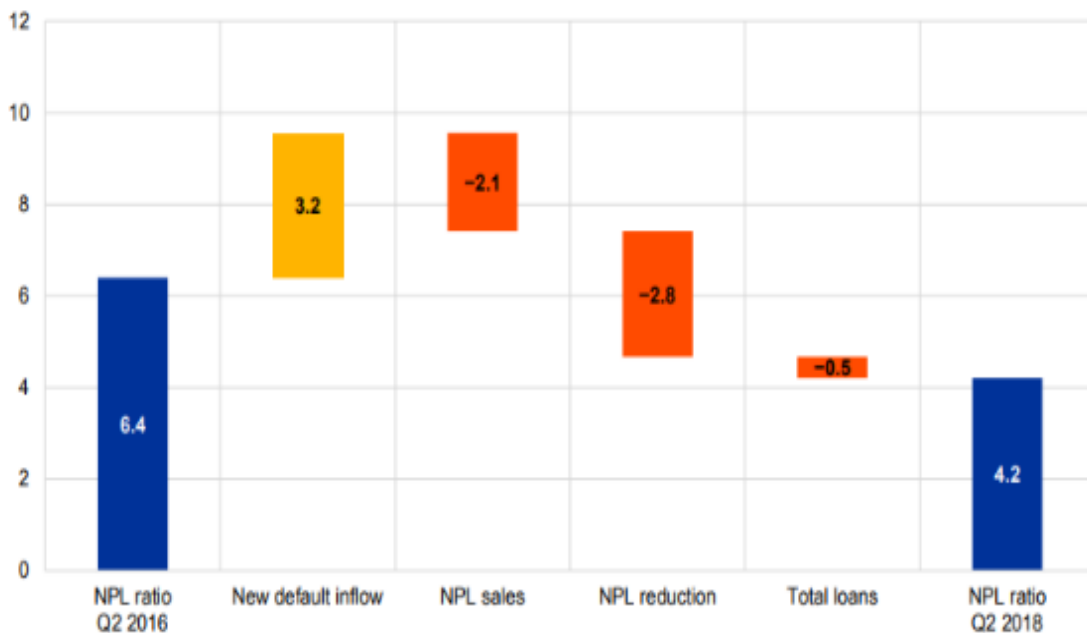
Figure 4.17 Evolution of NPLs in the Eurozone (2014-H12018)



Source: ECB (Financial Stability Review - November), 2018.

This momentum was accompanied by the EU Council adoption of an action plan to tackle NPLs in the EU in July 2017 as well as the ECB’s publication of its draft guidance outlining supervisory expectations on prudential provisioning of NPLs and the European Commission proposal on the development of secondary markets for NPLs. These policy initiatives did not only focus on dealing with the legacy NPLs in a number of countries, but also aimed at paving the way for avoiding any build-up of high NPL stocks in the future. A good example of the latter was the European Commission’s proposal on a prudential provisioning backstop for newly originated loans that become non-performing since Q22018.

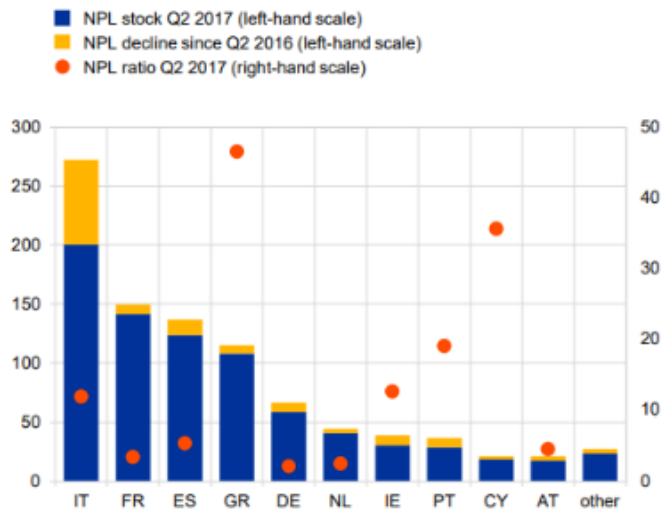
Figure 4.18. Decomposition of changes in NPL ratio between H12016 and H12018



Source: ECB (Financial Stability Review - November), 2018.

When we take a closer look at the evolution of NPL ratios at country-level there were some remarkable policy initiatives aiming to address the existing high level of NPLs. For instance, the adoption of the GACS program in Italy in 2016 started to change the scene in H22016 and 2017 in this country, as clear showed in the figure below.

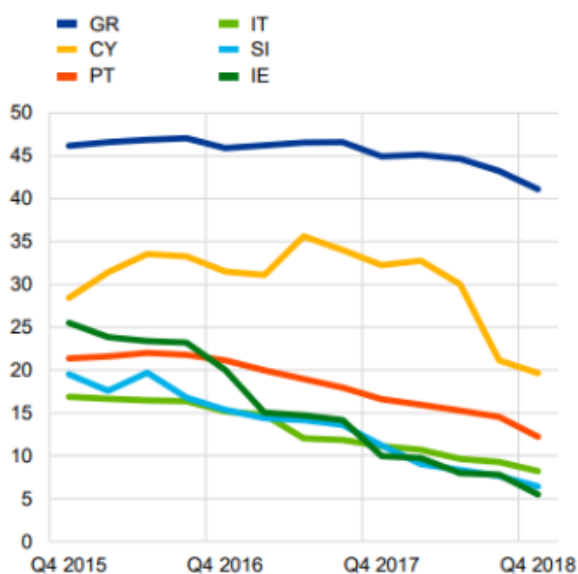
Figure 4.19. Change in NPL stocks between H12016 and H12017 by country



Source: ECB (Financial Stability Review - November), 2017.

Following the Italian reduction efforts of 2016 and 2017, 2017 was a turning point in Portugal, whereas in Cyprus and Greece this downward trend unfolded in 2018. In the case of Cyprus the NPL ratio moved from circa 35% in Q32017 to 20% in Q42018, whereas in the Greek case, after a period of stability in the ratio above 45% (2015-2017), only in late 2017 it started to decrease steadily quarter after quarter, as presented in the figure below.

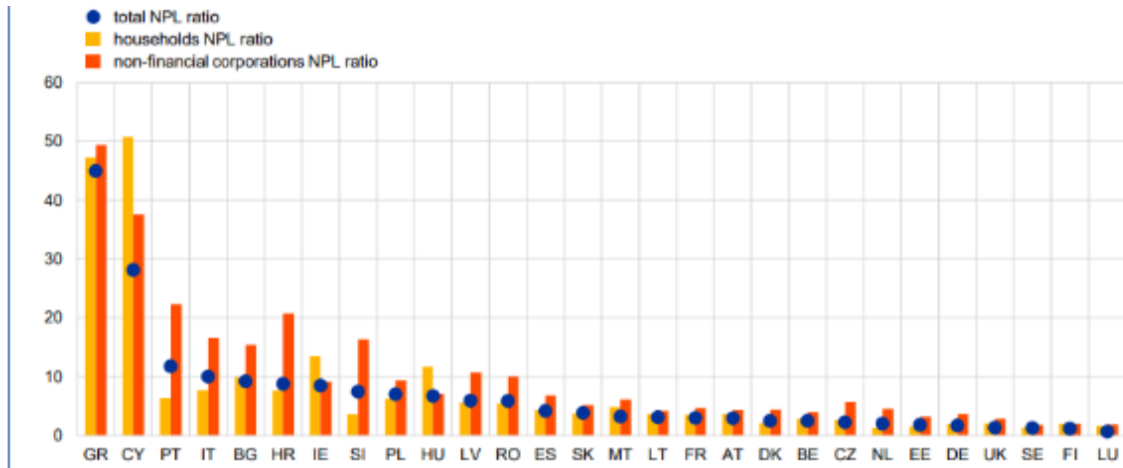
Figure 4.20 Evolution of the NPL reduction efforts in high-NPL Eurozone countries



Source: ECB (Financial Stability Review - May), 2019.

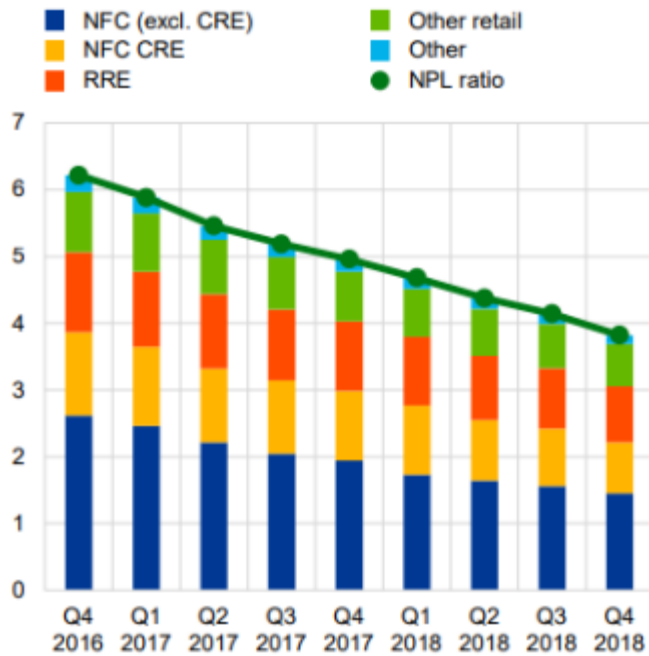
In terms of NPL disaggregation by type of loan the reduction trend was visible in all sectors, as showed in the tables below.

Figure 4.21. NPL ratio by sector and EU Member State in H12018



Source: ESRB, 2019.

Figure 4.22. NPL ratio and composition by loan type (2016-2018)

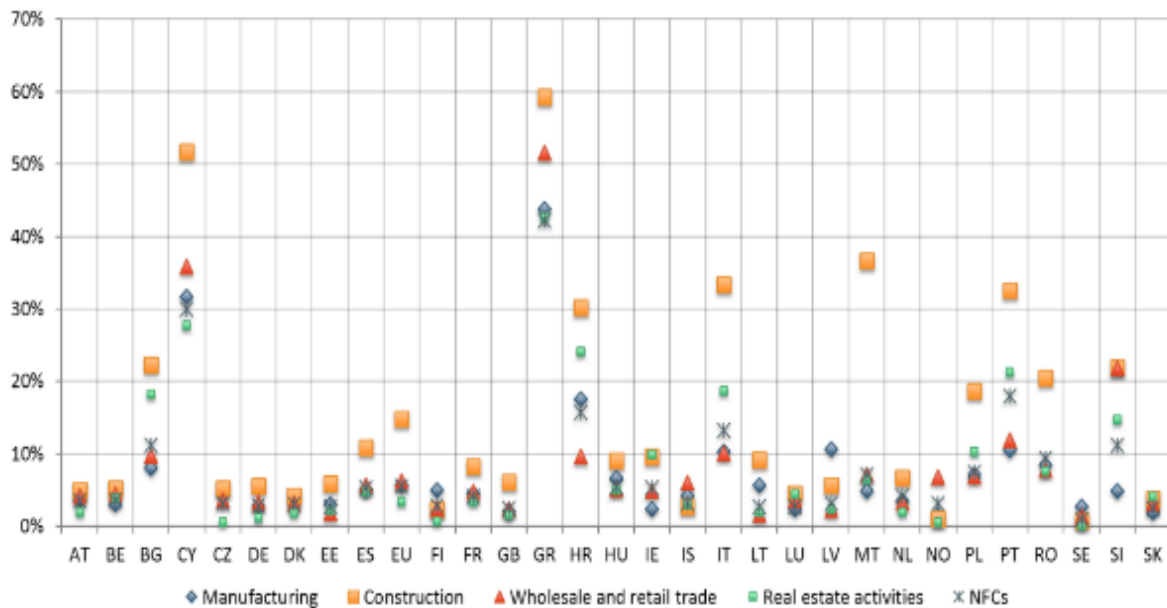


Source: ECB (Financial Stability Review - May), 2019.

As Gardó et al. (2019) argued the steady decline in the Eurozone between 2015 and 2019 was palatable in the case of corporate loans. Based on panel data from twelve Member States their results showed that “corporate profit margins worsen about 13 quarters ahead of the increase in NPL ratios”. However, they noted “banks may have used extensive forbearance in the past to defer the recognition of NPLs”, which since the introduction of “the harmonised NPL definition in 2014 and the more forward-looking accounting rules in 2018 may lead to a gradual reduction of this lag”.

In terms of sectors per country, the disparity continued mostly unchanged between 2016 and 2018, being the loans to the construction sector still the ones with the highest NPL ratios.

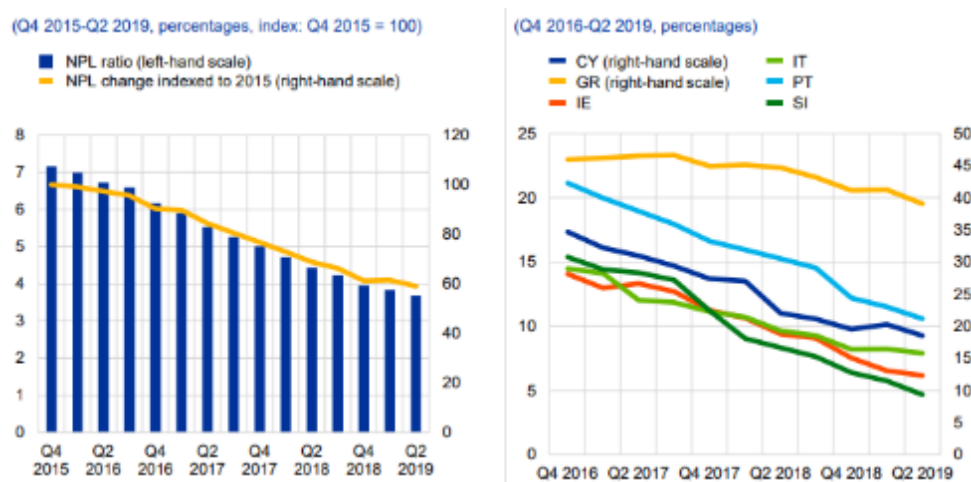
Figure 4.23. NPL disaggregation by sector as of June 2019 in the EU



Source: EBA, 2019.

During the first half of 2019 the NPL ratio continued its downward trend. However, it clearly slowed its pace in aggregated terms, as presented in the left-hand side graph. In the still high-NPL countries, the efforts of driving the NPL ratio to the Eurozone average continued over this period.

Figure 4.24. Evolution of NPLs (Q42015-Q22019)



Source: ECB (Financial Stability Review - November), 2019.

At EU level, the efforts made over the period December 2014-June 2019 are remarkable, as presented in the table below. The exception was Greece, where the NPL ratio was steadily increasing until Q32017, with a subsequent stabilisation until Q32018.

Table 4.6. Evolution of NPL ratio in the EU Member States (2014 vs. 2019)

Country	NPL ratio in December 2014	NPL ratio in December 2019
Cyprus	50.8%	19.3%
Greece	39.7%	35.2%
Romania	22.2%	4.1%
Ireland	21.6%	3.3%
Hungary	19.4%	4.6%
Portugal	18.0%	6.5%
Italy	17.0%	6.7%
Bulgaria	13.9%	7.2%
Croatia	13.7%	4.3%
Spain	8.1%	3.2%
Austria	8.0%	2.3%

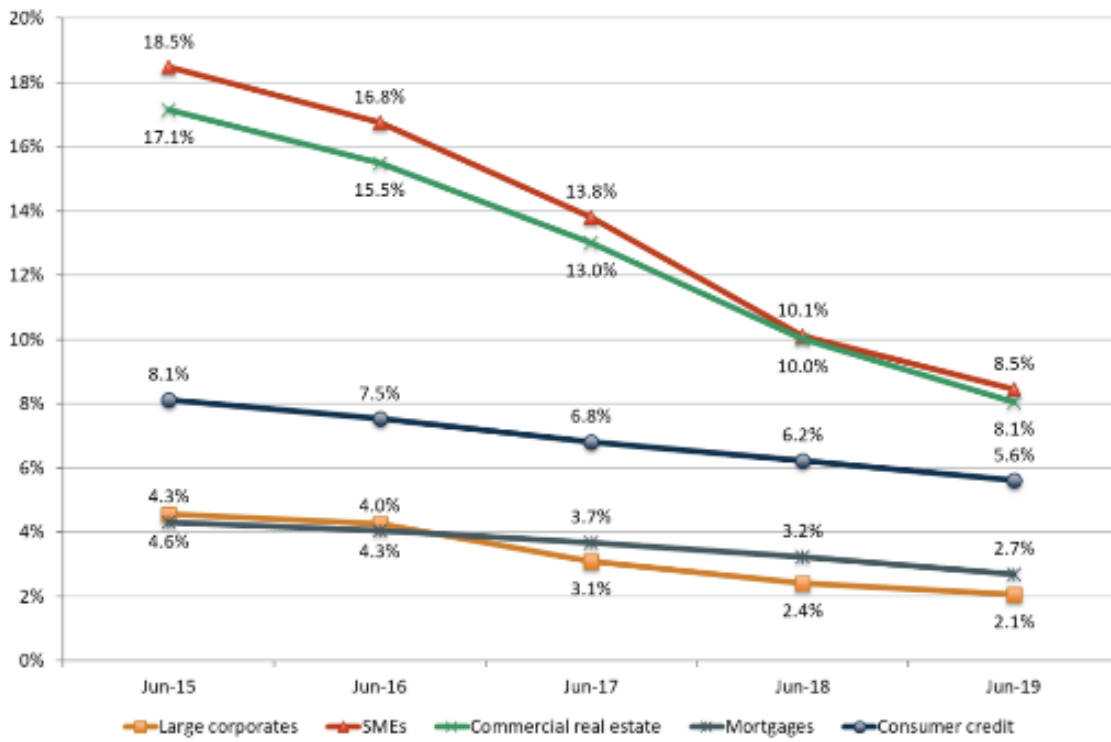
Poland	7.3%	4.8%
EU average	6.5%	2.7%
Lithuania	6.3%	1.5%
Latvia	5.7%	1.9%
Slovakia	5.4%	2.6%
Czech Republic	4.5%	1.3%
Belgium	4.3%	2.0%
France	4.2%	2.5%
Denmark	3.9%	1.8%
Germany	3.7%	1.3%
Netherlands	3.3%	2.0%
Finland	1.6%	1.4%
Luxembourg	1.4%	0.9%
Sweden	1.2%	0.5%
Slovenia	N/A*	3.7%
Estonia	N/A*	1.5%

Note: N/A* - Data reported for less than 3 entities.

Source: EBA (2019 - Analysis report) and EBA (2020 - Dashboard Q12020).

It is also relevant to disaggregate the NPL ratio to study its composition. SMEs as well as commercial real estate steadily recorded higher NPL ratios than large corporates and mortgages over the June 2015-June 2019 period. In the case of consumer credit during the aforementioned period it has been in between, typically doubling the ratios of mortgages. In terms of the reduction path, it is clear that the most significant efforts were devoted to the reduction of SMEs and commercial real estate NPLs.

Figure 4.25. Evolution of disaggregated NPL ratios in the EU (Q22015-Q22019)



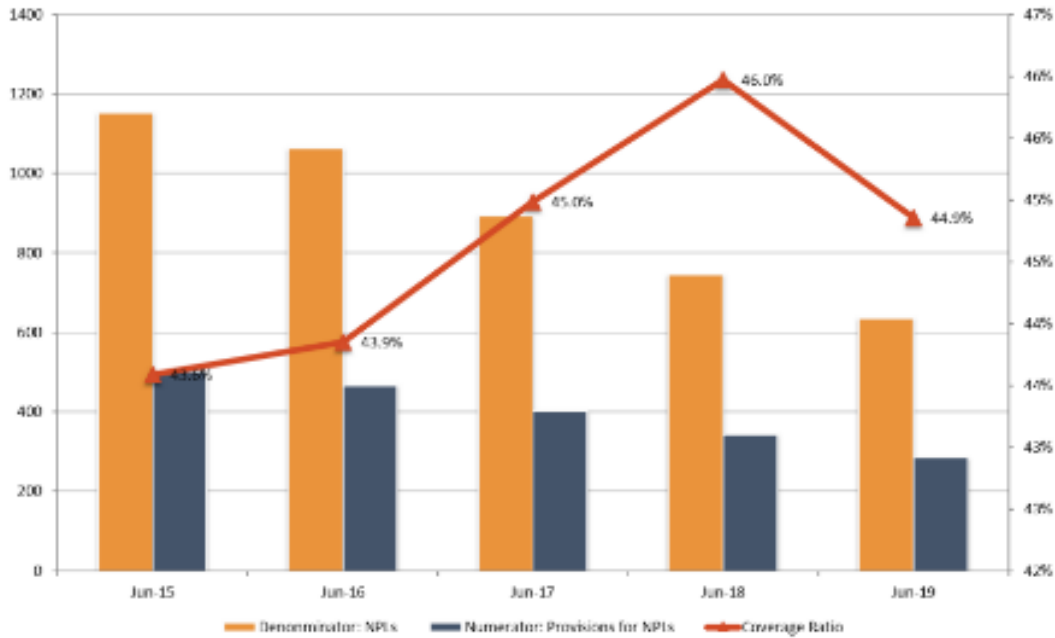
Source: EBA, 2019.

Finally, in the policy front during 2019 the developments focused on completing the regulatory reform to effectively deal with the build-up of NPLs in the future. The ESRB (2019) advocated for the development of early warning systems by the macroprudential authorities to monitor the risks of credit portfolio deterioration as well as the promotion of banks’ sound decision-making processes focusing on borrowers’ fundamentals. Moreover, it called for the reform of the legal and judicial framework by setting the right incentives for proactive NPL management and resolution in most of the EU Member States.

4.1.2.1. Evolution of the coverage ratio

The coverage ratio steadily increased until 2018 in aggregated terms, whereas Q22018 constitutes a turning point. Basically, this is driven by a significant reduction of the stock of NPLs (denominator of the ratio), as it almost halved in four years.

Figure 4.26. Evolution of the coverage ratio in the EU (Q22015-Q22019)

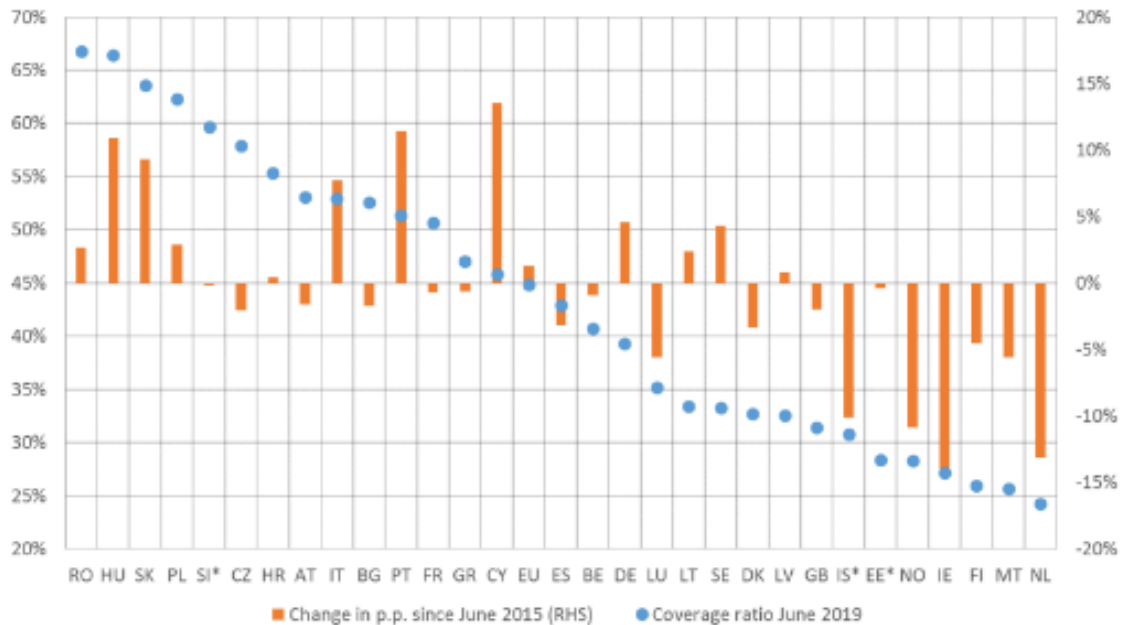


Source: EBA, 2019.

However, the evolution is uneven. In some EU Member States there is a clear change in provisions whereas in others there were no significant changes over the period June 2015 - June 2019. Specially, in those countries with higher NPL ratios credit institutions had to do an extra effort by increasing their coverage ratios. This should have facilitate the disposal of those NPLs.

Coverage ratios were significantly different both across individual banks and banking sectors, ranging from circa 26% for Dutch, Finnish, Irish and Maltese banks to circa 66% for Hungarian and Romanian banks. As the EBA (2019) noted “these differences in ratios might reflect differences in the collateralisation, accounting standards, provisioning policies and types of exposures”.

Figure 4.27. Evolution of coverage ratio in the EU Member States (Q22015-Q22019)

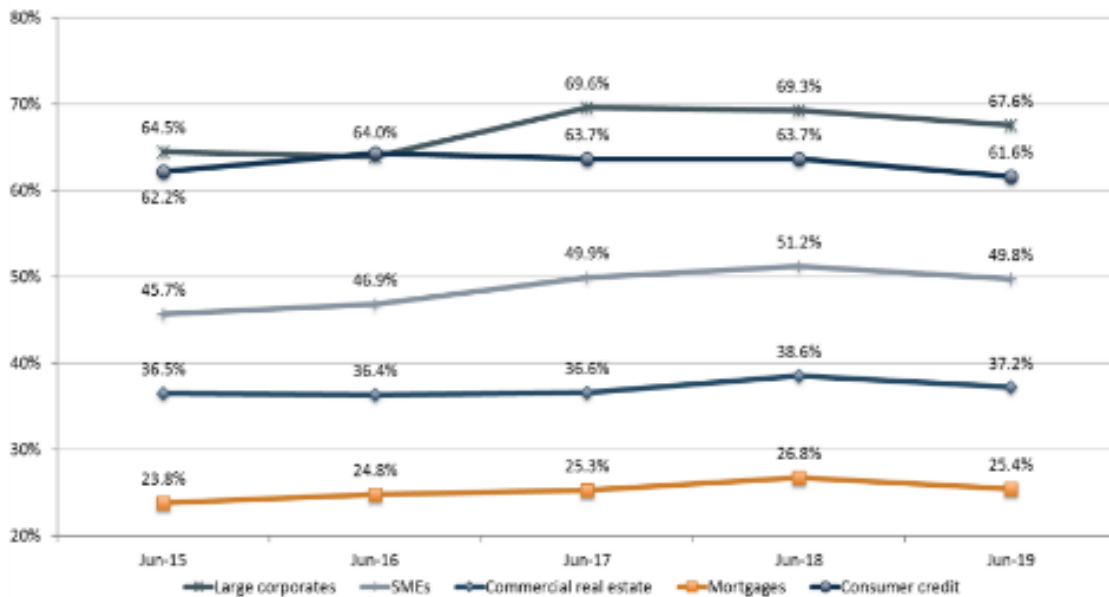


Source: EBA, 2019.

When we disaggregate the coverage ratio by type of loan there are also remarkable findings. Whereas for mortgages, commercial real estate and SMEs the upward tendency was clear until June 2018, in the case of the commercial real estate and large corporates the evolution of the coverage ratio was not so uniform.

Moreover, taking into account that the level of NPLs as regards mortgages and large corporates was similar over the period of analysis it is remarkable the way the availability of collateral makes that the mortgages have a coverage ratio more than 2.5 times smaller than the one of the large corporates.

Figure 4.28. Evolution of coverage ratio per segment (Q22015-Q22019)



Source: EBA, 2019.

4.2. The COVID-19 and its (potential) impact

4.2.1. COVID-19 outbreak and evolution during 2020

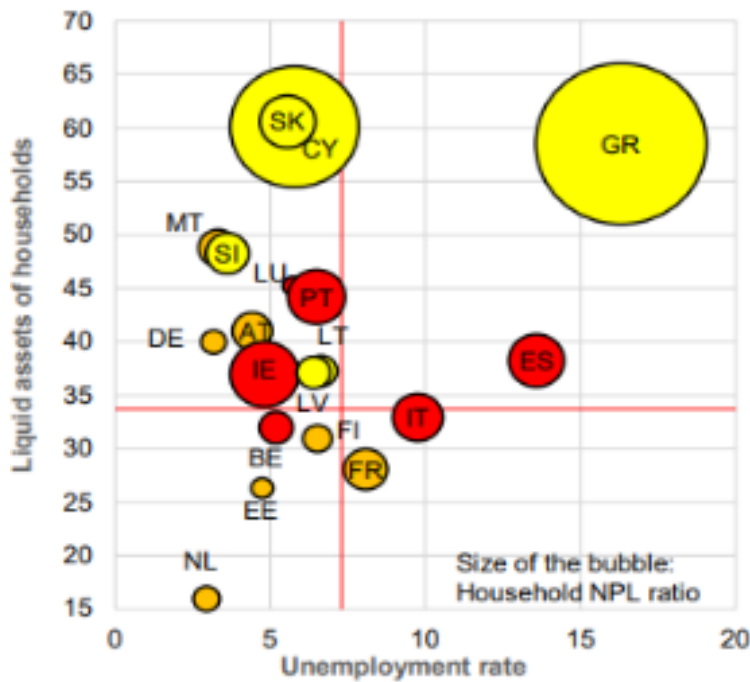
The unexpected outbreak of COVID-19 and its escalation to a pandemic tested the efforts made in the previous years by EU Member States and banks as regards the reduction of the NPLs stock accumulated because of the GFC and European sovereign debt crisis as well as idiosyncratic circumstances both at the level of countries and banks.

As the ECB (2020) argued the “pandemic and subsequent containment measures are affecting euro area households, primarily through higher unemployment and weaker income. At the same time, private consumption has declined” and the overvaluation of house prices in some Member States continued to be a concern. Moreover, the lockdown measures to tackle the pandemic taken in a number of Member States put in severe risk many businesses, both SMEs and large corporates.

At that time there were three main elements to be taken into account and that would have a decisive impact on the potential accumulation of losses in the banks’

results, namely (i) the length of the lockdowns, (ii) the existing differences in corporate resilience, and (iii) the measures taken by the public authorities to alleviate the burden of the economy. The proliferation of NPLs would be, consequently, a by-product of the three.

Figure 4.29. Eurozone households' constraints in Q12020

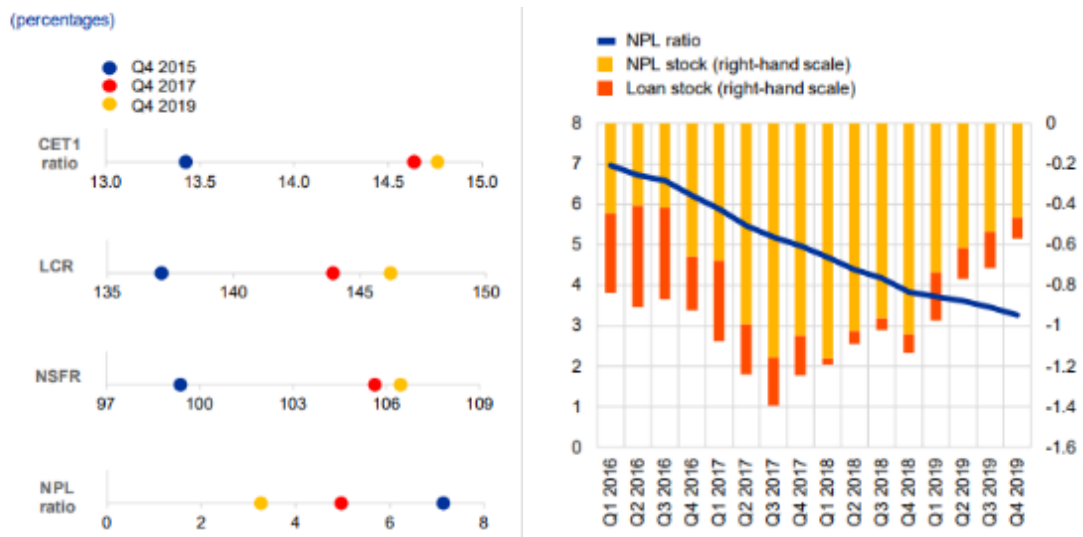


Notes: liquid assets are calculated as the sum of currency and deposits, short-term debt securities and money market fund holdings over total financial assets. The red vertical and horizontal lines represent the Euro area averages. The colours of the bubbles reflect the number of confirmed coronavirus cases in the country as a share of the total population (Red: upper tercile, orange: middle tercile and yellow: lower tercile).

Source: ECB (Financial Stability Review - May), 2020.

However, the solvency and liquidity position of banks had increased significantly in the years ahead of the COVID-19 crisis, which served to address the shock. In particular, with regard to NPLs the efforts made especially between 2015 and 2019 paid off and placed the NPL ratio for the Eurozone significantly below 5%, at 3.1% as of Q12020, whereas for the EU countries it stood at 2.93%.

Figure 4.30. Evolution of solvency and liquidity position of Eurozone banks (2015-2019)



Source: ECB (Financial Stability Review - May), 2020.

At this critical juncture, in anticipation of the foreseen deterioration of the asset quality driven by the pandemic, the EU institutions as well as the national governments decided to react quickly and adopted a number of measures aimed to provide relief to households, businesses and banks. This prompt coordinated economic response targeted not only emergency needs but also set the scene for greater solidarity efforts among Member States.

Table 4.7. Extraordinary measures the EU institutions adopted in March 2020

Body	Area	Brief description of measures
EC and Member States	Flexibility in EU rules	On 23 March, Ministers of Finance agreed with the assessment of the Commission that the conditions for the use of the general escape clause of the EU fiscal framework, a severe economic downturn in the Eurozone or the EU as a whole, were fulfilled. This offered the flexibility necessary to the national budgets to support the economy and to respond in a coordinated manner to the impact of the pandemic
EC, EP and Council	Use of the EU budget	The Coronavirus Response Investment Initiative allowed the use of EUR 37bn. under the cohesion policy to address the consequences of the COVID-19 crisis
EC, EP and Council	Use of the EU budget	The scope of the Solidarity Fund broadened to include major public health crises. This allowed the EU Member States to get access to financial support of up to EUR 800mn. in 2020
ECB	Monetary Policy	On 18 March, the ECB decided to launch a EUR 750bn. Pandemic Emergency Purchase Programme (PEPP), to

		expand the range of eligible assets under the corporate sector purchase programme (CSPP) and to ease the collateral standards and shortly after it launched the TLTRO program.
EBA, ECB and national competent authorities	Financial Stability	Guidance provided by supervisory authorities to financial institutions on the interpretation and application of the regulatory requirements in the current exceptional circumstances as well as release of capital buffers
EIB	SMEs financing	Proposal on the creation of a pan-European guarantee fund of EUR 25bn., which could support EUR 200bn. of financing for companies with a focus on SMEs implemented via national promotional banks
EC	Fighting unemployment	Proposal on the set-up a temporary instrument supporting Member States to protect employment in the specific emergency circumstances (SURE). It provided financial assistance during the time of the crisis, in the form of loans granted on favourable terms from the EU to Member States, of up to EUR 100bn. in total
All	Roadmap for Recovery	It was already envisaged that the next EU Multiannual Financial Framework (MFF) would play a central role in the economic recovery of the EU and the need of a recovery fund (the roots of the NextGenerationEU).

Source: Own elaboration based on Eurogroup, 2020.

Moreover, shortly after the European financial regulators and supervisors, to reduce the pro-cyclical implications of the pandemic on banks, decided to announce prudential capital relief measures and the extension of the transitional arrangements to the implementation of the IFRS 9 accounting rules²⁹. Moreover, the ECB recommended Eurozone banks not to distribute dividends.

Based on ECB calculations (2020) the combined effect of the abovementioned measures using “model-based simulations suggest that the offsetting prudential actions, reducing the likelihood and magnitude of a credit crunch, could restore 1.9 percentage points to real GDP over the two-year horizon”. As regards the suspension of dividend payments, this had a positive impact on significant institutions of circa EUR 27.5bn. in retained earnings, equivalent to about 1.8% of bank’s aggregate

²⁹ The transition periods for the adoption of the IFRS 9 were prolonged by two years. This extension provided banks with the opportunity to minimize the possible adverse effects stemming from an anticipated rise in the provisions they need to account for expected credit losses.

equity. This could also facilitate the recognition of EUR 60bn. of NPLs, if there were no changes with regard to the provisioning levels.

Moreover, Member States were very active in launching payment moratoria and state guarantees to ease the households and businesses situation and, consequently, mitigate the manifestation of an increase in credit risk and defaults, as presented in the table below.

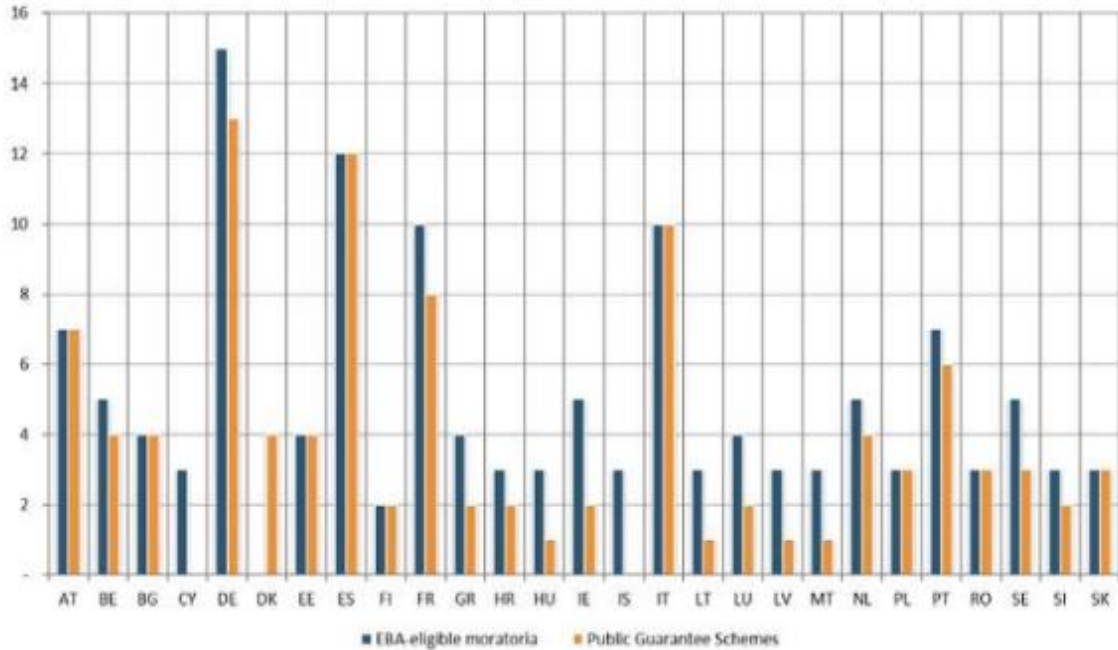
Table 4.8. Payment moratoria provided by a selection of EU Member States

Country	Eligible instrument	Duration	Date of extension
Belgium	Certain corporate credits, such as loans to non-financial enterprises, SME, self-employed persons and non-profit organisations as well as residential mortgage credits	Up to 6 months	On 6 November 2020, until 30 June 2021 (corporate and mortgage credits).
France (adopted by the banking industry)	Certain corporate loans, with special focus on the tourism sector	Up to 6 months (up to 12 months for tourism sector)	No extension was adopted
Germany	limited to households and small enterprises	Up to 3 months, with extension to up to 3 months in some cases	No extension was adopted
Greece	Individuals (private employees or self-employed) as well as businesses directly affected by COVID-19	Up to 3 months (for individuals) and up to 9 months (for businesses)	On 3 December 2020, up to December 2021
Hungary	All debtors	Up to 18 months	On 1 November (narrowed eligibility), until June 2022
Ireland (adopted by the bank industry)	personal and business customers impacted by COVID-19	Up to 6 months	No extension was adopted
Italy	Micro and SMEs	Up to 6 months	Several extensions between August 2020 and May 2021, until December 2021
Luxembourg	consumer loans and loans given to micro and SMEs	Up to 3 months	Several extensions between April 2020 and June 2021, until December 2021

Poland (and also by the bank industry)	Mortgage loans, consumer loans, personal loans as well as corporate loans	Up to 6 months	No extension was adopted
Portugal	Mortgage loans and unsecured credit arrangements	Up to 6 months (for mortgage loans) and 12 months (for other consumer credit arrangements)	In July 2021, until December 2021
Spain	Mortgage loans, consumer loans and personal loans	Up to 6 months	In February 2021, until September 2021

Source: Own elaboration based on Hogan Lovells (2021) and ESRB (2021).

Figure 4.31. Number of European banks that used moratoria and public guarantee schemes in 2020



Source: EBA, 2020.

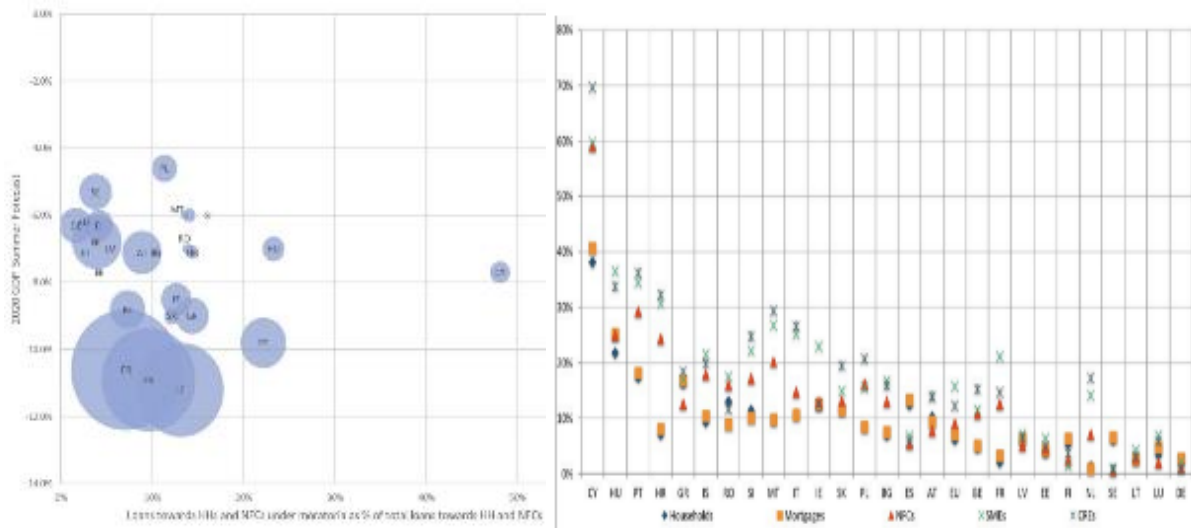
As the ECB (2020) clarified “debt payment moratoria temporarily suspend the counting of days past due, thereby avoiding automatically triggering defaults”. Therefore, this temporary tool could be useful for “exposures on which there are no other concerns about credit quality and payments are resumed before or at the end of the moratorium”. Moreover, this institution also acknowledged “public guarantees can also decrease banks’ expected losses”.

The EBA was particularly active during this period. On 2 April 2020, it published its *Guidelines on legislative and non-legislative moratoria on loan repayments applied in the light of the COVID-19 crisis* where it clarified the treatment of legislative and non-legislative moratoria applied before 30 September 2020, which was later extended with the outbreak of the second wave of Covid-19. They set the criteria for not triggering the forbearance classification of legislative and non-legislative moratoria (e.g. moratorium changes only the schedule of payments). It also noted that for the public guarantees “the application of such guarantee associated to the moratorium is not considered to change the terms and conditions of the loan”.

As at June 2020, the EBA published that moratoria covered circa 6% of the total loans and about 7.5% of loans to households and the non-financial corporate sector, EUR 871bn in aggregated terms. As regards corporate loans, the moratoria covered 16% of SME loans, 12% of CRE loans and 7% of residential mortgage loans. According to the European Banking Federation data (2020) between March and September 2020, moratoria was used by circa 5 million of households and 2 million of European companies. In light of this difficult but transitory situation, it stressed that “more than 85% of the borrowers’ requests for postponement of payment schedules were accepted by the banking sector”.

The use of moratoria varied significantly across credit institutions in the EU Member States. Based on EBA data (2020) “Cypriot, Hungarian and Portuguese banks reported the highest share of loans subject to moratoria (...) with a few banks reporting that almost 50% of their total loans to NFCs and HHs were subject to moratoria”. In terms of volumes the French, Spanish and Italian banks, in that particular order, reported the highest volumes of loans subject to moratoria, whereas the German banks did not use significantly this tool. As regards sectors, those hardest hit by lockdowns, the accommodation and food service sectors, recorded the highest volumes with 27% of the total loans under moratoria, whereas “in the education, entertainment, human health services and real estate sectors, as well as in the wholesale and retail trade sector, more than 10% of loans were”.

Figure 4.32. Geographical and sectorial distribution of the use of moratoria in the EU



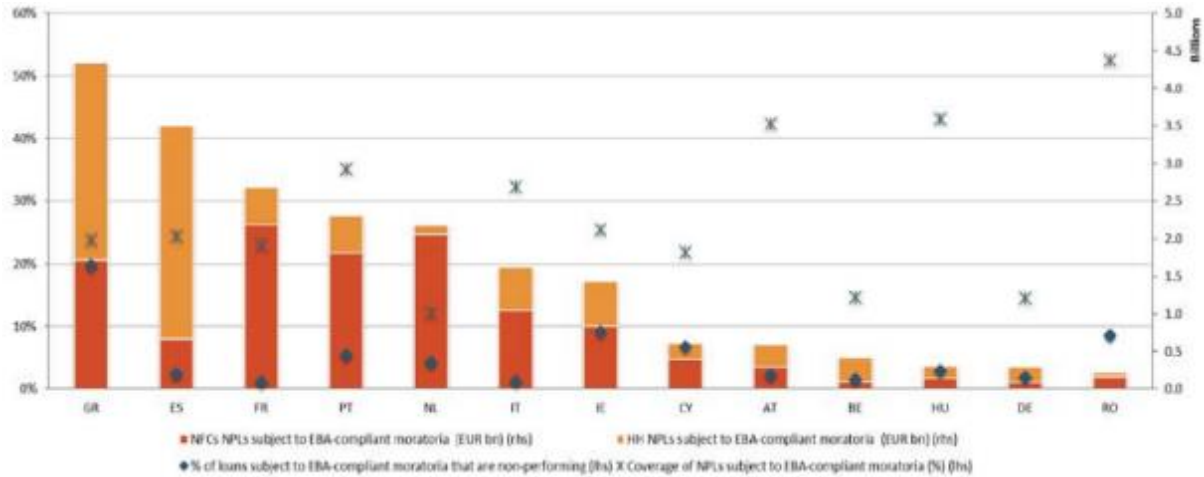
Note: (left-hand figure): Total volumes of loans to HHs and NFCs granted moratoria on loan repayments (bubble size), loans granted moratoria as a percentage of total loans to HHs and NFCs by country and summer 2020 GDP forecasts for the year 2020; (right-hand figure): Loans under moratoria as a percentage of total loans by segment and country.

Source: EBA, 2020.

This did not trigger the reclassification of exposures to non-performing nor forbearance status, as according to the EBA guidelines, “the application of general moratoria on loan repayments does not automatically trigger either the forbearance classification or the non-performing status of the exposure”. Moreover, banks after assessing the unlikelihood to pay criterion for classifying the exposures as non-performing only booked circa EUR 20bn. of loans under non-expired moratoria as non-performing, mainly in Greece, France, Portugal, Holland, Spain, Italy and Ireland. This led the NPL ratio of loans under non-expired moratoria to 2.5%, below the EU NPL ratio for all loans of 2.9%.

At this juncture, the EBA (2020) warned “the use, however, of moratoria may signal an increased risk and a higher probability of unlikelihood to pay which is probably not reflected in the NPL ratio reported”. In the same vein, the ECB (2020) noted “extraordinary policy measures have so far mitigated losses materialising in the banking sector, but this may also weaken the informational value of certain risk indicators”.

Figure 4.33. Volumes of loans under non-expired moratoria classified as NPLs by segment (EUR bn.) and loans under moratoria as a percentage of total loans by country - June 2020



Source: EBA, 2020.

In fact, those loans under moratoria could be associated with increased credit risk. However, the NPL ratio was at the time not a good indicator to assess this increased credit risk; the stage 2 categorisation replaced it. Based on EBA data (2020), as of June 2020 EUR 131bn., 17% of loans under moratoria and the double of the share for total loans, were classified as stage 2.

The underprovisioning trend was another interesting feature of the asset quality in the pandemic. As the EBA (2020) reported and presented in Figure 4.33, loans under non-expired moratoria classified as NPLs had a coverage ratio of approximately 25%, which was notably lower than the overall NPL coverage rate at the EU level, standing at 45%. Therefore, this was also another indirect relief on the banks financial position at the time, which combined with the public guarantee schemes (hereinafter, also “PGS”).

As at June 2020, the EBA (2020) noted that “newly originated loans subject to PGSs amounted to EUR 181 billion, representing 1.2% of the total loans. These loans were granted predominantly to NFCs”, in Spain, France, Italy and Portugal. Thanks to the PGS European banks could reduce their risk-weighted assets, as they reported only “18% of the exposure value for loans subject to PGSs”, whereas for NFC loans not covered by the PGS it amounted to 54%.

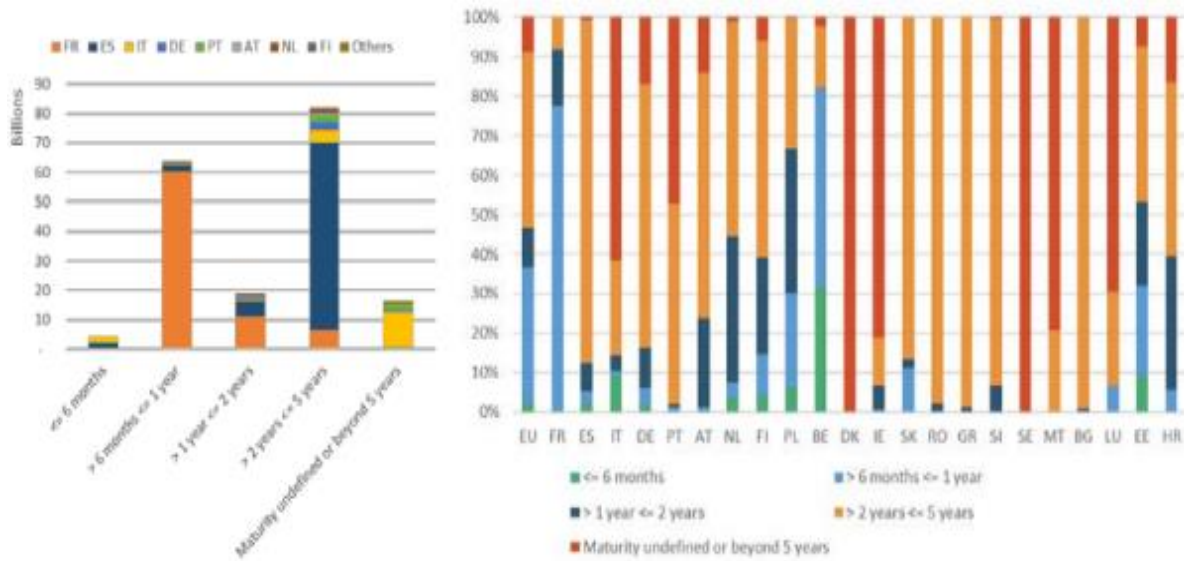
Table 4.9. Public Guarantee Schemes provided by a selection of EU Member States

Country	Target group	Duration	Date of extension
Belgium	viable non-financial companies, SMEs, self-employed persons and non-profit organisations	Up to 12 months	On 6 November 2020, for SMEs only up to 36 months
France	Very small businesses and SMEs	Up to 9 months	On 1 August 2020 to also cover companies registered in France until year-end 2020
Germany	SMEs and large companies in distress	Up to 6 months	No extension was adopted
Greece	Individuals, SMEs as well as large companies directly affected by COVID-19	Up to 60 months	Several extensions of the COVID-19 Business Guarantee Fund, including increased budget
Hungary	SMEs as well as large companies directly affected by COVID-19	Up to 6 months	Several extensions: On 17 November 2020, until June 2021; and on 27 February 2021 until year-end 2021
Italy	Micro and SMEs	Up to 9 months	November 2020, until June 2021
Netherlands	SMEs and large companies	Up to 18 months	Extension for certain sectors until December 2021
Poland	SMEs and certain large companies	Up to 39 months	Extension of the deadline for requesting the assistance up to 31 December 2021
Spain	SMEs, and self-employed persons	Up to 24 months	Several extensions, until June 2021 to request assistance

Source: Own elaboration based on Hogan Lovells (2021), Rekkas (2021), Cascarino et al. (2022).

Moratoria were designed as a prompt reaction measure in many EU Member States, whereas PGS had longer residual maturities to alleviate the medium-term burden of COVID-19 on businesses. However, there were important differences in terms of maturity of the PGS across Member States. Based on a survey the EBA (2020) performed 44% and 34% of loans benefited from guarantees with a residual maturity between 2 and 5 years and between 6 months and 1 year, respectively. As presented in the figures below whereas France opted for a short maturity (between 6 and 12 months), Spain or Italy, harder hit by the first wave of the pandemic preferred longer maturities (from 2 years up to more than 5 years, in the case of Italy or Portugal).

Figure 4.34. Residual maturity of public guarantee schemes by country (June 2020)



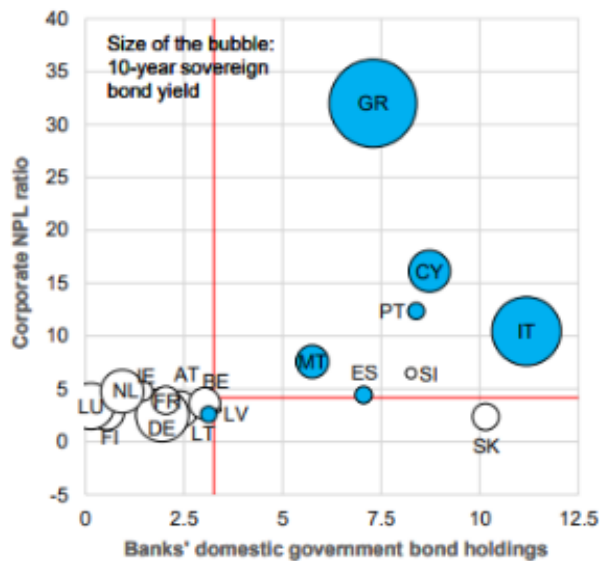
Source: EBA, 2020.

The moratoria and PGS decisively helped to avoid a potential credit crunch in Q22020. On the contrary, EU banks significantly increased their lending to NFCs during that period, mainly thanks to the public guarantees. However, the ECB (2020b) warned about potential negative externalities of their use in the future: “Guarantees and moratoria appear to have lengthened the time it takes for weak economic performance to translate into credit losses” and “may harbour the risk of forbearance going forward”.

This institution also highlighted the increase in sovereign debt holdings, “triggering concerns that the sovereign-bank nexus could re-emerge” and called for closely monitoring vulnerabilities to avoid any potential “adverse sovereign-corporate-bank feedback loop”, especially in those Member States hardest hit during the Eurozone sovereign debt crisis, including Greece, Cyprus, Portugal or Italy, as included in the figure below.

Figure 4.35. Bank’s domestic government bond holdings and corporate NPL ratios in the Eurozone

(Q2 2020, Oct. 2020, percentage of total assets, percentage of total corporate loans)



Notes: White bubbles indicate negative values. The red horizontal and vertical lines indicate sample medians.

Source: ECB (2020b).

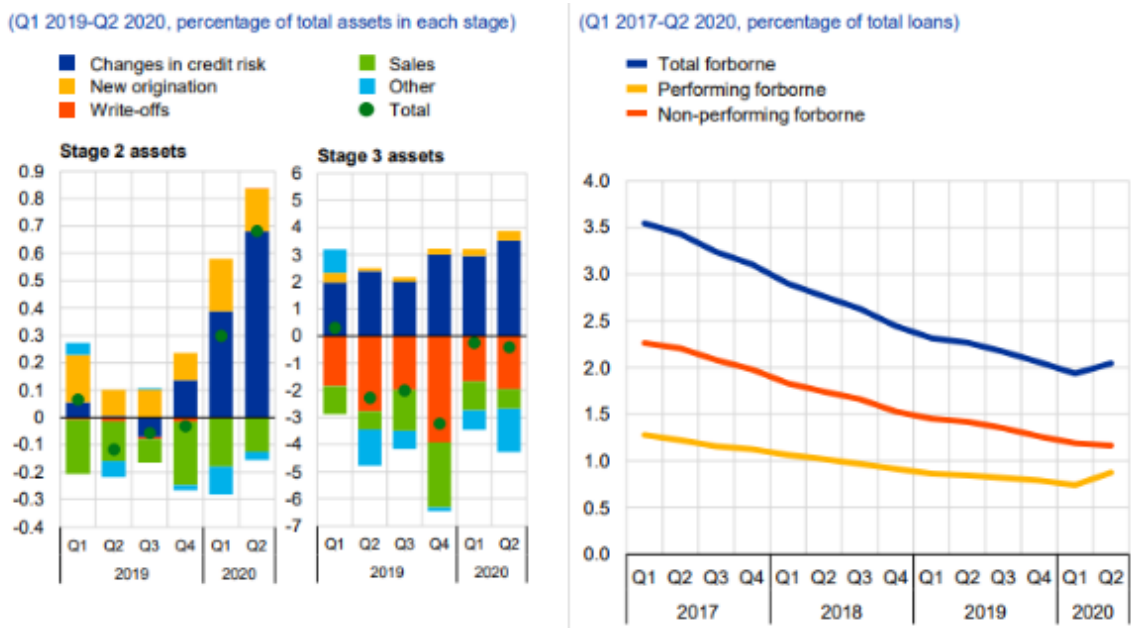
As several of the studies included in the previous chapter exemplified, there is typically a lag between the contraction in the economic activity and the increase in the NPL stocks. Taking into account the COVID-19 context the ECB (2020b) argued “the broad-based deployment of government support to borrowers, through moratoria and public guarantees, may lead to this lag being longer than in past recessions”. It also reiterated the need to be vigilant as while moratoria is helpful from a financial stability viewpoint “when borrowers are facing temporary cash-flow disruptions, they pose financial stability risks for banks when cash flows do not recover and borrowers become non-viable, unless the loans under moratoria are also state-guaranteed”.

In any event, the ECB considers that this should be a temporary measure, as “the longer the duration of a moratorium, the more difficult the exit from this policy could be”. If it is maintained for a long period of time, it could weaken the payment

discipline in the targeted group. Under this scenario, this could lead to the increase of NPLs in the future. At the same time, when exiting this measure it is key to avoid cliff effects. Therefore, defining a staggered approach should pave the way to the return to normal standards.

In the first half of 2020, while Stage 3 exposures remained stable the proliferation of Stage 2 was significant. At the same time, while the NPL ratio for Eurozone banks continued its reduction path, even it slowed down, the forbore exposures, notably the performing forbore, changed their trajectory and raised significantly, as presented in the figure below.

Figure 4.36. Evolution of exposures classified as Stages 2 or 3, as well as forbore exposures in the Eurozone

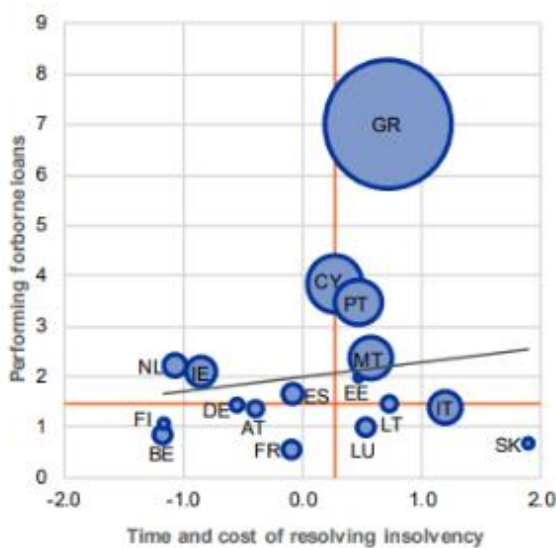


Source: ECB (2020b).

By year-end 2020 the early signs of deterioration in the asset quality of banks became more evident. However, as the ECB (2021a) acknowledged thanks to the “large-scale fiscal, monetary and prudential support, bank asset quality has been preserved despite the sharp recession”. The sales of legacy NPLs in Cyprus, Greece, Italy and Portugal led the NPL ratio to record 2.7%, but forbore exposures were in clear increase.

At this juncture, deepening the ongoing work on enhancing the existing toolkit, e.g. terminating with the lengthy and costly insolvency procedures in some countries, would facilitate claim enforcement and, ultimately, avoid the proliferation of NPLs if vulnerabilities in the corporate sector continued to grow. In December 2020, the European Commission launched a new action plan on NPLs anchored in two axes: (i) insolvency reform and debt recovery facilitation; and (ii) enhancement of the secondary markets for NPL disposals.

Figure 4.37. Forborne loans and corporate NPL ratios with various insolvency regimes in the Eurozone as at December 2020



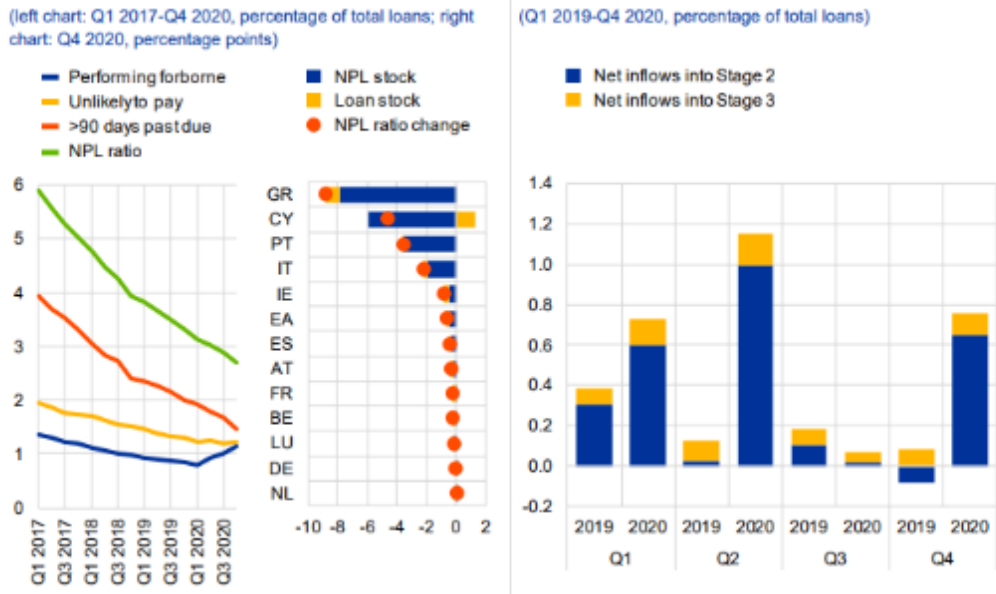
Note: Measures of time and cost of resolving insolvency are transformed into z-scores, i.e. they are presented as standard deviations from the sample mean and then averaged so that they can be jointly presented on one scale. Forborne loans refer to the share of total loans with forbearance measures. The bubble size corresponds to the NPL ratio for corporate loans. The red lines indicate sample medians, whereas the grey line represents the linear trend.

Source: ECB (2021).

Moreover, Stage 2 assets continued to increase year-on-year “with net inflows into Stage 2 assets being six times higher than before the pandemic by the end of the year”, while “flows into actual credit-impaired (i.e. Stage 3) assets increased more modestly, rising by 1.3 times”, based on ECB calculations (2021). The European large banks supervisor also noted: “banks’ practices with respect to the identification of the significant increase in credit risk and forbearance vary, which raises the risk of a delayed recognition of asset quality issues by some banks”. Therefore, the supervisor raised its scrutiny on early indicators linked to asset quality and on the

internal governance framework of banks as regards credit risk in the most pandemic-sensitive sectors. It concluded: “the deterioration has also been somewhat greater in sectors which already had a higher share of non-performing loans”.

Figure 4.38. Evolution of NPLs as well as Stage 2 and 3 until Q4 2020

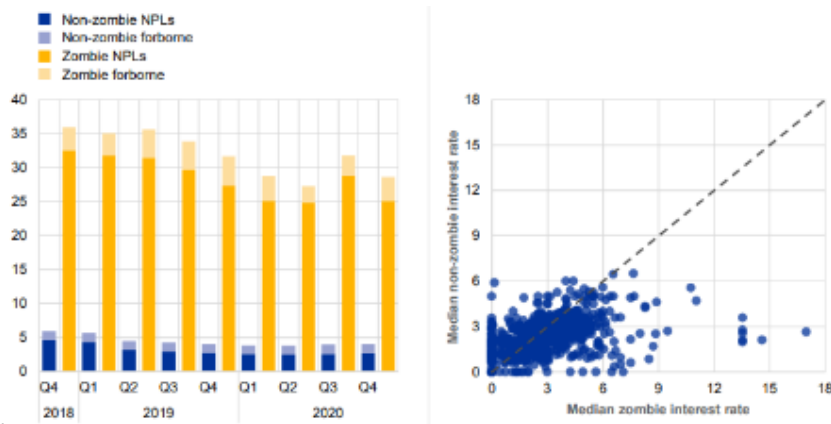


Source: ECB (2021).

As part of the reassessment of the prudential measures taken in the first half of 2020, at the end of that year the European Systemic Risk Board extended its recommendation on restrictions of dividend distributions until September 2021. In turn, the ECB updated its guidance and moved from no distribution to prudent distribution of dividends or share buybacks.

By the end of 2020 concerns about potential zombie lending re-emerged. The ECB (2021a) was particularly active warning about this: “despite the severity of the economic shock, monetary, fiscal and prudential policy actions supported the supply of bank lending and typical lending rates remained stable throughout 2020” and added “the interest rates on zombie firms’ bank loans are not systematically higher than those on loans to other firms”. This was counterintuitive as it showed either there was a non-proper risk assessment or, even more worrisome, “extend and pretend” policies could have followed thanks to the extraordinary support measures.

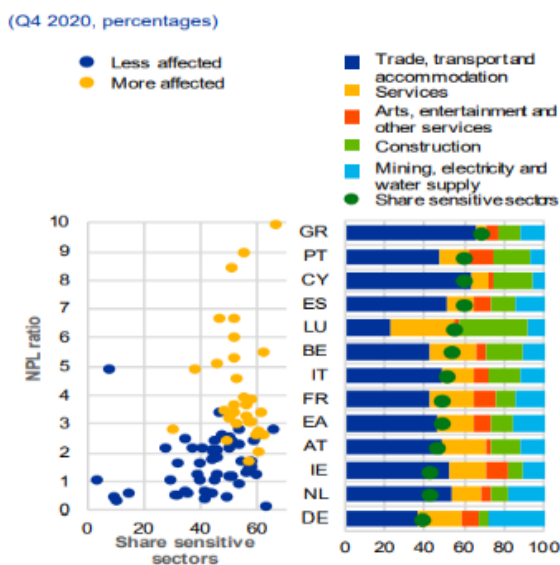
Figure 4.39. Risk assessment of zombie lending and interest rates per sector



Source: ECB (2021a).

This could be a catalyser for massive NPL recognition further down the road if the economic situation did not improve significantly. As the ECB (2021a) noted “future asset quality depends on the timing and strength of the economic recovery, and the exposure of banks to sectors most affected by the pandemic”. Therefore, it is key to closely monitor those sectors more affected by the COVID-19 and conduct detailed assessment and, eventually, study the potential proliferation of NPLs to design targeted measures to address it in a timely manner.

Figure 4.40. Pandemic-sensitive sectors and NPLs



Note: Sensitive sectors refers to mining, electricity and water supply, construction, retail and wholesale trade, transport, accommodation and food services, professional and administrative services, arts and entertainment and other services.

Source: ECB (2021a).

4.2.2. Evolution during 2021

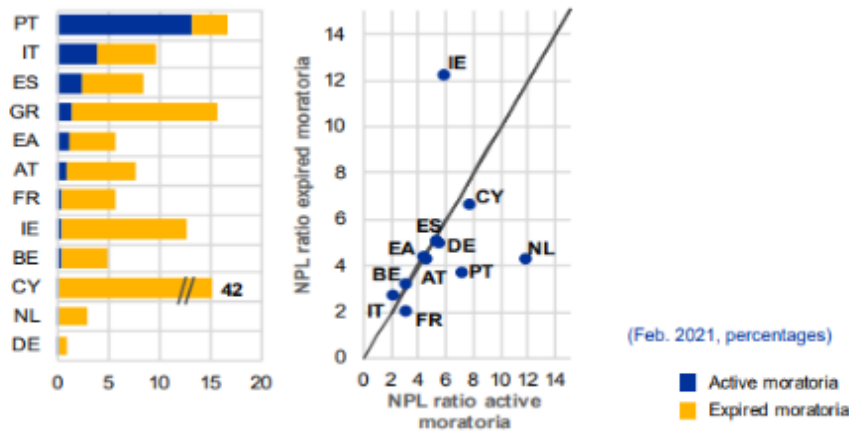
In 2021 the concerns about the deterioration of the asset quality of European banks were driven by the expiry of several support measures the public authorities adopted during 2020 as a result of the COVID-19 crisis. The ECB warned about a potential cliff effect as “government-guaranteed loans offered vulnerable corporates access to finance, but may expose firms to medium-term rollover risks, in particular where guarantee schemes have a short residual maturity and bank lending standards have tightened”.

Therefore, several businesses could be in severe risk due to the sudden tightening of the lending standards compared to publicly subsidised access to credit in 2020. The close monitoring of the evolution of the asset quality metrics and the evolution of the business related indicators were crucial aspects to decide on when to discontinue the state-sponsored support programmes.

As at January 2021 circa 75% of moratoria had already expired. However, this was uneven across Eurozone Member States. In Portugal, Italy, Spain and Greece active moratoria was still above the Eurozone average, notably in Portugal more than 13% of the total loans granted were subject to active moratoria measures. The ECB (2021a) studied the interplay between moratoria and NPL and concluded that for the Eurozone the NPLs stemming from expired moratoria compared to NPLs related to active moratoria measures still in place was not significant.

Nevertheless, some Member States deviated from this trend. In the case of Ireland as of February 2021 the NPL ratio of loans under expired moratoria recorded 12%, whereas the NPL ratio of loans under active moratoria was only at 6%. On the contrary, in the Netherlands the NPL ratio of loans under active moratoria peaked at circa 12%, whereas the NPL ratio for loans under expired moratoria was only slightly about 4%.

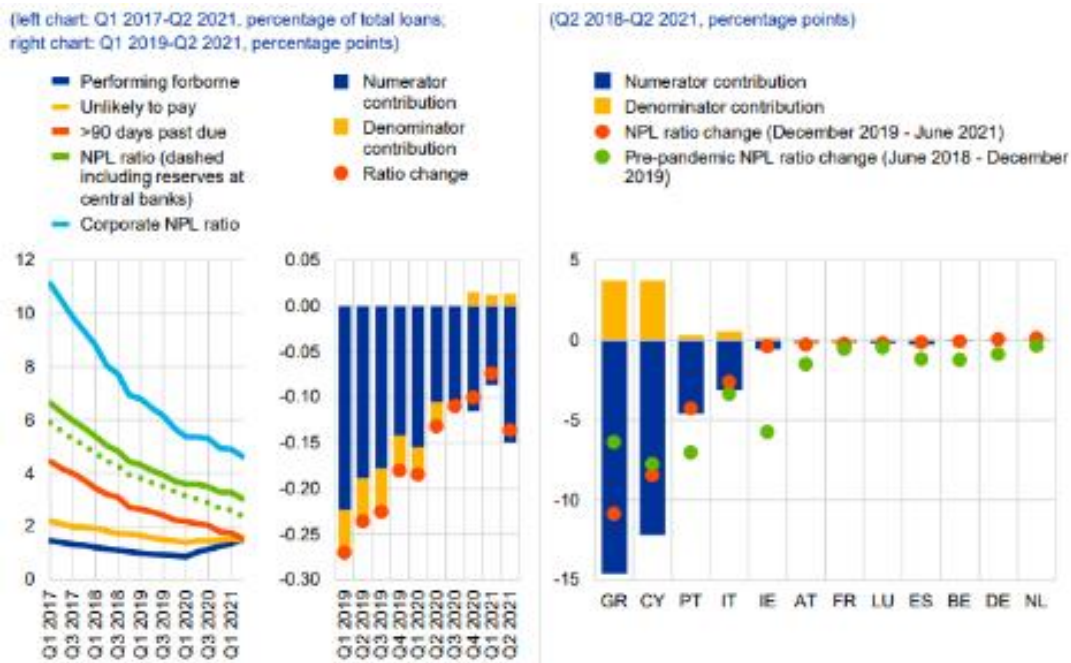
Figure 4.41. Interplay of the expiry of moratoria and NPLs



Source: ECB (2021a).

However, despite the expiry of moratoria on aggregate terms in the first half of 2021 the NPL ratio in the Eurozone continued its slower pace in the NPL reduction and recorded 2.4%, driven by further reduction in their numerator. This referred mostly to the disposal of legacy NPLs in Greece and Cyprus. Moreover, the corporate NPL ratio reached 4.6%, its lowest level in the last decade. On the contrary, the forbore exposures confirmed its steady increase path since Q1 2020.

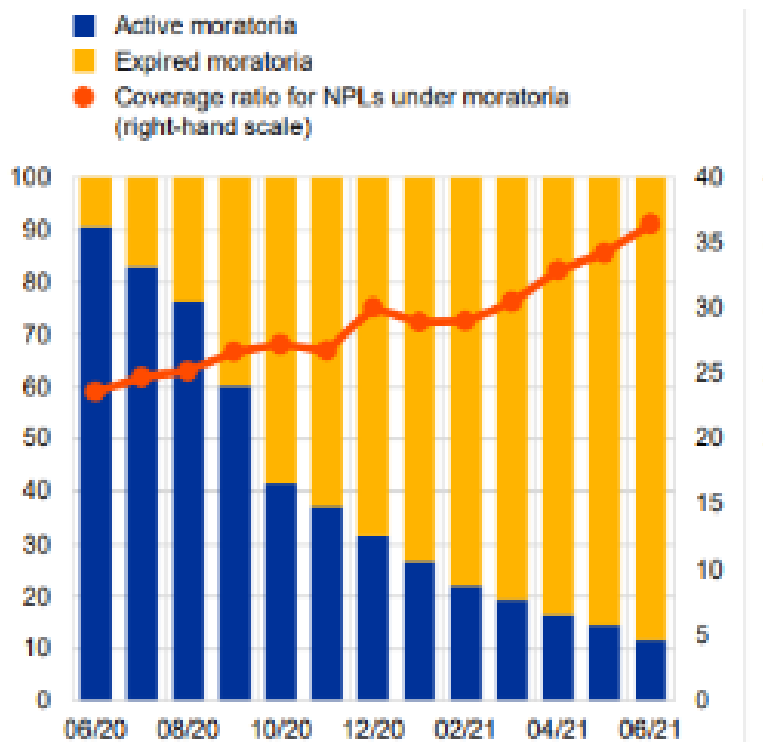
Figure 4.42. Evolution of NPL and forbore exposures (2018-Q22021)



Source: ECB (2021b).

The ECB (2021b) noted “forward-looking credit risk metrics indicate a slowdown in asset quality deterioration during the first half of 2021, although heterogeneous across sectors”. However, the European supervisor also warned about potential difficulties further down the road, or at least banks perceived such a thing as although the conclusion of moratoria did not immediately result in a decline in the quality of banks' assets, the coverage ratio for NPLs under moratoria rose from 24% in June 2020 to 36% in June 2021. This could indicate an elevated level of risk concentration within this portfolio.

Figure 4.43. Evolution of moratoria and associated coverage (June 2020-June 2021)

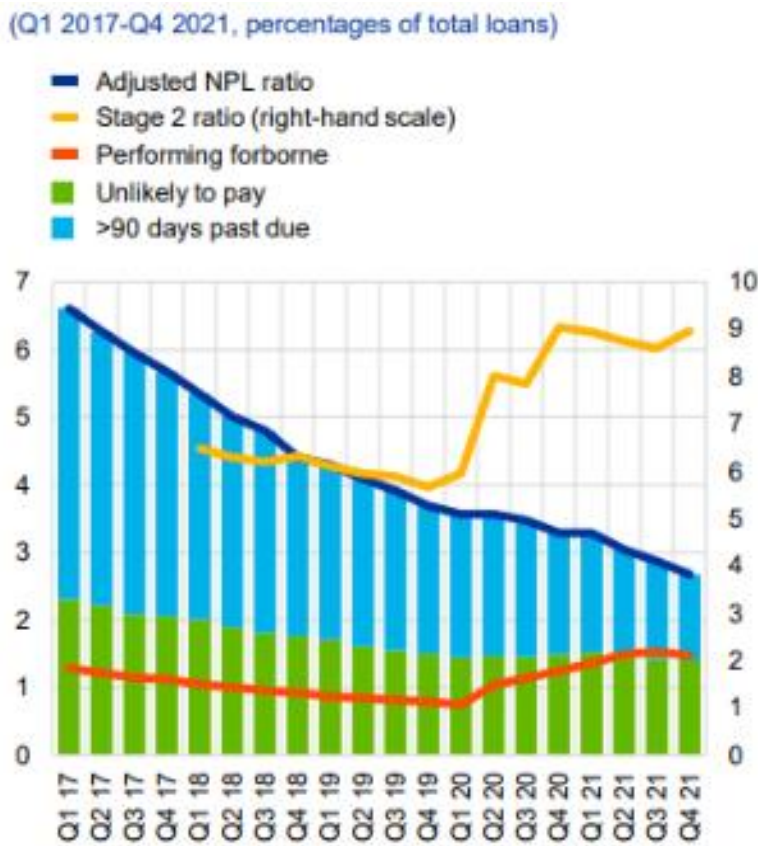


Source: ECB (2021b).

In this regard, the ECB concluded: “despite the positive signs, the full impact of the pandemic on bank asset quality could take another two years to become visible. The future level of NPLs depends on the strength and continuation of the economic recovery, as well as the effectiveness of policy measures in preventing corporate defaults”.

In line with this statement, continuation as regards the ongoing trends was the norm in the second half of 2021. Stage 2 ratio slightly increased, reaching around 9%, doubling pre-pandemic levels. With regard to loans subject to forbearance measures, they were around 2% of total loans. Finally, the NPL ratio continued its downward trend.

Figure 4.44. Evolution of asset quality indicators (Q12017 - Q42021)

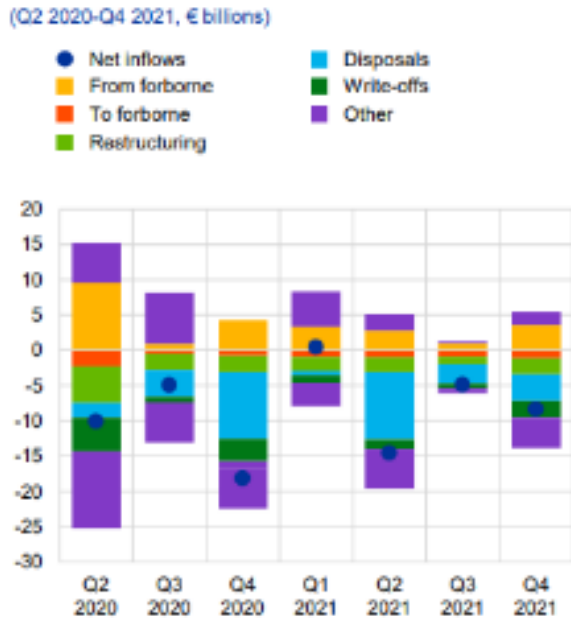


Notes: Panel a: the adjusted NPL ratio displayed deducts central bank cash reserves from the total loan denominator. The category "Performing forbore" excludes non-performing measures.

Source: ECB (2022a).

This downward trend as regards NPL reduced its speed over the last quarters, but continued to be robust. In this regard, only in Q12021 the net inflows were positive. This shows that despite the COVID-19 banks managed to continue with the sales of NPL portfolios.

Figure 4.45. Quarterly evolution of NPL inflows and outflows (Q12020 - Q42021)



Notes: The “Restructuring” category consists of restructuring measures that have led to the partial repayment of outstanding debt and the seizure of collateral. Disposals relate to the sale of NPL portfolios as well as the securitisation of NPLs. “Other” captures flows that cannot be linked to any of the other, specified sources of flows. Among other things, it includes changes in the gross carrying amount of non-performing exposures due to additional amounts disbursed during the period, the capitalisation of past due amounts including capitalised fees and expenses, and changes in exchange rates related to non-performing loans and advances that were classified as non-performing at the end of the preceding financial year and have been continuously classified as such ever since.

Source: ECB (2022a).

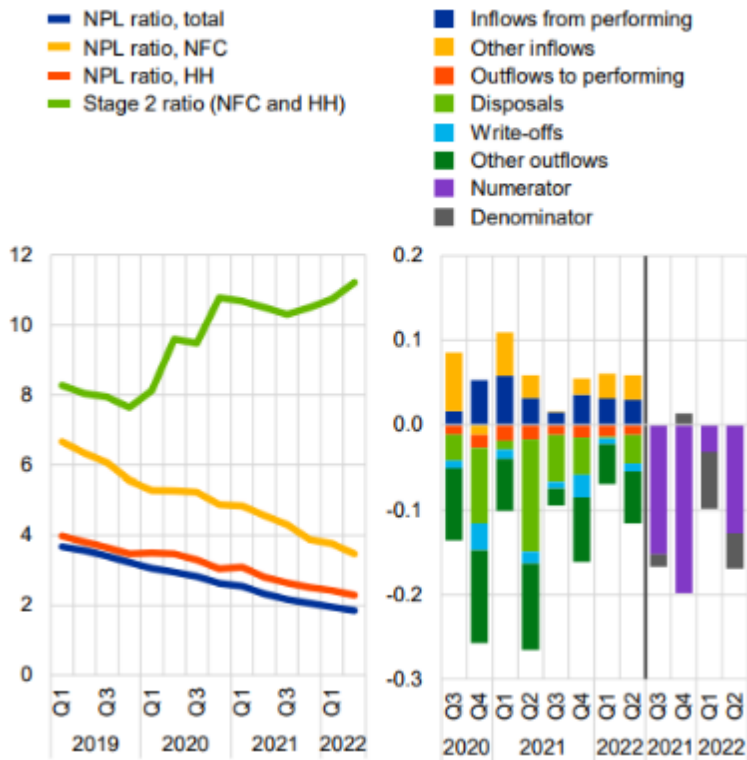
4.2.3. Evolution during 2022

2022 was the year of the consolidation of the existing trends. NPLs continued its reduction trend. This decrease was particularly significant in the case of NFCs, but also prominent for households. The inflows from the performing status were still moderate and did not exceed the disposals and other outflows, which were significantly larger than the outflows to performing.

On the contrary, in the case of Stage 2 assets the evolution of the ratio was still worrisome. After its moderation in the first half of 2021, from the second half 2021 until mid-2022 there was another significant increase which moved its level towards the 12% threshold.

Figure 4.46. Evolution of Stage 2 and NPLs ratios as well as its composition (Q12019 - Q22022)

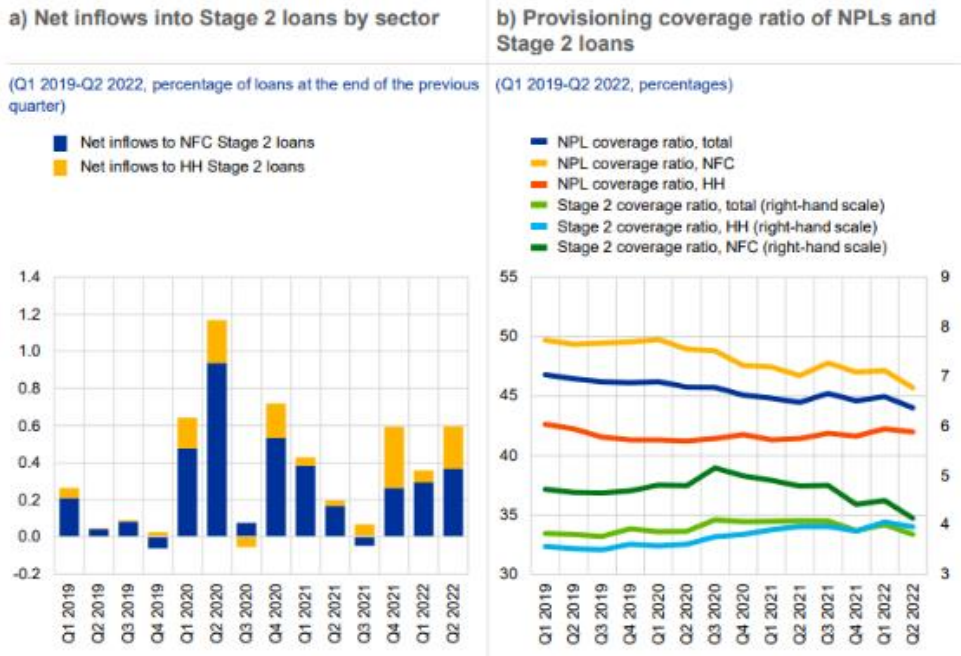
(left graph: Q1 2019-Q2 2022, percentages, right graph: Q3 2020-Q2 2022, percentages)



Source: ECB (2022b).

As regards provisioning coverage ratios the main reduction comes from the non-financial corporation exposures. The ECB (2022a) noted “for NPL coverage, this may partly reflect a composition effect as banks tend to sell the most aged, well-provisioned loans”. Therefore, the ECB still considers that “looking ahead, banks with less conservative macroeconomic assumptions underlying their expected credit loss models may face a risk of larger increases in their provisioning needs if macroeconomic conditions deteriorate more than expected”.

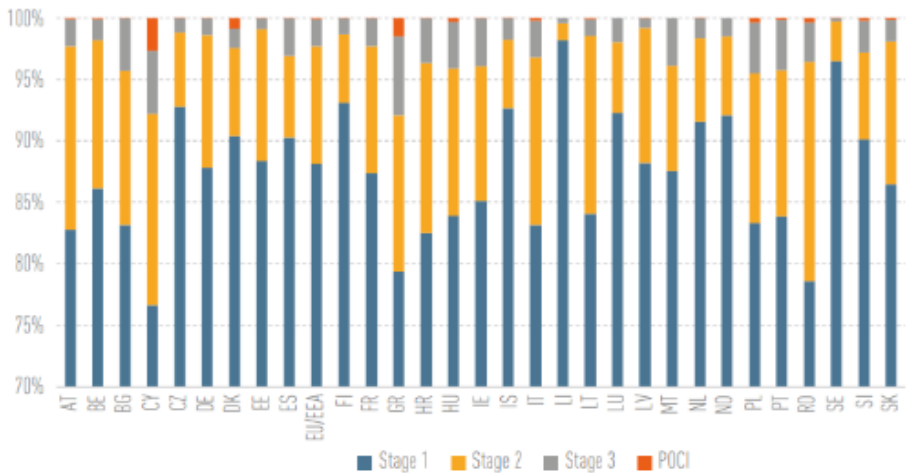
Figure 4.47. Evolution of NPLs and Stage 2 loans by sector as well as coverage ratio (Q12019 - Q22022)



Source: ECB (2022b).

When we deep dive into the EU Member States it is worth highlighting that as of June 2022, Romanian and Cypriot banks had the highest share of stage 2 loans (17.8% and 15.6% respectively), while Greek banks reported the highest share of stage 3 (6.4%). For other countries Stage 2 and 3 were still at regular levels.

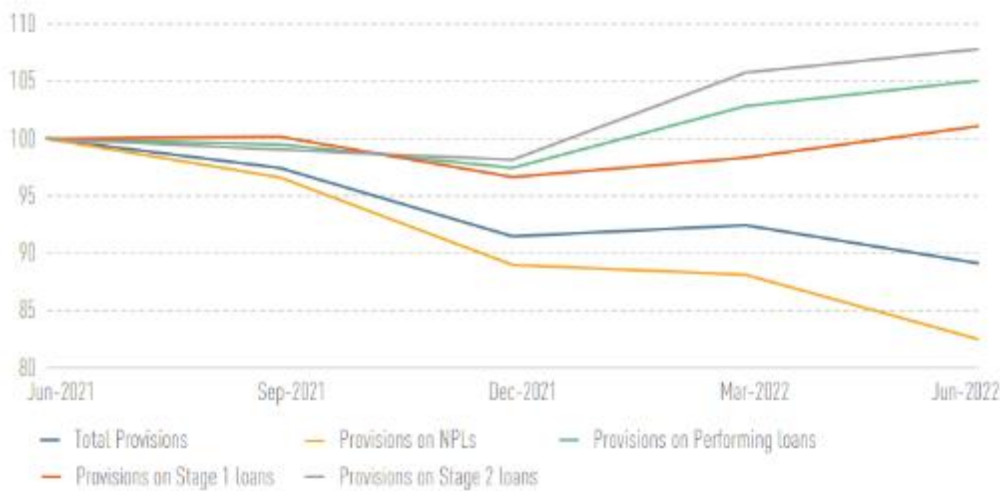
Figure 4.48. Allocation of stages by EU country (Q2 2022)



Source: EBA (2022).

As regards the evolution of the accumulated impairments and provisions in the EU Member States there were two opposite trends over the June 2021-June 2022 period. On one hand, both provisions on NPLs and total provisions were reduced, whereas provisions on Stage 2 loans and even on performing loans increased significantly since December 2021.

Figure 4.49. Accumulated impairments and provisions in the EU (Q22021 - Q12022)



Source: EBA (2022).

4.3. Deep dive on the evolution of bankruptcies

Another early warning indicator for signalling potential deterioration of the asset quality down the road is the assessment of the evolution of bankruptcies in the EU. As Eurostat (2023) noted “the bankruptcies indicator is an early sign to measure the sentiment in business environment”, which also serves to policy and supervisory authorities to monitor the business cycle and come up with timely measures to address procyclicality and the deceleration in the economic activity.

Stability was the norm during 2018 and 2019, which minimal quarter-or-quarter changes. However, in the first two quarters the declaration of bankruptcies fell down sharply due to the extraordinary support measures adopted at EU and national level. As some of those measures expired and the liquidity reserves were exhausted a significant rise in bankruptcies was recorded in Q32020. Then, the stability returned until the second half of 2022, where the effects of rising inflation and the

Russian invasion in Ukraine put additional constraints into the business activity. According to Eurostat (2023) in Q42022 the declarations of bankruptcies rose by 26.8% in the EU and, even more, by 27.4%, in the Eurozone, whereas in Q32022 they had increased but at a slower path, concretely by 17.5% in the EU and by 20.1% in the Eurozone.

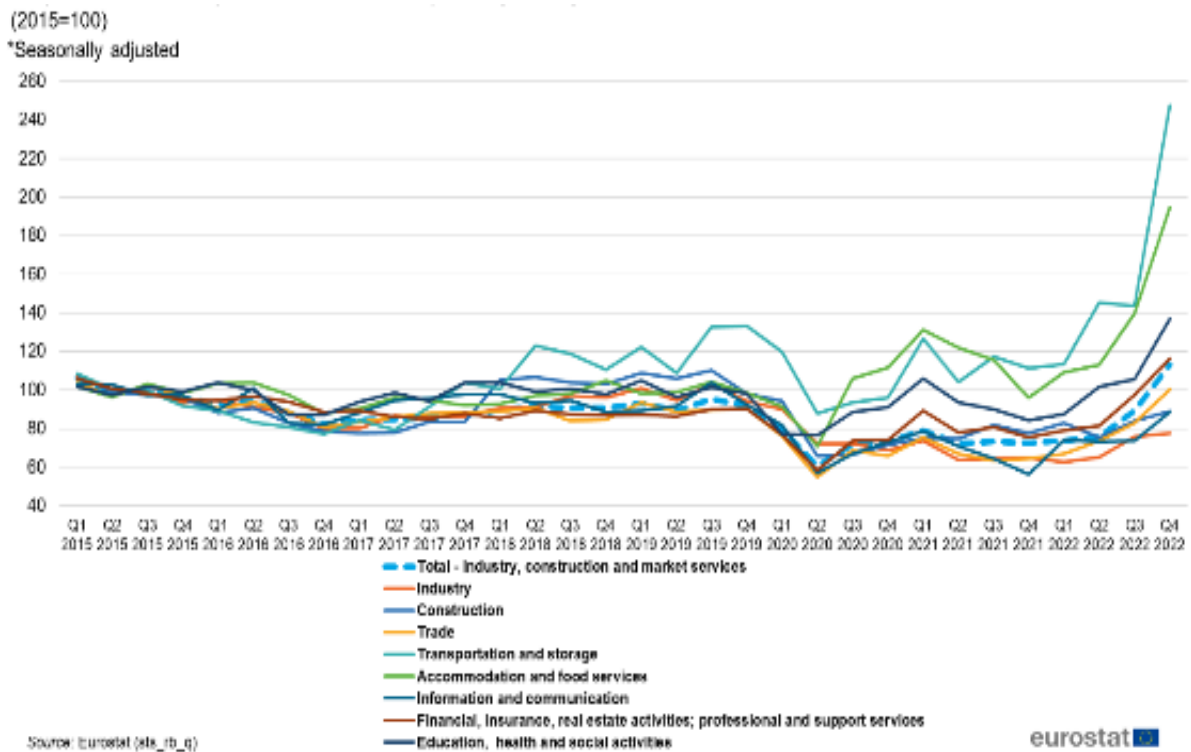
Figure 4.50. Quarterly evolution of the declarations of bankruptcies (Q12018 - Q42022)



Source: Eurostat, 2023.

Between 2015 and 2016, the bankruptcy declarations decreased in most sectors. Then, from 2017 to 2019, with the exception of transportation and storage there were only marginal increases with regard to the declarations of bankruptcies. When the COVID-19 pandemic hit the European economies due to the extraordinary measures taken by the EU and the Member States there was a sharp reduction of the declarations in all sectors. From Q32020 to Q12021 there was a steady rise, which reverted in the following three quarters. Finally, in 2022 all sectors recorded an increase in the declarations of bankruptcies, particularly intense in the transportation and storage as well as accommodation and food services, followed by the education, health and social activities.

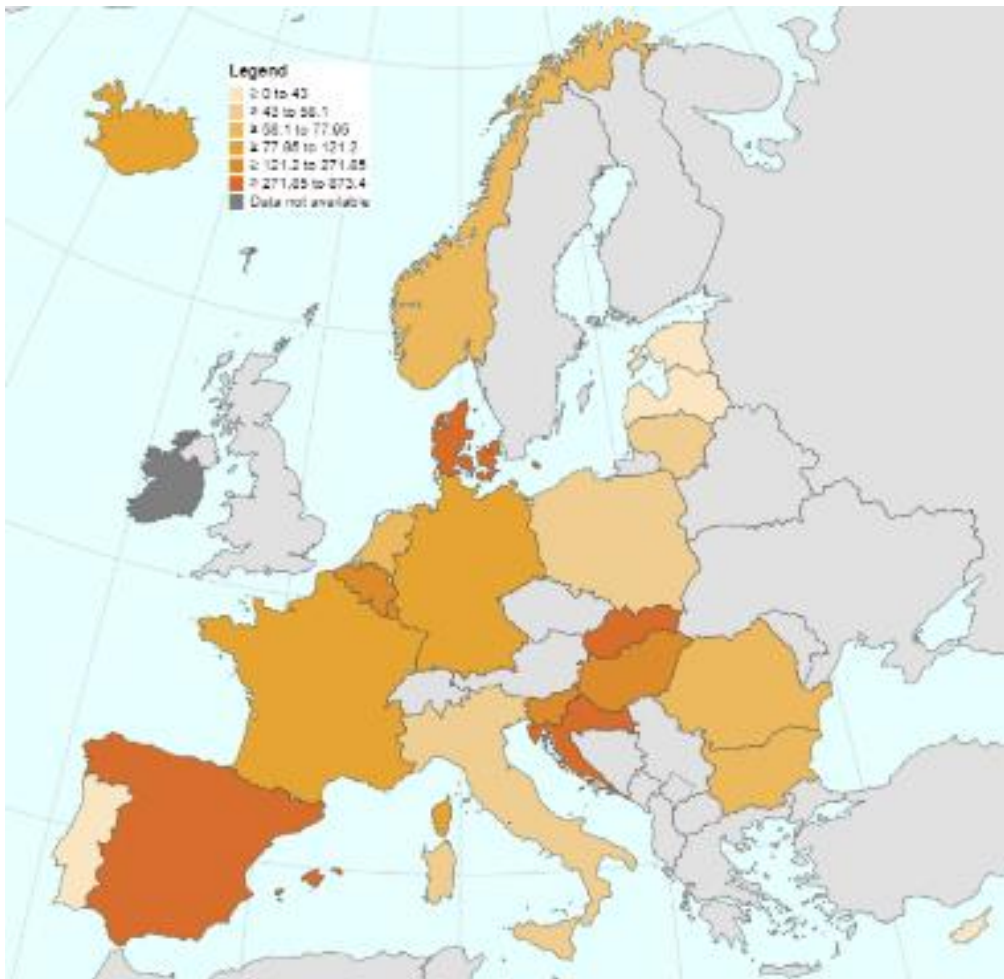
Figure 4.51. Declarations of bankruptcies by activity (Q12015 - Q42022)



Source: Eurostat, 2023.

When focusing on the EU Member State level the heterogeneity is the norm. As regards the sectors where the highest volumes of bankruptcies we recorded in Q42022, namely (i) transportation and storage, (ii) accommodation and food services the figure below provides a visual overview of the impact of the bankruptcies per Member State. The most affected countries were Spain, Croatia, Slovakia and Denmark, in this particular order.

Figure 4.52. Bankruptcies in the EU in a selection of the most exposed sectors as at Q42022



Source: Eurostat, 2023.

4.4. Synopsis of the chapter

In this chapter, the evolution of NPLs from 2007 to 2022 is presented leveraging on graphical representations either at regional level or at country level. The first section covers the economic consequences of the GFC and the European sovereign debt crisis, whereas the second section provides an overview of the evolution of NPLs in the EU Member States since the start of the so-called COVID-19 crisis in year-end 2019 to the latest available data.

The deterioration of the main drivers of the European economy and the doubts on the fiscal capacity of the sovereigns had a prompt impact on the European credit

institutions. This resulted in the rapid increase of the risk exposure, the tightening of credit supply and the proliferation of non-performing exposures.

Not all EU Member States had the same degree of macroeconomic imbalances ahead of the GFC and, consequently, its impact on them varied significantly. That rationale is also valid for the starting point of NPL levels, which was also uneven across the EU Member States, but in any event worrisome for 2007 and 2008 in most EU Member States.

In many EU Member States the proliferation of NPLs started to completely change the picture in 2009. It continued to deteriorate during the following years, reaching a peak in most countries between 2013 and 2016. From that period onwards the reduction trend started to unfold proving right the policy initiatives implemented that accompanied the favourable economic conditions in most EU Member States.

In the case of the Euro Area, the fragmentation between the so-called periphery and core group of countries was palatable, presenting a large dispersion as regards NPLs. Austria, Belgium, Estonia, Finland, France, Germany, Latvia, Lithuania, Luxembourg, Netherlands and Slovakia were considered part of the core group, whereas the periphery was composed by Cyprus, Greece, Ireland, Italy, Malta, Portugal, Slovenia and Spain.

When we take a closer look at the evolution of NPL ratios at country-level there were some remarkable policy initiatives aiming to address the existing high level of NPLs. In Ireland, Slovenia and Spain the establishment of systemic AMCs facilitated the rapid reduction of NPLs. Other countries decided to implement other tools, such NPL securitisations. For instance, the adoption of the GACS programme in Italy in 2016 started to change the scene in H22016 and 2017 in this country.

Following the Italian reduction efforts of 2016 and 2017, 2017 was a turning point in Portugal, whereas in Cyprus and Greece this downward trend unfolded in 2018. In the case of Cyprus the NPL ratio moved from circa 35% in Q32017 to 20% in Q42018, whereas in the Greek case, after a period of stability in the ratio above 45% (2015-2017), only in late 2017 it started to decrease steadily quarter after quarter.

Data shows that the deterioration of credit quality came mostly from companies unable to pay back the loans they received, with a significant concentration in a few sectors, namely construction and real estate sectors, (i) as a result of the burst of the housing bubble originated pre-GFC in several EU Member States, as well as (ii) due to some idiosyncratic macroeconomic imbalances in some countries.

It is also relevant to disaggregate the NPL ratio to study its composition. SMEs as well as commercial real estate categories steadily recorded higher NPL ratios than large corporates and mortgages over the June 2015-June 2019 period. In the case of consumer credit during the aforementioned period it was in between, typically doubling the ratios of mortgages. In terms of the reduction path, it is clear that the most significant efforts were devoted to the reduction of SMEs and commercial real estate NPLs.

The coverage ratio steadily increased until 2018 in aggregated terms, whereas Q22018 constituted a turning point. Basically, this was driven by a significant reduction of the stock of NPLs (denominator of the ratio). It almost halved in four years (between Q22015 and Q22019), but accelerated its decrease path in the final period of this timespan. However, the evolution was also uneven in terms of countries. In some EU Member States there was a clear change in provisions whereas in others there were no significant changes over that period. Specially, in those countries with higher NPL ratios credit institutions had to do an extra effort by increasing their coverage ratios. The rationale was that this should facilitate the disposal of those NPLs.

When disaggregating the coverage ratio by type of loan there were also remarkable findings. Whereas for mortgages, commercial real estate and SMEs the upward tendency was clear until June 2018, in the case of the commercial real estate and large corporates the evolution of the coverage ratio was not so uniform.

In 2020 the unexpected outbreak of COVID-19 and its escalation into a pandemic tested the efforts made in the previous years by EU Member States and banks to reduce the stock of NPLs. By year-end 2020 the early signs of deterioration in the

asset quality of banks became more evident. However, this was significantly alleviated due to the temporary fiscal, monetary and prudential support granted to European banks.

In 2021 the concerns about the deterioration of the asset quality of European banks were driven by the expiry of several support measures the public authorities adopted during 2020. The risk was a potential cliff effect reversing the reduction trend still in place during the previous year. There was a slowdown as regards the reduction of NPLs whereas the average Stage 2 ratio in Europe increased significantly during 2021.

2022 was the year of the consolidation of the existing trends. The aggregated NPL ratio continued its reduction path, whereas in the case of Stage 2 assets the ratio was still worrisome. From the second half 2021 there was another significant increase. The perception of a sudden deterioration of the asset quality of banks in Europe was still one of the most prominent risks ahead.

This chapter concluded with an analysis of the trends related to another early warning indicator for signalling potential deterioration, which is the evolution of bankruptcies in the EU. In 2022 all sectors recorded an increase in the declarations of bankruptcy, particularly intense in the transportation and storage as well as accommodation and food services sectors, followed by the education, health and social activities sectors.

5. THE USE OF STATE-SPONSORED OR NATIONAL ASSET MANAGEMENT COMPANIES TO DEAL WITH NON-PERFORMING EXPOSURES FROM THE GFC TO 2023

5.1. Introduction

This chapter covers the initiatives taken by the authorities of several Member States since 2008 to deal with the proliferation of NPLs in their national banking sectors. They encompass diverse approaches to execute a state-sponsored asset relief to serve a number of beneficiary banks. The common denominator was the transfer, included synthetic, of risks to free their balance sheets, to asset management companies following *ad-hoc* legislation approved in this regard. Moreover, all served a public policy objective, namely to timely and orderly disposal of assets and the creation of secondary markets for NPLs. Most of them required a special legal setting implemented by for the national authorities for the establishment of the (systemic) asset management company. In this analysis, the individual asset management companies created by the private initiative or as a result of the crisis of a specific bank are excluded, exception for the case of the Italian *de facto* AMC as from 2018 and the German cases.

5.1.1. What is an asset management company?

As exemplified in the table below, there are as many definitions of AMC as papers or publications covering this topic. In some occasions, there are different definitions within the same document. Typically, this concept is defined taking into account its features or the mandate and/or core objectives guiding its creation.

Table 5.1. Selection of definitions of an AMC

Author	Definition
Woo (2000)	“Public or private entities whose main function is to take over the nonperforming assets of distressed financial institutions, are generally founded on the supposition that they can help facilitate financial restructuring and maximize the recovery of nonperforming assets at the same time”.
Klingebiel (2000)	A company that “either dispose of assets hived off from bank balance sheets or restructure corporate debt”.

Bank for International Settlements (2002)	“A special purpose company set up by a government, a bank, or by private investors to acquire loans and other assets, a majority of which are usually impaired, for subsequent management (including restructuring) and in many cases, sale to investors”.
Zimmermann and Schäfer (2009)	A company that “purchases or takes over troubled loans or securities and then attempts to restructure and manage the assets in a way that maximizes their value”.
Freixas (2010)	“An institution that takes over distressed assets, thereby cleaning the banks’ balance sheet and ring fencing the ‘toxic’ illiquid assets in order to get the uncertainty out of the financial system”.
Hüther (2012)	An entity that “wins time for restructuring and avoids emergency sales, which makes it possible to secure value, as sales can be transacted depending on the market situation”.
Jassaud and Kang (2015)	“companies that pool and invest funds in a diversified portfolio of NPLs according to a specific objective”.
Cerruti and Neyens (2016)	“A statutory body or corporation, usually established in times of financial sector stress, to assume the management of distressed assets and recoup a portion of the public cost of resolving the crisis”.
	“Entity established to manage and enhance recoveries of distressed assets removed from the financial system”.
Medina Cas and Peresa (2016)	“An entity created to purchase, manage and ultimately dispose of distressed, usually nonperforming assets from Banks”.
European Commission (2018)	A company which aim “to remove troubled assets from banks’ balance sheets and thereby reduce the high uncertainty about the quality of banks’ assets, which made access to finance very difficult”.
European Commission (2020)	“vehicles that provide relief to banks that are struggling by enabling them to remove NPLs from their balance sheets”

Source: Own elaboration, based on the publications mentioned in the table.

There a number of features common to those definitions, namely, they were created to: (i) alleviate the burden on the financial sector by cleaning the beneficiary banks’ balance sheets; (ii) facilitate the restructuring of the assets received; and (iii) maximize the value of those assets over time.

5.1.2. Rationale for establishing AMCs

Woo (2000) highlighted four objectives that should guide the establishment of any asset management company: (i) facilitation of financial restructuring; (ii) focus on high rate of recovery; (iii) determination for a prompt recovery; and (iv) normalisation of asset markets. At first sight, it is already clear that finding a compromise between these four objectives is as important as challenging. For example, aiming at having a high rate of recovery would not be always achieved if the focus is placed on contributing to a prompt normalisation of the asset markets and on the acceleration of the rechannelling of the financial resources in an economy.

Table 5.2. Core objectives of AMCs

Objective	Justification	Solution
Facilitation of financial restructuring	Refocusing on core activity (i.e. lending) and ensuring the soundness of the financial institutions (i.e. Deterioration in the quality of financial assets can severely weaken the soundness of financial institutions and distract them from their primary function as financial intermediaries).	Restoring liquidity and solvency to financial institutions, providing confidence in their valuation, enhancing credit discipline, and, consequently, allowing them to resume their normal functions.
Focus on a high rate of recovery	Restoring to asset holders in the market what is owed to them.	Alignment of incentives between public and private participants in the market, as a high recovery rate of assets reduces the burden on taxpayers.
Prompt resolution	Reducing uncertainties over the net worth and the creditworthiness of both the holders and the obligors of these assets in the market (i.e. restoring the market's ability to assess counterparty risk).	This acceleration contributes to an efficient resource reallocation which is vital to economic recovery.

<p>Normalization of asset markets</p>	<p>Avoiding adverse selection, as a large overhang of non-performing assets can paralyze asset markets by exerting downward price pressure on all assets and even by crowding out good assets from the market</p>	<p>This helps to create market benchmarks for previously overvalued assets or illiquid assets (i.e. it also prevents excessive downward pressure on assets prices).</p>
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Source: Own elaboration, based on Woo (2000).

As Aiyar et al. (2015) noted this normalisation of asset markets is a key feature of any AMC, as they kick-start the market by “bridging the pricing gap in situations where no market exists, or the market is extremely illiquid”. Consequently, they are entrusted with a central position which should facilitate the restoration of prices for distressed debt via price discovery. Moreover, its establishment provides incentives for banks to avoid the collective inaction. These are features driven by the following cumulative factors, as Aiyar et al. (2015) highlighted:

- **Economies of scale:** this should be particularly helpful for smaller banks, as “centralizing impaired assets from several banks into an AMC may help reduce the fixed cost of asset resolution, increase the efficiency of asset recovery, and allow for a more efficient packaging of assets for sale”.
- **Greater bargaining power** due to their size: this is key “when loans are scattered within the system, collateral is pledged to multiple creditors, and the size of debtors is large relative to that of banks”.
- **Specialization**, which facilitates the pulling of “workout expertise and resources” as well as “better valuation and credit discipline” via adequate management (i.e. “separation of the loan administration away from their credit officers, which could foster a more objective assessment of credit quality”).

5.1.3. Preconditions for “Successful” AMCs

Ingves, Seelig and He (2004) clearly admitted that “there is no single optimal solution but rather a combination of solutions for each country that may vary over

time and for each bank resolution”. However, several authors, including themselves have tried to come up with a list of preconditions for putting in place successful AMCs. They have been summarised in the table below:

Table 5.3. Overview of preconditions for successful AMCs

Woo (2000)	Das and Quintyn (2002)	Ingves, Seelig and He (2004)
<i>Legal basis: Provide for clear transfer of titles and priority in the transactions of assets.</i>	<p><i>Independence: both from the political sphere and from the financial entities.</i></p> <p><i>This facilitates making credible commitments regarding a long-term strategy.</i></p> <p><i>The advantage of resorting to and relying on expertise, particularly when responses are needed for complex situations; and the advantage of potentially shielding market intervention from political interference, thus improving transparency and stability of the output.</i></p>	<p><i>Supporting legal and regulatory environment: this should be the centrepiece principle, as the AMC should be created to complement decisive political will to overcome the situation by reforming those areas of the system where there are needs for improvement.</i></p>
<i>Regulatory framework and adequate supervision prevents financial institutions from using their asset management company subsidiaries as a means to artificially boost their capital positions.</i>		<p><i>Strong leadership: the day-to-day business of the AMC will be challenging. Therefore, adequate leaders in charge is fundamental.</i></p>
<i>Governance: resist political interference and pressure from borrowers.</i>	<p><i>Accountability: This is built on and complements the independence, as the agency needs to justify its actions against the mandate given to it.</i></p> <p><i>It needs a combination of control instruments, such as: (i) strict procedural requirements; (ii) legislative and executive oversight;</i></p>	<p><i>Operational independence: this principle needs to be ensured at all times. Otherwise, the fulfilment of its mandate would be compromised.</i></p>
<i>Selection of assets transferred: Large assets, fixed assets, and loans</i>		<p><i>Appropriately structured incentives: This applies as regards the original</i></p>

<p><i>requiring foreclosure are good candidates for transfer to asset management company.</i></p> <p><i>On the contrary, restructurable loans and loans whose obligors banks would like to maintain a long-term relationship should be kept with the bank.</i></p>	<p><i>(iii) public engagement, and (iv) subject to judicial review of its actions.</i></p> <p><i>Accountability is easier to implement when the agency has a clearly defined and measurable objective.</i></p>	<p><i>configuration of the objectives as well as throughout the development of the mandate of the AMC.</i></p>
<p>Asset transfer pricing: <i>Transfer of assets should reflect market prices. Pricing of assets should be based on probability of recovery, cash flow analysis, and appraisal of underlying collateral.</i></p>	<p>Transparency: <i>This principle refers to an environment in which objectives, frameworks, decisions and their rationale, data, and other information, as well as terms of accountability, are provided to the public in a comprehensive, accessible, and timely manner. First, it directly supports accountability by making the actions of the agency clear to the outside world (governments and markets).</i></p>	<p>Commercial orientation: <i>the mandate of the AMC needs to be clearly defined and ensured during its life. There should not be conflicting objectives at stake, being the most important one the timely disposal of assets received with the highest possible recovery rate.</i></p>
<p>Funding: <i>Sufficient funding but hard budget constraint are required. The operating budget should be separated from takeover funding.</i></p>	<p><i>Second, it protects the independence of the agency by demonstrating when and under which form interference is taking place, where applicable. It is also instrumental in increasing the commitment of (...) managers, and owners to prudent behavior and risk control of the financial business. Of course, this principle should also consider the need for commercial confidentiality.</i></p>	

<p>Incentive structure: An incentive structure, including gain/loss-sharing arrangements and bonuses tied to the recovery rate, rationalizes management of nonperforming assets and maximizes recovery.</p>	<p>Integrity: This principle refers to the mechanisms that ensure that staff of the agencies can pursue institutional goals (...) without compromising them due to their own behavior, or self-interest. It should be applied at all levels: First, procedures for appointment of heads, their terms of office, and criteria for removal should be such that the integrity of the board-level appointees (...) be safeguarded.</p>	
<p>Asset disposition: A decision on asset disposition should be based on market conditions as well as the funding cost of the asset management company, consistent with the objective of achieving maximum recovery rate.</p>	<p>Second, the integrity of the agency's day-to-day operations also needs to be ensured. Third, integrity also implies that there are standards for the conduct of personal affairs of officials and staff to prevent exploitation of conflicts of interest.</p>	
<p>Legal power: Asset management companies vested with extraordinary legal power can help facilitate the asset resolution process, especially in the corporate debt restructuring process.</p>	<p>Fourth, assuring integrity also implies that the staff of the (...) agency enjoy legal protection while discharging their official duties. Without such legal protection, objectivity of staff would be prone to contest and staff to bribery or threat and the overall effectiveness and credibility of the institution would suffer greatly.</p>	
<p>Lending: Asset management companies should not be allowed to engage in lending. Such restriction can help optimize the division of assets between financial institutions and management companies.</p>		
<p>Tax issue: Tax neutrality is important for not creating disincentive for banks to</p>		

<i>transfer assets to their asset management company subsidiaries.</i>		
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Source: Own elaboration, based on papers mentioned.

More recently, Cerruti and Neyens (2016) devoted significant efforts to synthesise the main elements to take into account by coming up with the following list of four preconditions:

1. **Size:** Solid diagnostic and critical mass of impaired assets;
2. **Will:** Strong consensus and political will with respect to the approach, and willingness to recognise losses in the banking system;
3. **Governance:** Institutional independence and public accountability; and
4. **Framework:** Robust legal framework for bank resolution, debt recovery, and creditors' rights.

These preconditions should be complemented by a comprehensive and coordinated reform programme aiming to (a) strengthen the (i) financial sector regulation and supervision, (ii) risk management and workout practices within the banks, (iii) corporate restructuring tools, as well as to (b) reinforce the existing legal framework with reforms to remove impediments to restructuring actions.

Also Fell et al. (2017) stressed that “several success factors” should be cumulatively present for an AMC to comply with its mandate and detailed objectives as per its business plan, including the following:

- **Type of assets:** AMCs tend to be best suited for particular asset classes, notably fairly homogenous NPLs of a certain size, such as commercial real estate, instead of SME and households' exposures.
- **Asset valuations and the resulting transfer prices:** they should be realistic, thereby limiting the risk that AMCs run losses and deplete their capital while giving some room for manoeuvre with respect to asset resolution.

- **Governance:** it should have a strong mandate, avoiding political interference with their activities.
- **Finite lifetime:** this should ensure that the AMC does not become a self-perpetuating enterprise.
- **Mandate laid down in the national legislation** to provide its organisational setup with a clear support.
- **Accompanying external policies:** as asset values start to recover typically in the medium term the role of sound macroeconomic and financial policies is fundamental for the success of the AMC during the timespan of its operations.

5.1.4. Advantages vs. Disadvantages of centralised AMCs

Fell et al. (2017) stressed that “AMCs do not offer a panacea for systemic NPL problems and their success depends both on their design and the prevailing economic circumstances”. Several authors have outlined both advantages and disadvantages that should be taken into account when thinking about, designing and putting in place this type of intervention in a market-oriented economy, which is what an AMC constitutes at the end of the day. Others noted that for its success it would be key that they would pair with the recapitalisation of beneficiary banks of the asset relief programme.

Table 5.4. Potential advantages of setting-up an AMC

Klingebiel (2000)	Ingves, Seelig and He (2004)
<i>Ensures economies of scale, i. e. consolidation of scarce work out skills and resources within one agency.</i>	<i>Serves as a vehicle for getting NPLs out of troubled banks, based on uniform valuation criteria.</i>
<i>Can help with the securitization of assets as it has a larger pool of assets.</i>	<i>Clean up the bank’s books via an up-front loss recognition.</i>
<i>Centralizes ownership of collateral, thus providing (potentially) more leverage over debtors and more effective management.</i>	<i>Centralizes ownership of collateral, thus providing more leverage over debtors and more effective management.</i>

<i>Breaks links between banks and corporates and thus could potentially improve the collectability of loans.</i>	<i>Centralizes scarce human resources (domestic and foreign) with specialised skill mix.</i>
<i>Allows banks to focus on core business and, therefore, improves prospects for orderly sectoral restructuring of economy.</i>	<i>Can better force operational restructuring of troubled banks due to its specialisation.</i>
<i>Allows the application of uniform workout practices.</i>	<i>Contributes to the creation of an asset management industry and secondary market for distressed assets.</i>
<i>Can be given special powers to expedite loan recovery and bank restructuring.</i>	<i>Can be given special legal powers to expedite loan recovery and bank restructuring.</i>

Source: Own elaboration, based on papers mentioned.

Table 5.5. Potential disadvantages of setting-up an AMC

Klingebiel (2000)	Ingves, Seelig and He (2004)
<i>Banks have informational advantages over AMCs as they have collected information on their borrowers.</i>	<i>Management is often weaker than in private structures, reducing the efficiency and effectiveness of its operations.</i>
<i>Leaving loans in banks may provide better incentives for recovery and for avoiding future losses by improving loan approval and monitoring procedures.</i>	<i>Such agencies are often subject to political pressure.</i>
<i>Banks can provide additional financing which may be necessary in the restructuring process.</i>	<i>Determining transfer prices is difficult and values of acquired assets erode faster when they are outside a banking structure.</i>
<i>If assets transferred to the AMCs are not actively managed, the existence of an AMC may lead to a general deterioration of payment discipline and further deterioration of asset values.</i>	<i>NPLs and collateral are often long-term “parked” in an AMC, not liquidated.</i>
<i>It may be difficult to insulate a public agency against political pressure especially if it carries large portion of banking system assets.</i>	<i>Cost involved in operating an AMC may be higher than a private arrangement.</i>
	<i>If not actively managed, existence of public AMC could lead to a general deterioration of</i>

	<i>credit discipline in financial system (i.e. lack of knowledge of the borrower).</i>
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Source: Own elaboration, based on papers mentioned.

As van Suntum and Ilgmann (2013) argued there are always at least three challenges that an effective AMC should address: “(1) transparent removal of toxic assets, (2) minimum costs to the public, and (3) curtailing moral hazard”. They explained that due to the asymmetric information in the transfer of assets, as the beneficiary banks are in an advantage “concerning their own asset portfolio, it is likely that banks seek to transfer only such assets where the price agreed is above the fundamental value”.

Therefore, comprehensive valuations and the avoidance of cherry-picking technics should be at the front of the assets transfer negotiations. Moreover, to address the moral hazard considerations it is crucial to take also into account the future expectations in the banking sector. This concretises in making sure that “no incentives or new opportunities for opportunistic behavior in the future” are created by the establishment of the AMC, as Schäfer and Zimmermann (2009) stressed.

5.1.5. The role of State Aid rules

When dealing with distressed assets it is also fundamental to respect State Aid rules imposed by the EU primary legislation and applicable secondary interpretations. As Galand, Dutillieux and Vallyon (2017) clarified “if a public intervention is granted at terms which are more favourable than what a private investor would grant, it qualifies as State aid and the measure needs to be notified to the Commission who will assess whether it is compatible with the internal market”. Therefore, when deciding on the implementation of any measure Member States need, as a prerequisite that the European Commission approves such measure before its adoption or entry into force.

By default the general rule is the prohibition under Article 107(1) of the Treaty on the Functioning of the European Union (hereinafter, TFEU):

“1. Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to

distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market”.

The European Court of Justice, with its *Jugement of 24 July 2003 in the case C-280/00, Altmark Trans GmbH and Regierungspräsidium Magdeburg v Nahverkehrsgesellschaft Altmark GmbH, and Oberbundesanwalt beim Bundesverwaltungsgericht*, clarified that there are four cumulative conditions that should be met to render the classification of a measure as State aid:

- **State involvement:** The measure must be granted directly or indirectly through State resources and must be imputable to the State;
- **Economic advantage:** The measure has to confer an economic advantage to undertakings³⁰;
- **Distortion of competition:** This advantage must be selective and distort or threaten to distort competition;
- **Impact on intra-European trade:** The measure has to affect trade between Member States.

However, there is an exception to the Article 107(1) of the TFEU. In fact, upon the request of a Member State, pursuant to Article 107(3)(b) of the TFEU, the European Commission could declare compatible with the internal market any aid aiming “to remedy a serious disturbance in the economy of a Member State”. This vague concept has been studied by the academia and even ruled out by the European courts, clarifying that this impact should be evaluated at Member State level, not at regional level within a Member State. Moreover, as an exception to the general rule of prohibition it needs to be applied restrictively, including in terms of timing and scope, and be duly justified.

³⁰ According to paragraph 74 of the Commission Notice on the notion of State aid (2016): “Economic transactions carried out by public bodies (...) do not confer an advantage on its counterpart, and therefore do not constitute aid, if they are carried out in line with normal market conditions”.

In the financial sector, as Boccuzzi (2016) noted “the extensive recourse to public intervention during the crisis marked the shift”. Prior to the GFC “bank rescues with public money were considered inadmissible events that could not be declared expressly *ex ante* but could be implemented in practice in case of need (a sort of constructive ambiguity)”. In fact, only in 2008 the European Commission clarified its interpretation of “serious disturbance in the economy of a Member State” for the financial sector.

This new system, in a nutshell, contributed to the adoption of public measures to resolve banking crises, but it was articulated an exceptional and ultimate solution, as Member States should justify that private solutions were explored and disregarded due to their lack of feasibility. Interestingly, as Botta (2016) highlighted “the financial crisis that hit Europe in 2008-2009 had a direct and immediate impact on State aid policy”, whereas “on the other hand, unlike other EU policies, the following sovereign debts crisis has not affected State aid policy” the same way.

This could derive from the fact that the tools already envisaged for dealing with the GFC could be adequately adapted to navigate the sovereign debt crisis. Another element to be considered is that the sovereign debt crisis only affected a subset of Member States. However, it is important to clarify that even though content-wise the bulk of the guidelines were issued between 2008 and 2009, until 2013 the European Commission refined its guidelines via subsequent communications to also take into account the evolution of the economic situation and ensure financial stability in the European financial markets.

This shift in the State aid rules was inspired by the *Conclusions of the ECOFIN of 7 October 2008*, which advocated for the preserving the soundness and stability of the European banking system as a fundamental tool to restore confidence and the proper functioning of the financial sector in the EU. In that meeting it was decided that “public intervention has to be decided on at national level but within a coordinated framework”, for which the following principles were declared (ECOFIN, 2008):

- Interventions should be timely and the support should in principle be temporary,
- Member States will be watchful regarding the interests of taxpayers,
- Existing shareholders should bear the due consequences of the intervention,
- Member States should be in a position to bring about a change of management,
- The management should not retain undue benefits, i.e. governments may have inter alia the power to intervene in remuneration,
- Legitimate interest of competitors must be protected, in particular through the State aid rules, and
- Negative spill-over effects should be avoided.

As announced, since October 2008, after some *ad-hoc* decisions following the general State aid framework, for the sake of clarity and transparency, the European Commission issued six communications, between 2008 and 2013. They should have shielded light into this complex topic of public interventions in the financial sector. They adapted State aid rules to the evolution of the financial crisis and its effects on the European economy, as they guided the adoption of extraordinary measures under increasingly (severe) conditionality.

In the following paragraphs, an overview with their most distinctive features is provided:

A. The 2008 Banking Communication³¹, which included the following specific conditions to be ensured at all times:

- Non-discriminatory access: making sure that eligibility for a support scheme was not based on nationality;
- State commitments limited in time and scope: to what was necessary to address the acute crisis in financial markets;

³¹ Communication from the Commission on the application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis (2008/C 270/02).

- Involvement of the private sector: the coverage by the private sector of at least a significant part of the cost of assistance granted;
- Rules for avoiding an abuse of state support: banning expansion and aggressive market strategies on the back of a state guarantee; and
- Follow-up by structural adjustment measures: for the financial sector as a whole and/or by restructuring individual financial institutions that had to rely on state intervention.

B. The 2009 Recapitalisation Communication³², following up on a request from both Member States and potential beneficiary institutions to shed light into this complex topic, this communication provided “guidance as to whether specific forms of recapitalisation would be acceptable under State aid rules”. It defined the conditions for precautionary recapitalisations and set the boundaries for interventions to avoid putting at risk the needed level playing field within the European financial services market.

C. The 2009 Impaired Assets Communication³³, defined the concept of impaired asset relief as “any measure which frees the beneficiary bank from (or compensates for) the need to register either a loss or a reserve for a possible loss on its impaired assets and/or free regulatory capital for other uses” and included a number of preconditions to be met prior to the validation of the compatibility of asset relief measures with the State aid rules:

- Prior transparency and disclosure of impairments in the bank’s financial statements;
- Identification of eligible categories: coordinated approach to the identification of assets eligible for asset relief measures;

³² Communication on the recapitalisation of financial institutions in the current financial crisis: limitation of aid to the minimum necessary and safeguards against undue distortions of competition (2009/C 10/03).

³³ Communication from the Commission on the treatment of impaired assets in the Community banking sector (2009/C 72/01).

- Ex-ante valuation based on common principles such as valuation based on real economic value (when market value was not considered), implemented by independent experts and certified by bank supervisors;
- Clear functional and organisational separation between the beneficiary and its assets (i.e. via an AMC);
- Adequate burden-sharing of the costs related to impaired asset between the shareholders, the creditors and the State;
- Adequate remuneration for the State, at least equivalent to the remuneration of State capital;
- Initial coverage of the losses incurred from the valuation of the assets at real-economic-value by the bank benefiting from the scheme; and
- Appropriate restructuring including measures to remedy competition distortion, with a view to the long-term viability and normal functioning of the European banking industry.

D. The **2009 Restructuring Communication**³⁴: This communication expanded the criteria for triggering the obligation for Member States to present a restructuring plan of the beneficiary of the measure defined by the previous communications. It even included a model for this plan, the so-called “indicative table of contents for the restructuring plan”. Even more importantly, it clarified the criteria the European Commission would follow when performing its *ex-ante* assessment, as follows:

- It devoted special attention on the design of a restructuring plan, and in particular on ensuring a clear diagnosis of the bank’s problems, the disclosure of impaired assets and sufficiently flexible and realistic timing of the necessary implementation steps to overcome the situation.

³⁴ 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).

- It clarified that the methodologies for stress testing the restoration of viability should be based on common parameters agreed at Community level.
- It justified the need to check (i) the application of the appropriate burden sharing between Member States and the beneficiary credit institutions, as well as (ii) that measures to limit distortion of competition by a rescued bank are designed in a way that limits any disadvantage to other banks while taking into account the fact that the systemic nature of the crisis.
- It included a final safeguard: the assessment of any provision for a potential additional aid during the restructuring period, which should be duly justified by reasons of financial stability and limited in terms of time and scope.

E. The 2010 Prolongation Communication³⁵: in late 2010 it was perceived some alleviation of the stress in European financial markets. However, the incipient recovery was uneven across the single market economies. Based on this rationale the European Commission still considered that the preconditions, under Article 107(3)(b) of the TFEU, for this extraordinary extension of the State Aid rules should hold. Therefore, the aforementioned four communication should be still applicable for the compatibility checks. The Banking, Recapitalisation and Impaired Assets Communications did not have an expiry date, as such, whereas the Restructuring Communication was meant to expire on 31 December 2010. Consequently, by this communication it was extended until 31 December 2011.

F. The 2011 Prolongation Communication³⁶: in late 2011 the European Commission considered that the economic circumstances described in its previous prolongation communication still held. Therefore, it decided to approve a second

³⁵ Communication from the Commission on the application, from 1 January 2011, of State aid rules to support measures in favour of banks in the context of the financial crisis (2010/C 329/07).

³⁶ Communication from the Commission on the application, from 1 January 2012, of State aid rules to support measures in favour of banks in the context of the financial crisis (2011/C 356/02).

extension of the Restructuring Communication. Moreover, by this communication it took the opportunity to introduce some technical adjustments into the previous communications: (i) adequate remuneration for capital instruments; (ii) guidelines for the assessment of the long-term viability of banks in the context of the banking package; and (iii) revised methodology for the fees payable in return for guarantees on bank liabilities.

G. The 2013 Banking Communication³⁷: With this communication the European Commission realised the rules to be applied not only to deal with the sovereign debt crisis, but also the guidelines for any future similar market interventions. It clarified that ensuring a level playing field across the single market would only be possible if a healthy financial sector is in place in all Member States, i.e. avoiding fragmentation.

As such the proportionate assessment clearly migrated from the EU as a whole to recognise the existing specificities of the financial turmoil in some Member States that could put in jeopardy the single market. This provided grounds for the way the compatibility assessment should be conducted, via a clear focus on the long-term viability of banks driven by external factors (i.e. the sovereign debt crisis) and not due to excessive risk-taking.

This communication completed and adapted the tailor-made State aid rules for the financial sector by disclosing the elements to be considered for the assessment of the compatibility of crisis-related State aid to banks as from 1 August 2013, as follows:

- It derogated and replaced the 2008 Banking Communication;
- It adapted the Recapitalisation and Impaired Assets Communications;

³⁷ Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis ('Banking Communication') (2013/C 216/01).

- It complemented the Restructuring Communication by providing more detailed guidance on burden sharing (i.e. for shareholders and subordinated creditors);
- It introduced an *ex-ante* permanent procedure for recapitalisation or asset protection measures; and
- It clarified the conditions for the compatibility of liquidation aid.

The *ex-ante* scrutiny conducted by the European Commission on the extraordinary measures envisaged by the Member States was reinforced by the *ex-post* action of the European Parliament. As an example, on its *Resolution of 20 January 2011 on the Report on Competition Policy 2009*³⁸ it requested the European Commission to provide a “detailed evaluation of decisions adopted within the framework of the application of the temporary State aid measures in response to the financial and economic crisis”. This request resulted in the Commission Staff Working Paper *The effects of temporary State aid rules adopted in the context of the financial and economic crisis*, where the European Commission (2011) explained its decisions and justified “the effectiveness of the crisis State aid measures, and their impact on competition and the economy as a whole”, as outlined in the following table.

Table 5.6. Rationale of detailed State aid rules for the European financial sector

Conclusions of the self-assessment regarding the extraordinary State aid rules in the financial sector	
Core objectives	Justification
Exceptional nature of the State support	“State aid policy has been an important asset to contain the crisis and the gradual exit from the exceptional State support should take into account market developments”
Ensuring financial stability	“State aid, with other policy responses, has been effective in reducing financial instability and avoiding a financial meltdown affecting the whole economy”.

³⁸ (2010/2137(INI), P7_TA(2011)0023.

Providing a consistent approach	<i>“(...) action ensured that State aid control during the crisis provided a much needed consistent policy response across the EU”</i>
Mitigating competition distortions	<i>“Absent a fully harmonised regulatory framework, State aid control has been effective in mitigating distortions of competition across Member States and banks within the Single Market (...)”</i>
Providing a coordinated action by considering other sectors of the economy	<i>“The Temporary Framework of aid to the real economy has been a useful complement to the measures adopted for the financial sector and has allowed a coordinated response to tackle companies' difficulties in accessing finance during the crisis”.</i>

Source: Own elaboration based on European Commission (2011).

In particular, when designing the establishment of an AMC there is a fundamental question that needs to be addressed: which is the transfer price of the assets? Based on this the State Aid rules should be considered and applied to determine whether the public measure would “confer an economic advantage” or, in other words, whether the transfer is “carried out in line with normal market conditions”.

Therefore, in order not to be considered as State aid the transfer should be executed at market price. When for duly justified reasons Member States consider that the market price is distorted or it is simply not possible to consider it due to the absence of comparable transactions in the market two concepts emerge: the burden-sharing and the real economic value, as maximum threshold for the estimation of the transfer price.

Recital 22 of the 2013 Banking Communication following up on the 2009 Restructuring Communication clearly mentioned that “the bank and its capital holders should contribute to the restructuring as much as possible with their own resources” and declared that “State support should be granted on terms which represent an adequate burden-sharing by those who invested in the bank”. They contributed to set the boundaries of the State intervention and one of its main preconditions.

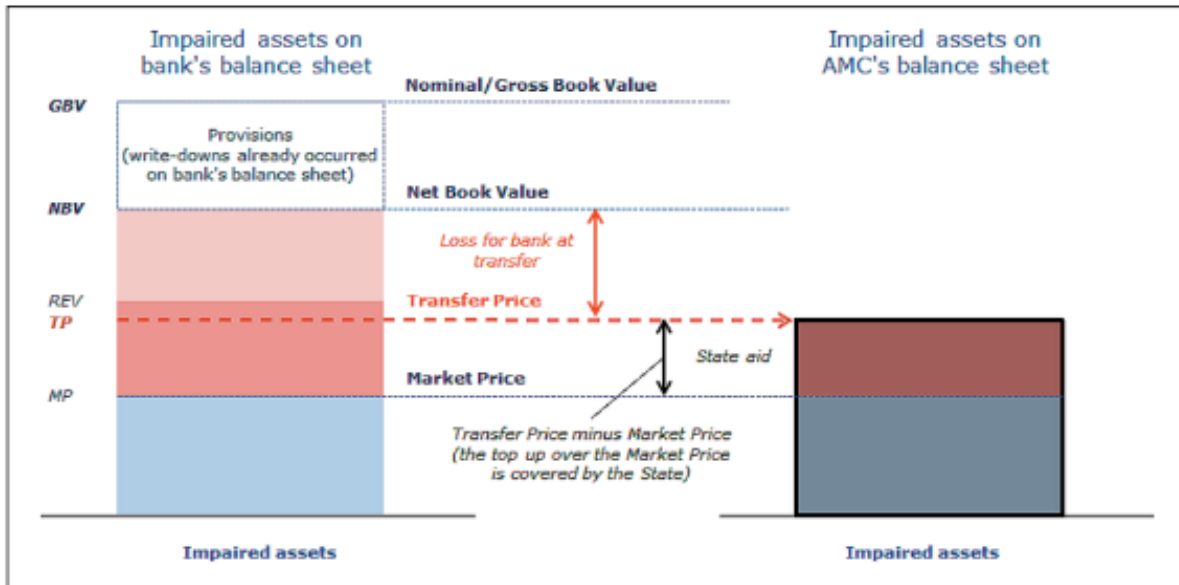
Moreover, as announced, when dealing with assets under distress this price is not always observable, so it should be estimated via a pre-agreed valuation methodology. To complete the setting up of the boundaries of compatible measures in this area the paragraph 40 of the Impaired Assets Communication introduced a cap to the transfer price, the so-called the “real economic value” (hereinafter, also “REV”).

It is defined as “the underlying long-term economic value (...) of the assets, on the basis of underlying cash flows and broader time horizons”. For complex assets it provided for “uniform hair-cuts applicable to certain asset categories”. Moreover, it stipulates that “adequate remuneration for the State must be secured”. If under exceptional circumstances a transfer price is defined above the real economic value, then “claw-back mechanisms” and credible restructuring measures should be put in place to ensure that the envisaged measure is compatible with the State aid rules.

As Galand, Dutillieux and Vallyon (2017) indicated the REV deviates from the market price as it “does not include the additional risk premium which private investors require because of the high uncertainty surrounding the value of the concerned assets and because of their illiquidity”. In their words, it is “a prudent estimation of the future cash flows which can be generated by the assets, net of all workout costs, and discounted using an interest rate including a certain risk premium”.

Boudghene and Maes (2012) argued that the REV is basically the calculation of the net present value. They clarified that “expected losses enter in the numerator of the discounted cash flow computation, whereas the riskiness of potential outcomes around expected payoffs enters through the discount rate in the denominator in a discounted cash flow valuation exercise”. Therefore, the main difference compared to the market price is precisely the use of a different discount rate.

Figure 5.1. The methodology for the calibration of the State aid



Source: European Commission, as disclosed by Galand, Dutilleux and Vallyon (2017).

With a methodology putting at its centre the REV the European Commission tried to apply a proportionate scheme where the shareholders and potential bondholders of beneficiary banks had to bear the losses foreseeable or expected before the transfer of the assets to the AMC. Therefore, if the calculations were correct at a given transfer price the risk transfer to the AMC would refer to the unexpected losses driven by a potential further deterioration of the asset quality of the transferred perimeter.

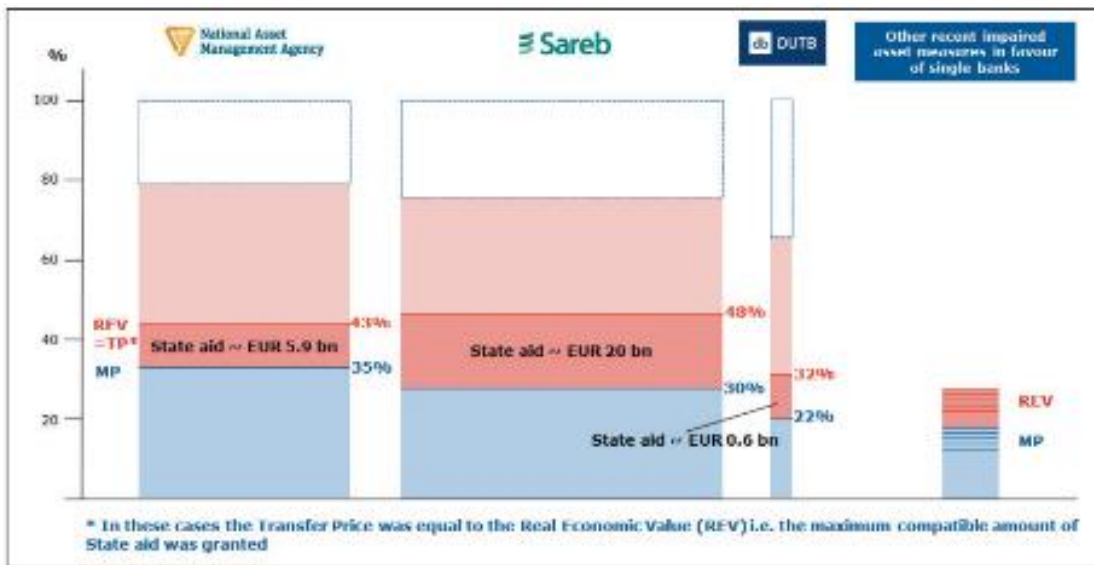
It is clear that this is a difficult task, as van Suntum and Ilgmann (2013) highlighted “if the estimate is too optimistic, part of the economic burden is transferred to the public. On the other hand, with too pessimistic estimate, the financial sector would be faced with an unnecessary burden which could hamper credit supply”. Therefore, finding the adequate compromise between the two is one of the most challenging and defining elements of a successful AMC.

There is an element of uncertainty that should not be undermined. If financial forecasts and business models are periodically updated and even revisited under normal circumstances, when the business model and the estimates refer to a distressed scenario it is clear the difficulties that need to be overcome.

There is also another element linked to the lack of transparency with regard to the discussions that typically take place between the European authorities, the Member States and the beneficiary banks and their respective advisors.

Typically, beyond the general methodology, for the sake of clarity, the outcome of assessment is disclosed. Below graphical examples of the outcome of the application of this methodology to the transfer of assets to several AMC are presented. This serves also as anticipation of the detailed analysis that is displayed for a couple of examples in the following sections of this chapter.

Figure 5.2. The use of the REV methodology in practice



Source: European Commission, as disclosed by Galand, Dutilleux and Vallyon (2017)

This methodology, guided by the proportionate burden sharing and the REV as maximum threshold for the calculation of the transfer price applied to any envisaged transaction before the adoption of the Banking Recovery and Resolution Directive (BRRD)³⁹. With the BRRD additional constraints were introduced as to fulfil the compatibility checks of State aid rules the general principle is that at least 8% of the

³⁹ 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 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.

beneficiary's total liabilities should be bailed-in, the so-called "minimum loss absorption requirement".

There is only one exception dictated by Article 32(4)(d)(iii) BRRD, the so-called precautionary recapitalisation. Recital 41 BRRD clarifies this exception as follows: "the provision of extraordinary public financial support should not trigger resolution where, as a precautionary measure, a Member State takes an equity stake in an institution, (...) which complies with its capital requirements".

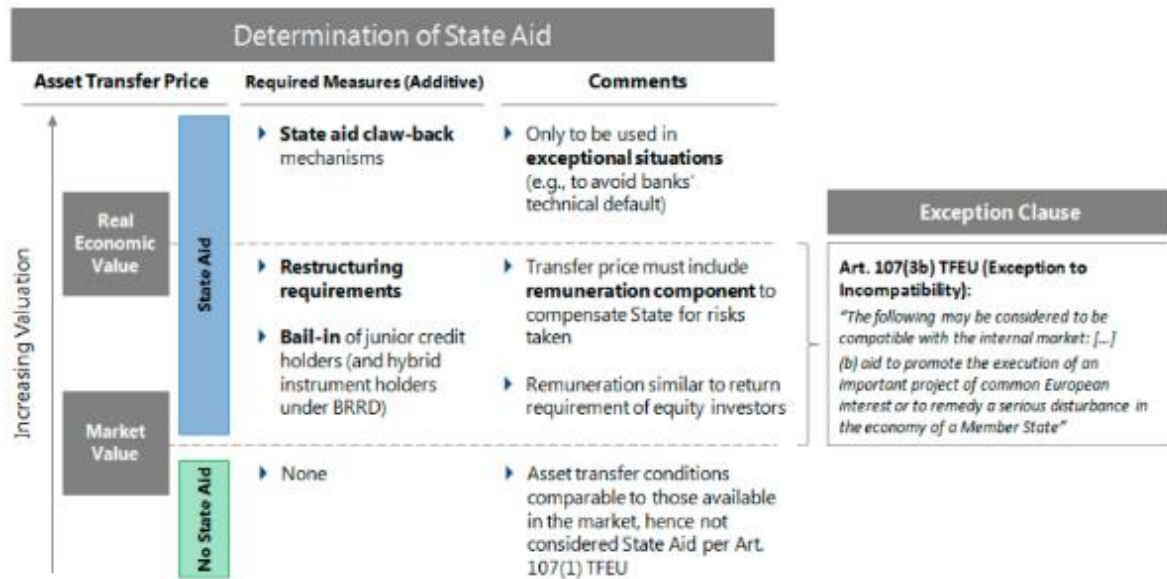
It is limited the following potential cases: (i) "where an institution is required to raise new capital due to the outcome of a scenario-based stress test" or (ii) "of the equivalent exercise conducted by macroprudential authorities which includes a requirement that is set to maintain financial stability in the context of a systemic crisis". This applies under a condition which was already part of the State aid rules; "the institution is unable to raise capital privately in markets".

Therefore, the precautionary measure falls within the scope of exceptionality and it is either linked to stress tests or derived from other macroprudential requirements in the context of systemic crises when the markets are typically closed.

Aiyar et al. (2015) considered that this new framework should be applied with "greater flexibility" to "allow earlier and more proactive steps to address potential risks to financial stability". In their view, there would be circumstances where state aid is needed (i) "to address otherwise unbridgeable pricing gaps" or (ii) "to address risks to financial stability or market failures arising, for example, from costly enforcement and lengthy foreclosure procedures".

Therefore, in light of the spirit of the BRRD they advocated for new guidelines from the European Commission to clarify "ex ante the permissible design or implementation of AMCs involving public support, which would not result in a requirement to restructure the benefiting banks". However, this petition has not been addressed so far other than in the EU Blueprint for AMCs, which does not expand much on this.

Figure 5.3. Application of State aid rules since the adoption of BRRD



Source: Aiyar et al. (2015).

In a nutshell, as Grünewald and Read (2022) summarised, this complex framework could be bundled in five cumulative conditions that, based on the European Commission decisions connected to AMCs, need to be met for granting the compatibility of the scheme under State Aid rules. Of course in the understanding that the transfer is not executed at market prices:

- Assets transferred to the AMC are “eligible for relief”;
- There should be “full ex ante transparency and disclosure of impairments by eligible banks” on the basis of valuations to be confirmed by third-party experts and the supervisor;
- The transfer price should be equal or below the REV ensuring that the burden-sharing principle is applied and it respects the provisions of the BRRD;
- A ex ante “viability check” is performed and a restructuring plan of the beneficiary banks is develop; and
- Conditional to “behavioural and commercial constraints” (i.e. restrictions on growth, dividend policy and caps on executive remuneration, etc.)

From the policy front, Aiyar et al. (2015) presented a “possible model for national AMCs without transfer of public resources” with the following main features:

- Transfers of eligible assets at market price;
- If there are constraint to calculate the market price the model(s) used should be pre-validated by the European Commission;
- Semiprivate ownership to show the authorities support and facilitate private funding, but limited to a minority participation to avoid overburdening the public budget;
- Voluntary participation, as banks should always have the option to work out loans internally;
- Clear mandate to facilitate adequate governance, including an independent management;
- Ensure a level playing field in case temporary powers are granted to the AMC, i.e. also allowing private participants to use them; and
- Fixed time span to avoid that the AMC becomes a purely “warehouse of bad assets”.

5.2. Phase I of the establishment of AMCs: 2008-2010

5.2.1. Germany - EAA & FMS-WM

The German banking system was one of the most affected by the outbreak of the subprime crisis in the United States. As Alonso-Rodríguez (2016) noted there are clearly two phases in the German response to the banking crisis: (i) during the first phase (from the summer of 2007 to September 2008 with the failure of Lehman Brothers and the rescue of Hypo Real Estate) the strategy was to provide *ad casum* solutions to the problems arising from the high exposure of certain entities to structured products; whereas (ii) right after the failure of Hypo Real Estate the German government perceived the serious situation in which the entire German banking system was.

During the first phase an individual crisis resolution approach was followed with banks such as *BayernLB*, *IKB Deutsche Industriebank*, *SachsenLB* and *WestLB*. On the contrary, the second phase was characterised by new legislation aiming to adopt a systemic approach to address the banking crisis. This triggered the creation of the

Financial Market Stabilization Fund (*Sonderfonds Finanzmarktstabilisierung*, hereinafter SoFFin, for its German acronym) in mid-October 2008 with the approval of the Financial Market Stabilisation Law (*Finanzmarktstabilisierungsgesetz*). This fund, managed by the Financial Market Stabilization Agency (*Bundesanstalt für Finanzmarktstabilisierung*, hereinafter, FMSA), would facilitate the restructuring of banks affected by a significant amount of impaired structured securities registered in their books. The amounts to be transferred to SoFFin were capped at EUR 5bn per beneficiary entity. However, this attempt proved to be unsuccessful presumably due to the lack of flexibility in its configuration.

Benefiting from the lessons learnt of previous crises, the Germany authorities decided to react again in mid-2009 with a new programme. The idea was to restore confidence in the banking sector by decisively cleaning up the banks' balance sheets from impaired assets to avoid a credit crunch. The Law for the Development of Financial Market Stability (*Gesetzentwurf zur Fortentwicklung der Finanzmarktstabilisierung*), approved in July 2009, introduced a novelty as it designed a systemic approach but to be implemented at entity-level. It envisaged two modalities, either (i) the transfer of toxic assets to a special purpose vehicle (hereinafter, the SPV model) or (ii) the so-called consolidation model which was restricted to publicly-owned banks (Deutsche Bundesbank, 2009).

Under the **SPV model**, any credit institution registered in Germany as of 31 December 2008 could request authorisation from SoFFin to establish its own SPV without a banking license. The type of assets subject to the transfer was basically limited to structured securities in the bank's balance sheet as of year-end 2008. The beneficiary entity would receive bonds for the value of the transferred assets that could be used as eligible collateral for monetary policy operations.

The transfer price of these assets would be the higher of: (i) the real economic value, determined by an independent expert appointed by SoFFin, and (ii) the book value as of 30 June 2008 with a 10% haircut. Moreover, the transfer price would be capped by the book value as of 31 March 2009.

At the time of the assets transfer, the expected losses of the SPV would be calculated. The shareholders of the beneficiary bank would bear the losses, but largely deferred. This scheme provided for the payment of annual contributions during two decades. As Hüfner (2010) explained “rather than removing the assets by selling them to the SPV, the intended model works more like a balance sheet trick: the shareholders remain liable for the losses but they do not have to be put on the balance sheet and thus do not adversely affect capital”. Consequently, the German authorities designed a framework under which burden sharing would be ensured over time via two tools. Firstly, the deferral in the booking of the losses via the payment of the annual fee would facilitate that former shareholders of the beneficiary bank would share the burden with taxpayers. Secondly, shareholders of the transferring entity would continue to be responsible for subsequent losses generated in case of miscalculations of the risks and vice-versa, they would benefit from a potential overestimation of the losses upfront (Ayuso and Del Río, 2012).

Table 5.7. Main elements of the SPV model in Germany

Topic	Description
Objective	Support financial institutions in order to strengthen the stability of the German financial market
Action	Beneficiary could transfer structured securities to a SPV, established for each beneficiary, while receiving bonds guaranteed by the FMSF in exchange.
Beneficiaries	Banks and financial institutions incorporated in Germany (including German subsidiaries of foreign financial institutions)
Participation	Voluntary.
Procedure	The FMSF performs an ex-ante assessment that the beneficiary has a viable business model and is appropriately capitalized. The beneficiary calculates the REV utilising stress test scenarios. Then, it is assessed by independent experts and validated by the competent supervisory authority. Finally, a haircut is applied to arrive to the so-called fundamental value. The beneficiary would pay the difference between the transfer value and the fundamental value in annual instalments, over a period of up to 20 years, depending on the availability of distributable profits

Recipient of the assets transferred	Individual SPV.
Budget	Not disclosed.
Scope of assets	Structured securities only.
Transfer price	Structured securities can be transferred at 90 % of the book value as of 31 March 2009, 90% of the book value as of 30 June 2008, or at their real economic value, whichever value is the highest. Finally, there is a cap: the transfer value must not exceed the book value as of 31 March 2009.
Cuff-off date	Balance sheet of 31 December 2008, with application for the scheme up to 22 January 2010.
Minimum haircut	Net present value of 20 annual remuneration payments of 475 bp, which is based on a hypothetical 50% Tier 1 and 50% Tier 2 structure.

Source: Own elaboration, based on European Commission⁴⁰, 2009.

In turn, the **consolidation model** was restricted to publicly-owned banks and operated also on a voluntary basis. It broadened the universe of assets subject to be transferred by going beyond structured securities, including loans, non-strategic portfolios, off-balance sheet exposures, etc.

This modality aimed to contribute to the restructuring of the *Landesbanken* in trouble. In terms of burden sharing the owners of the transferring entities, in this case the regional bank associations and the regions or *Länder*, continued to be responsible for potential losses of the transferred assets capped to their value as of 30 June 2008.

This voluntary application as well as the complexity of the two alternative schemes was criticised by important German economists since the Government plan was disclosed. They noted that the reluctant reaction of the potential beneficiary entities was very worrying since the maintenance of illiquid and potentially impaired assets on the balance sheets of the those entities could lead to an artificial avoidance of the problems and unnecessarily prolong banking problems in Germany (Ilgmann and van Suntum, 2009, Schäfer and Zimmermann, 2009: Hüfner, 2010).

⁴⁰ Decision C (2009) 6134 final.

In fact, the SPV-model was never used and expired at the end of January 2010, whereas the consolidated-model was only implemented in the cases of *WestLB/Erste Abwicklungsanstalt* and *Hypo Real Estate/FMS Wertmanagement*, as no private solution was envisaged for any of the two banking groups in crisis.

5.2.1.1. Erste Abwicklungsanstalt

The establishment of an AMC was the second main attempt of cleaning up WestLB's balance sheet. Previously, in 2008, WestLB transferred a EUR 23bn. portfolio of assets⁴¹, including structured securities, commercial paper, medium-term notes and income and capital notes of three investment vehicles to *Phoenix Light*, a SPV registered under Irish law. The SPV issued notes in two tranches: the lower tranche (i.e. junior notes with a nominal value of EUR 5bn) and the upper tranche (i.e. senior notes with a nominal value of EUR 18bn). The Land of North Rhine-Westphalia issued a guarantee for the junior notes and in exchange the SPV would pay a fee of 0.2-0.1% per annum on the guarantee of EUR 5bn⁴². However, this transaction did not significantly alleviate the doubts on the financial statements of WestLB. Therefore, in November 2009 the German government and the shareholders of this beneficiary entity agreed on the terms for the establishment of an AMC, this time under German law and subject to the FSFM.

This AMC was denominated *Erste Abwicklungsanstalt* (hereinafter, also "EAA" by its German acronym) and was established in December 2009⁴³. Its main shareholders were the *Land of North Rhine-Westphalia*, the *Sparkassenverband Westfalen-Lippe* and the *Rheinischer Sparkassen und Giroverband*⁴⁴. The transaction was structured in such a way that WestLB benefited from retroactive effects of the transfer. The book values of the securities transferred on 23 December 2009 were determined

⁴¹ This portfolio included (i) EUR 11.7bn. of US and European collateral debt obligations, (ii) EUR 5.5bn. of commercial mortgages, (iii) EUR 4.3bn. of residential mortgages, and (iv) EUR 1.7bn. of other instruments.

⁴² Decision C(2009) 3900.

⁴³ The establishment of the EAA was accompanied by a SoFFin's capital injection of EUR 3bn into WestLB.

⁴⁴ The Land of North Rhine-Westphalia, approximately 48.2%; the Rheinische Sparkassen- und Giroverband and the Sparkassenverband Westfalen-Lippe, approximately 25% each; and the Landschaftsverband Rheinland (LVR) and the Landschaftsverband Westfalen-Lippe (LWL) approximately 0.9% each.

based on the effective spin-off date of 31 December 2008/1 January 2009, while the book values of the remainder of the portfolio transferred on 30 April 2010 were also booked considering the effective spin-off date.

Table 5.8. Main elements of the establishment of EAA

Topic	Description
Objective	Orderly restructure the beneficiary bank and strengthen the stability of the German financial market via an orderly disposal of assets
Action	First, securities (i.e. mezzanine notes and other structured securities) were transferred; Second, the remainder of the ring-fenced portfolio, Phoenix, was spun off or synthetically transferred to EEA
Beneficiary	WestLB (Landesbank of North Rhine-Westphalia)
Participation	Voluntary
Procedure	Different transfer paths were chosen for the designated positions, i.e. spin-off, sub-participation, guarantee and sale, in order to account for different laws, regulations and tax regimes of the respective countries and supervisory authorities
Recipient of the identified perimeter	EEA
Envisaged ownership	Public
Budget/Size	EUR 201.9bn.
Scope of assets	Structured securities, securities, loans and loan commitments, as well as derivatives.
Transfer price	Book value
Cuff-off date	Balance sheet of 31 December 2008
Minimum haircut	0%

Source: Own elaboration, based on European Commission⁴⁵, 2011.

As Alonso-Rodriguez (2016) highlighted “the scheme used in the transfer of assets to EAA can be described as novel, since it was carried out in tranches” over 2009 and 2012. The transactions were designed in such a way that in accounting terms all

⁴⁵ Decision C (2009) 6134 final.

transfers benefited from retroactive effects to the 1 January or 1 July of a given year. Its composition is summarised in the table below.

Table 5.9. Asset transfers from the former WestLB to EAA

Denomination	Composition
First asset transfers (between December 2009 and April 2010): EUR 77.5bn.	
The "structured securities portfolio"	EUR 22.9bn. of the "Phoenix" portfolio, EUR 2.8bn. of the "European Super Senior" tranches portfolio and EUR 3.4bn. of other asset-backed securities
the "securities portfolio"	EUR 17.7bn. of bonds, some of which were hedged by credit default swaps (CDS)
the "lending portfolio"	Loans and (off-balance-sheet) loan commitments with a notional amount of around EUR 30.6bn., including international activities and branches
The "derivative portfolio"	The aforementioned assets were partly swapped (i.e. with an interest rate and/or currency swap attached to the security or loan) and some outright CDS positions were also transferred
The second asset transfers (between 1 January and 1 July 2012): EUR 124.4bn.	
The "structured securities portfolio"	EUR 3bn.
the "securities portfolio"	EUR 2.9bn.
the "lending portfolio"	EUR 66.4bn.
The "derivative portfolio"	EUR 52.1bn.

Source: Own elaboration, based on European Commission (2011)⁴⁶ and EEA (2013)

It is worth noting that a significant amount of those assets were only transferred synthetically, as they remained booked in the overseas branches of WestLB and its successors for tax, legal and regulatory reasons. These assets included two million individual loans, nearly 1,400 SPVs and more than 300 direct and indirect equity investments. As of 31 December 2012 the notional pull of portfolios under management amounted to EUR 33.2bn. in North America, EUR 55.8bn. in Europe, of which EUR 2.9bn in the London branch, in Asia, EUR 1.2bn. in South America also

⁴⁶ Decision C (2011) 9395.

EUR 1.2bn., among other regions. Consequently, EEA operated in 60 currencies and in more than 100 countries.

The quantification of the State aid granted to these two batches of asset transfers exemplified how the European Commission acted during this period. The beneficiary bank performed a preliminary calculation of the REV, that was validated by a third-party appointed by Germany, *Blackrock*, and the German central bank, *Deutsche Bundesbank*. They considered that the REV of the first asset transfers amounted to EUR 62.727bn. On the contrary, in November 2010, the European Commission, assisted by *Société Générale*, *Bangert Research* and Professor *Wim Schoutens*, proposed an alternative assessment with a transfer delta amounting to EUR 1.606bn.

Basically, the main difference referred to the valuation treatment of bonds and after successive iterations of the calculations the State Aid assessment with regard to this first asset transfers was validated in the November 2010 decision. The amount of the State aid granted was circa EUR 11bn. One of the aspects that made the European Commission to cast doubts about the valuation performed referred to the EUR 1bn. of losses the AMC booked in its first six months of activity, which Germany justified as driven by the Phoenix portfolio, which was already guarantee for up to EUR 1.5bn. of potential losses. On the contrary, there were no significant disputes in terms of valuations for the second batch. The European Commission noted that the impaired assets were transferred in the first batch. Therefore, despite of being a large portfolio in terms of book value, the REV was less than EUR 2.6bn. lower than its book value (European Commission, 2011).⁴⁷

Another distinctive feature of the set-up of this AMC is that for the effective management of the transferred assets, EAA signed a service level agreement with WestLB for a period of three years. Then, this contract was continued by Portigon, as successor of WestLB⁴⁸. The strategy did not change, i.e. largely outsourcing the provision of portfolio services to third parties to facilitate its operational adequacy

⁴⁷ Decision C(2011) 9395.

⁴⁸ As of 30 June 2012 the residual operations of WestLB were transferred to a Portigon.

and flexibility to the assets not yet disposed. As such the number of employees has been always kept low, as presented in the table below.

Table 5.10. Evolution of number of employees at EAA

Year	2009	2010	2011	2012	2013	2014	2015
Employees	14	28	56	103	123	134	144
Year	2016	2017	2018	2019	2020	2021	2022
Employees	178	174	160	159	130	102	86

Source: Own elaboration, based on EEA's Annual Reports 2009-2022.

In terms of funding EAA was initially funded via a nearly complete transfer of all issues and deposits of the former WestLB with guarantor liability, whereas subsequently it accessed the markets to fund itself primarily by issuing bonds, by short-term borrowing and through repurchase transactions. In this regard, being a publicly-owned entity granted it with immediate access to the markets, having the same rating as its main shareholder, the *Land of North Rhine-Westphalia*.

Until year-end 2022, the total banking book portfolio has decreased by EUR 118.6bn. or 93.8% since 1 January 2012.

Table 5.11. Evolution of the banking book of EAA

Clusters	Notional 31/12/2022 [EUR mn.]	Notional 31/12/2012 [EUR mn.]
WestImmo Commercial	-	15,908
NPL	-	6,957
Energy	-	7,573
Industrials	-	6,075
Other clusters	-	22,865
Structured securities	2,910.1	25,806
Public Finance and financial institutions	2,233.5	9,248
Structured products	1,219.8	-
Real Assets	1,016.1	-
Corporates	457.4	-
Equity/Mezzanine	21.3	-
Total	7,858.2	94,432

Source: Own elaboration, based on EEA's 2022 and 2012 Annual Accounts.

Since its transfer, the notional volume of the trading portfolio has been reduced by EUR 1,007.5bn. or 94.7% until year-end 2022.

Table 5.12. Evolution of the trading book of EEA

Clusters	Notional 31/12/2022 [EUR mn.]	Notional 31/12/2022 [EUR mn.]
Rates	56,555.2	851,603
Credit	-	12,407
FX	-	2,161
Equity	-	18,084
Other clusters	-	519
Total	56,555.2	884,774

Note: The notional volume of the trading portfolio is determined by the business volume underpinning the derivatives and not by risk exposure.

Source: Own elaboration, based on EEA's 2022 and 2012 Annual Accounts.

Due to an aggressive wind-up strategy for the first four years, i.e. to reduce the total assets by half, still under a rather weak general economic outlook, EEA posted significant losses during the first years of operation. However, it managed to deliver this first milestone. By June 2010 it had already liquidated a nominal volume of EUR 6.2bn, and EUR 7.5bn by year-end. In 2011 it reduced its balance sheet by EUR 12.8bn. With all transferred assets in 2012 (i.e. including the second batch) it managed to reduce its banking book by EUR 32bn. (already a 46% reduction of the original portfolio and a 30% of the new one) and its trading book by EUR 179.3bn.

As already mentioned, in its November 2010 on the WestLB case the European Commission (2011) explained that it had doubts with regard to the EUR 1bn. loss the EEA posted shortly after its establishment (i.e. in its June 2010 interim report). Germany managed to explain that those losses did not come from existing portfolio losses, which could have been triggered by a deficient valuation. In this regard, it is worth noting that during 2010 and 2011 EEA posted significant losses (i.e due to additional provisions on loans and in a Greek portfolio. EEA (2012) clarified that those provisions were not expected in its winding-up plan as it was almost impossible to forecast. In particular, the risk provision for the Greece portfolio amounted to EUR 818.2mn. and included additional write-downs. From 2012, as presented in the

table below, no additional significant losses were recorded and even between 2012 and 2018 EEA managed to continue the reduction of its portfolios posting modest profits.

Table 5.13. Evolution of EAA's P&L

Year	Net profit/loss [EUR mn.]	Net retained profits/losses[EUR mn.]
H12010	-1,048.1	-1,048.1
H22010	-599.6	-1,647.7
2011	-878.2	-2,525.9
2012	6.6	-2,519.3
2013	59.0	-2,460.2
2014	62.5	-2,397.7
2015	13.1	-2,384.6
2016	9.6	-2,375.0
2017	14.4	-2,360.6
2018	2.6	-2,357.9
2019	-2.7	-2,360.7
2020	-1.9	-2,362.6
2021	1.7	-2,360.9
2022	-1.6	-2,362.5

Source: Own elaboration, based on EEA's 2010-2022 Annual Reports.

In 2014, EAA (2014) reiterated the main objectives of its winding-up plan: (i) to wind up the assumed portfolio as rapidly as possible; (ii) that losses are minimised during the wind-up process; (iii) ensure that it is solvent at all times; and (iv) it should manage its equity so that there is no equity shortfall at the end of the wind-up period, i.e., its stakeholders must not be forced to absorb any losses. Since then, the focus was on the first criterion: “measures for reducing the portfolio ahead of schedule”.

With data as of year-end 2022, and 5 years ahead of the envisaged finalisation of its activities, it seems difficult to fulfil at least the fourth criterion, but at the same time the objective of not incurring in more losses than the initial capital (i.e. EUR 3bn.) might be achievable. It is worth noting that the initial capital was not directly

paid-in equity; it was recognised as difference between transferred assets and liabilities during the spin-off process from WestLB

For the time being, the AMC is aware of its clear mandate and no deviation has been introduced. EAA declared (2023) “earnings are bound to decline at the well-advanced stage of the portfolio wind-up and the administrative expenses can no longer be offset”. However, the aforementioned losses in the period 2019-2022 are minimal, so if this trend continues the objective of not consuming more capital than the one initially posted in the AMC might be fulfilled.

5.2.1.2. FMS Wertmanagement

On 13 October 2009 SoFFin acquired *Hypo Real Estate Group* (HRE Group). A few months later, on 21 January 2010 HRE Group requested the establishment of an AMC under the consolidation model, which upon the approval of the European Commission, led to the creation of *FMS Wertmanagement* (hereinafter, also “FMS-WM”). FMS-WM was established under the umbrella of SoFFin to manage the non-strategic and risk positions of HRE Group on 8 July 2010. Shortly after, on 30 September 2010 it received assets amounting to EUR 173bn. of nominal value.

EUR 2.08bn. of the capital injections received by HRE Group were used to capitalise this AMC. Later, it also received another contribution amounting to EUR 1.59bn. Moreover, EUR 124bn. of securities, guaranteed by SoFFin, were also transferred.

Since the beginning of its operations, FMS-WM accessed the capital markets to fund its operations. Only in 2011 it managed to raise EUR 20.8bn. via several issuances, thanks to being a German fully-owned public-sector entity.

Table 5.14. Main elements of the establishment of the FMS-WM

Topic	Description
Objective	Take over risk positions and non-strategic operations from the HRE Group and unwinding them.
Action	Transfer of a notional amount of about EUR 173bn. of assets and about EUR 280bn. of derivatives
Beneficiary	HRE Group

Participation	Voluntary
Procedure	Assets and derivatives were synthetically transferred
Recipient of the identified perimeter	FMS-WM
Envisaged ownership	Public
Budget/Size	Not disclosed: any potential loss would be covered by SoFFin ('Verlustausgleichspflicht')
Scope of assets	non-strategic and non-performing assets such as government bonds or non-performing property loans
Transfer price	Book value
Cuff-off date	effective transfer date: 30 September 2010
Minimum haircut	0%

Source: Own elaboration, based on European Commission⁴⁹, 2011.

The identified perimeter was composed of risk positions in more than 60 different countries. In particular, in this geographically diversified portfolio it was included about 50% of public sector exposures (i.e. loans and bonds), 25% of structured products, 11% of Commercial Real Estate, 10% of infrastructure projects and 4% of basically non-performing collateralised real estate loans (i.e. the so-called workout portfolio), as detailed in the following table:

Table 5.15. Composition of the perimeter synthetically transferred to FMS-WM in 2010

Instrument	%
Public sector portfolio	
Italy	28%
Japan	11%
Greece	10%
UK	10%
Spain	7%
Other	34%
Structured products portfolio	
USA	58%
Spain	8%

⁴⁹ Decision C (2011) 5157 final.

The Netherlands	7%
Cayman Islands	6%
Canada	6%
Other	15%
CRE portfolio	
Germany	36%
USA	16%
France	10%
UK	7%
Russia	4%
Other	27%
Infrastructure portfolio	
UK	44%
USA	13%
Australia	10%
Canada	9%
France	6%
Other	18%
Workout portfolio	
Germany	30%
USA	28%
UK	13%
Spain	6%
The Netherlands	4%
Other	19%

Source: Own elaboration, based on FMS-WM's 2010 Annual Report.

As in the EEA case, there were significant divergences between the amounts of the State aid calculated by Germany and its advisors vis-à-vis the calculations of the advisors of the European Commission.

The table below summarises the findings of the European Commission's experts and compares them with the calculations of Germany:

Table 5.16. Calculations of the State Aid amounts per category

Portfolio	Notional Value (EUR bn.)	Transfer Value (TV) (EUR bn.)	REV-TV (Germany's figures) (EUR bn.)	REV-TV (EC experts' figures) (EUR bn.)	Divergence (EC vs Germany) (EUR bn.)
Bonds	83.444	93.960	-0.902	-7.590	-6.688
Structured Credit	31.199	30.111	-0.765	-1.981	-1.216
CRE loans	26.312	23.874	-1.211	-2.800	-1.589
Non-CRE loans	29.834	31.115	-0.222	-1.084	-0.862
Derivatives	280.255	-13.106	-2.149/ -2.531	-2.786	-0.255
Total	451.044	165.954	-5.249/-5.631	-16.241	-10.610

Source: European Commission⁵⁰ (2011).

As a result the State aid was found as not compatible, but the European Commission and Germany found a solution. As Buder et al. (2011) clarified “in particular the inability to claw back the a priori incompatible aid amount involved in the asset transfer to FMS-WM and the other considerable aid amounts” resulted in a “very far reaching restructuring plan including significant downsizing”. This was justified “to mitigate the distortions of competition caused by allowing the undertaking to continue to be in business”. In particular, the beneficiary bank had to reduce its balance sheet total to EUR 67bn. by year-end 2011, which was only a 15% of the original balance sheet of HRE at the end of 2008.

The most remarkable transaction took place on 9 December 2014, when FMS-WM acquired *DEPFA plc* and its subsidiaries for EUR 320mn. from HRE. FMS-WM managed to reduce its assets from EUR 48.5bn. to only EUR 2.5bn. at year-end 2020. On 19 November 2021, it sold the remaining parts of DEPFA to *BAWAG group*. Combined with the sale price, during the years until its sale, it contribute to obtaining results significantly higher than the price paid for it in 2014.

⁵⁰ Decision C(2011) 5157 final.

Table 5.17. Evolution of the FMS-WM’s geographical footprint

Country	31/12/2022 [% over total portfolio]	1/10/2010 [% over total portfolio]
USA	16.5%	19%
Italy	22.6%	16%
UK	32.5%	12%
Other, o/w	28.4%	53%
o/w Germany	-	9%
o/w Spain	-	6%
o/w Japan		6%
o/w Greece		5%
o/w France		3%
o/w The Netherlands		3%
o/w Canada		3%
o/w Other countries		18%

Source: Own elaboration, based on FMS-WM’s 2010 and 2022 Annual Reports

From its inception FMS-WM outsourced the management of its portfolio to the successor of HRE Group, *Deutsche Pfandbriefbank AG* (hereinafter, also “PBB”), for a period of three years. Upon agreement with the European Commission, this should be a transitional setup up to 30 September 2013. Then, this contract was continued with the establishment of its own service provider subsidiary, FMS-SG, as the operating strategy did not change, i.e. largely outsourcing the provision of portfolio services to third parties to facilitate its operational adequacy and flexibility to the portfolio not yet disposed. As such the number of employees has been always kept low in the AMC, as presented in the table below.

Table 5.18. Evolution of number of employees at FMS-WM and its service factory

Year	2010	2011	2012	2013	2014	2015	2016
FMS-SG	-	-	6	339	401	363	336
FMS-WM	18	92	133	145	141	138	121
Year	2017	2018	2019	2020	2021	2022	
FMS-SG	317	297	293	263	259	243	
FMS-WM	121	112	103	104	103	95	

Source: Own elaboration, based on FMS-WM Annual Report, 2023.

In 2010 FMS-WS performed a comprehensive review of its portfolio and registered EUR 1,839mn. of provisions and EUR 1,016mn. of write-downs, whereas in 2011 most of losses came from loans and securities to the Greek state and Greek public-sector entities “which had become unavoidable after the bond and debt swap programme conducted by the government of Greece”. The losses stemming from these bonds restructuring amounted to EUR 9.97bn. Consequently, the financial plan of the AMC had to be revisited to consider this extraordinary loss (FMS-WM, 2012). Since then, this AMC has managed to run its winding up plan without registered additional losses.

Table 5.19. Evolution of FMS-WM’s P&L and claims for compensation against SoFFin

Year	Results from ordinary activities [EUR mn.]	Loss compensation claim against SoFFin [EUR mn.]
H22010	-3,041	-3,039
2011	-9,961	-9,969
2012	37	-
2013	146	-
2014	373	-
2015	413	-
2016	391	-
2017	429	-
2018	114	-
2019	253	-
2020	25	-
2021	44	-
2022	77	-

Source: Own elaboration, based on FMS-WM’s 2010-2022 Annual Reports.

In 2015, Muehlbronner and Lemay (2015) already considered that a “profitable exit is also less certain for FMS-WM, given the weak credit quality, long maturity and illiquid nature of many of its remaining assets”. They even not excluded additional losses. For the time being, after the initial EUR 13bn. hit, this AMC has recorded profits every year. In any event, they are relatively modest compared to the losses booked in 2010 and 2011. However, as Muehlbronner and Lemay (2015) argued

“while large in nominal terms, there is little risk that Germany’s public finances would be materially affected, even in adverse scenarios”.

As at 31 December 2022 FMS-WM still had EUR 49.6bn. of commitments, which constitutes a reduction of circa EUR 128.5bn. in nominal terms from the original portfolio received. Compared to other AMCs it does not have a mandatory wind-down termination date, as it will depend on how it will manage to sale the exposures it still holds in 31 countries (i.e. it operated in 66 countries in 2010), of which 72% in USA, UK and Italy. In terms of the portfolio distribution, EUR 24.4bn. referred to public sector, EUR 16.8 bn. to structured products and EUR 8.4 bn. of infrastructure, while only EUR 20.6bn were denominated in EUR (i.e. EUR 14.4bn. in USD, EUR 12.3bn. in GDP, EUR 1.5bn. in CAD, etc.). Another important challenge for this AMC is dealing with the remaining maturities: EUR 9bn. until 2030, EUR 23.6bn. until 2031-2040 and EUR 17bn. beyond 2040 (FMS-WM, 2023).

5.2.2. Lithuania - AB Turto bankas

During the boom phase of the economic cycle prior to the GFC the credit expansion in Lithuania facilitated an export-led growth. When as a result of the GFC global imbalances affected foreign trade were more palatable, the bust phase came inevitable in Lithuania. In turn, the rapidly changing conditions in the real economy affected the financial sector. As the Bank of Lithuania (2010) admitted “a pronounced contraction of the domestic economy and complicated financial situation of enterprises and households had an inevitable impact on operational results of banks”.

Ramanauskas (2011) using a macroeconometric model concluded that the drivers of the boom and subsequent bust of the Lithuanian economy were the “easy credit conditions” and the “active credit expansion”. They contributed to “overheating pressures by pushing up real estate prices, encouraging concentration of labour and capital into procyclical sectors and increasing private sector’s debt burden”. In particular, it clarified that “the main reasons behind the bank losses were losses from asset impairment which grew very rapidly accompanied by lower net interest

income”. As a result the NPLs mounted in the Lithuanian banks’ financial statements.

To overcome this situation the Lithuanian government, on 3 April 2009, contacted the European Commission to notify its national plan in support of the Lithuanian banking sector. In particular, they envisaged to deploy three main actions, namely: State guarantees, recapitalisation and an asset relief programme. This was just an overview of its intentions that, upon request of the European Commission, were detailed in the subsequent months in the *Law on Financial Stability of 22 July 2009*. The final assessment of the European Commission confirming the compatibility of the Lithuanian State aid programme with the State aid rules was published on 5 August 2010. As a result the Lithuanian government approved the *Resolution on the approval of rules on issue, administration and implementation of State guarantees for bank stability enhancement, rules on extension of subordinated loans to banks and supervision thereof and rules on redemption of bank assets* that clarified its envisaged actions. As regards the asset relief measures, the following table aims to summarise its most prominent features.

Table 5.20. Main elements of the asset relief programme in Lithuania

Topic	Description
Objective	Remedying a serious disturbance in the Lithuanian economy (i.e. via restoring banks' solvency, and strengthening the financial stability and credibility of its financial sector).
Action	An already existing AMC would take over certain categories of bank assets from beneficiary banks in exchange for cash (EUR or litas) or government securities.
Beneficiaries	Banks whose financial situation poses a threat to the stability and credibility of the banking system, including foreign subsidiaries and branches of foreign banks established in the Republic of Lithuania.
Participation	Voluntary.
Procedure	Justification to adhere to this scheme should be sent to the Ministry of Finance, for reference and eventually final validation, and to the Bank of Lithuania, for its assessment.

Recipient of the assets transferred	AB Turto bankas, a State-controlled joint stock company.
Envisaged ownership	Public
Budget (including recapitalisation measures)	Maximum EUR 870mn.
Scope of assets	Wide range of impaired loans and financial assets denominated either in litas or in euros. This included credits, account credits, discounted bills, debt securities, amounts to be received from operative leasing, deposits, funds on accounts of other banks, re-repurchase agreements, factoring, assets sold by instalments and advance payments.
Cuff-off date	Balance sheet of 4 August 2009.
Minimum haircut	20% of the REV.

Source: Own elaboration, based on European Commission⁵¹, 2010.

The scheme envisaged a four-step process for the assessment of any bank's application. First, the central bank would assess the information received from the bank. Second, in case of a positive assessment of the Bank of Lithuania, the Ministry of Finance would check that the proposal complied with the Law on Financial Stability and the implementing rules. Third, in case of approval from the Ministry, it would inform the AMC, *AB Turto bankas*. The AMC, then would calculate the REV and select an advisor as well as an auditor to confirm that the application would comply with the applicable State aid rules (i.e. the 2009 Impaired Assets Communication). Finally, the Bank of Lithuania, as supervisory authority, would assess the valuation of the bank assets to be transferred.

As regards the AMC, it is worth noting that the Lithuanian government decided to re-use a pre-existing company established to deal with the previous banking crisis in the country. Indeed, *AB Turto bankas* was created in 1996 as a public-owned company to deal with the crisis of the State-controlled banks that failed during the 1995 banking crisis. Still in 2010 it was in charge of restructuring and disposing of

⁵¹ Decision C(2010) 5472 final.

the assets received from those public-owned banks. Therefore, it was the perfect candidate for receiving additional NPLs.

The State aid approval was originally granted until 31 December 2010. However, the Lithuanian government, despite of not having been used it, decided to request for an extension. This prolongation of the scheme was adopted by the European Commission on 21 January 2011, until 30 June 2011. Finally, upon a second request from the Lithuanian government, it was extended until 31 December 2011. Despite the extensions, the programme concluded without any single transfer of assets to *AB Turto bankas*.

Therefore, the asset relief scheme was never implemented in practical terms. The fact that the scheme was voluntary and the complexity of the procedure to transfer the assets led Lithuanian banks not to apply for it at the first place to avoid negative signalling effects. Moreover, the prompt amelioration of the economic situation in the country favoured that banks could work the NPLs by themselves without public intervention, despite the extension of the scheme by an additional year.

5.2.3. Ireland - NAMA

The GFC hit hard on the Irish banks, with a rapid deterioration of their financial statements. This was caused by two factors: (i) the lack of geographic and sectorial diversification (i.e. enormous credit exposure to the real estate and development sectors); and (ii) the ease of the lending conditions. These sectors, where prices skyrocketed in the years prior to the GFC, collapsed and led Irish banks to incur significant losses. The banks had entered into a lending race fuelled by the very low interest rates, i.e. the credit concession grew from barely EUR 5.5bn. in 1999 to more than EUR 96bn. in 2007 (Quigley, 2010), but inevitably the real estate bubble exploited with the first economic turbulences in the country.

After some measures taken in form of public guarantees to the largest Irish banks in 2008, the authorities envisaged a systemic solution to deal with the banking and real

estate crises severely damaging the Irish economy. In April 2009 the so-called Bacon report proposed a comprehensive solution.

This solution encompassed two steps: (i) the transfer of distressed exposures to a newly created AMC, the *National Asset Management Agency* (hereinafter, NAMA), and (ii) the recapitalisation of the beneficiary banks considering the transfer price of the assets as a benchmark. This dissertation focuses on the first measure (Central Bank of Ireland, 2011), but it is relevant to highlight the importance of the Irish decision, as typically for an AMC to be successful it needs to be accompanied by recapitalisations of the beneficiary banks.

The Irish government prepared the draft legislation on the establishment of NAMA in the first half of 2009. Then, in September 2009 a consultation process was launched. Almost in parallel, it was sent to the Irish Parliament. On 22 November the *National Asset Management Agency Act* was approved and finally it came into force on 21 December 2009.

The rationale was that by this prompt and decisive reaction, by transferring NPEs to NAMA, doubts on the asset quality of Irish banks would be diminished. This should ease their existing problems on accessing the financial markets and the depositors, throughout this process, would not withdraw their deposits. Basically, the aim was to maintain the stability of the Irish financial system and, thereby, contribute to ensuring that the Irish banks were in a position to continue carrying out their main function of credit intermediation. As a result the Irish economy could reinvigorate. Precisely, this was the main objective as per Article 2 of the Law establishing NAMA, which noted that its establishment sought to address the serious threat that the banking and real estate crises posed to the Irish economy as well as to the stability and proper functioning of the Irish financial system.

NAMA was established under the control of the *National Treasury Management Agency* (hereinafter, NTMA), but with its own governing bodies appointed by the Irish Minister of Finance. NAMA has no employees, so since its inception NAMA relied heavily on the support services and systems provided by NTMA, which also seconded

to NAMA the staff needed to deal with its portfolio. Other services were outsourced to third parties. From 2010 to 2021 NAMA paid EUR 454mn. to NTMA for the staff and shared services, whereas in total it incurred EUR 1,064mn. of operating costs (Comptroller and Auditor General, 2023).

Under Section 41 of the Law establishing NAMA, it is clarified that the NTMA provides NAMA with business and support services, including HR, IT, market risk, communications and the execution and processing of hedging transactions. NAMA reimburses the NTMA the costs of staff assigned to NAMA and the costs of business and support services.

Table 5.21. Evolution of NTMA employees seconded to NAMA and the costs

Year	2010	2011	2012	2013	2014	2015	2016
Employees	104	224	202	331	369	341	302
Cost [EUR mn.]	9.2	20.9	27.1	31.1	40.9	43.1	37.3
Total Cost of staff, including shared services [EUR mn.]	10.3	24	30.2	33.6	43.7	44.8	41.2
Year	2017	2018	2019	2020	2021	2022	
Employees	264	238	211	174	145	110	
Cost [EUR mn.]	30.3	30.9	28.9	24.6	23.6	18.6	
Total Cost of staff, including redundancies [EUR mn.]	31.9	34.3	32.9	28.7	27.4	20.4	

Source: Own elaboration, based on NAMA Annual Reports 2010-2022.

In terms of structure, NAMA created a SPV, the so-called “the Master SPV” or “NAMA DAC”. It was entrusted with the main responsibilities of the AMC: (i) the purchase, management and disposal of the assets, and (ii) obtaining the funds needed via the issuance of debt securities (i.e. 95% of which were guaranteed by the Irish Treasury). The Master SPV was designed as a separate entity with a participation of private investors amounting to 51% of its ordinary shares, whereas NAMA retained 49% of the capital instruments. However, as the Minister of Finance guaranteed 95% of the issuances of the Master SPV the NAMA representatives in the Board were entrusted with a veto power for certain decisions.

In operational terms, the Master SPV could create as many subsidiaries to managing its portfolio. This was put in place with more than a dozen subsidiaries. With this structure, where private investors held 51% of the risks and the claw-back clause included in the relevant legislation, the Irish authorities managed that guaranteed-issuances of NAMA were treated as contingent liabilities in terms of national accounting statistical classification⁵².

As the assets transfer was not meant to be at market price but following the aforementioned REV, the Irish government had to request the European Commission to perform its compatibility check against the existing State Aid rules for the European financial sector and validate its proposal ahead of its implementation. Moreover, the Irish authorities not only notified the methodology for the calculations of the transfer price, but also other important features, such as the eligibility scheme for beneficiary banks or the indicative timeline for the transfers and pro-forma calculations.

As regards the eligibility, the Irish authorities detailed that any credit institution, including Irish subsidiaries of foreign credit institutions, could apply to join this asset relief scheme, within 60 days after the establishment day of the scheme. In particular, it was opened on 21 December 2009 and closed on 19 February 2010. Five banking groups applied, namely *Allied Irish Bank* (hereinafter, “AIB”), *Educational Building Society* (hereinafter, “EBS”), *Bank of Ireland* (hereinafter, “BoI”) and *Anglo Irish Bank* (hereinafter, “Anglo”) and *Irish National Building Society* (hereinafter, “INBS”).

The Irish authorities noted that there were three criteria under which eligibility of applicant credit institutions would be assessed: (i) the systemic importance of the applicant credit institution following a detailed scoring scheme, (ii) the financial means, including (a) the support available to the applicant credit institution, (b) the financial position of the applicant credit institution and its subsidiaries, (c) the

⁵² This structure was chosen in order to prevent the consolidation of the debt of NAMA with the debt of the Irish state.

impact that a non-participation would have on the financial position of the applicant's group and (d) the Irish budgetary resources; and (iii) a final check of all applicable obligations as detailed in the Law establishing the NAMA. After checking the application, the Irish government confirmed that all applicants would be part of the asset relief scheme.

Regarding the transfer process, NAMA was entrusted with a clear monitoring function over the entire process of valuation. The steps included the following: (i) Checking the eligibility of the banks' assets; (ii) Checking the legal due diligence work done on the loans; (iii) Checking non-property and property valuations; (iv) Checking the loan's valuation; (v) Checking the overall process was completed before determining the transfer schedule and purchasing the assets by paying the compensation. In terms of timeline for the executing of all the tranches transfer, the Irish government proposed the start by the largest exposures.

Table 5.22. Projected transfer of assets in tranches

Period	Projected number of exposures (cumulative)	Projected book value (cumulative) [EUR bn.]	Projected amount of compensation (cumulative) [EUR bn.]
Month 1	10	16	11.2
Month 2	35	22	16.8
Month 3	100	38	26.6
Month 4	300	50	35.0
Month 5	750	60	42.0
Month 6	1,200	70	49.0
Month 7	1,500 - 2,000	77	54.0

Source: Own elaboration, based on European Commission, 2010⁵³.

As regards the perimeter of assets to be transferred it was estimated at EUR 82.5bn. of book value (including EUR 10bn. of interests). It comprised EUR 30bn. of loans with a land guarantee (36.4% of the total), EUR 22.5bn. of loans with a development property guarantee (27.3% of the total), and EUR 30bn. of associated commercial loans to those borrowers (36.4% of the total). The market value of that perimeter

⁵³ Decision C(2010)1155 final.

was estimated at EUR 47bn. and the potential transfer price at EUR 54bn. (i.e. haircut of circa 35%).

The establishment as well as the constituent features of NAMA were heavily criticised in Ireland, to the point that, on 15 December 2009, Senator Eugene Regan sent a formal complaint against some of the aspects of the intended operations and functioning of NAMA to the European Commission while this institution was assessing the compatibility of the Irish asset relief scheme against the State Aid rules. However, despite his efforts the European Commission dismissed his arguments as part of its 26 February 2010 decision, where it expressed its no objection to the proposal of the Irish government.

As the transfer was planned to be executed in several tranches over one year, the European Commission agreed with the Irish authorities on receiving an *ex-post* notification after the transfer of each tranche for its validation. As a compromise, a claw-back clause was included. Therefore, if the European Commission would disagree on the calculation of the transfer price of any of the tranches the Irish authorities would claw back any compensation paid to the beneficiary banks in excess of the REV of the assets.

On 3 August and 29 November 2010, the European Commission took no objection decisions on the transfer of the first and second tranches, respectively. Then, after some delays the envisaged perimeter was transferred in seven additional tranches until March 2012. On these transfers, only notified in April 2014, the European Commission took its final no objection decision on 29 July 2014. The REV was calculated as EUR 26.2bn. of market value of the assets plus an add-on of EUR 5.6bn. corresponding to the projected future uplift in value. Based on previous discussion between the European Commission and the Irish authorities the discount factor used was 200 bps.

As presented in the following table, the final haircut was significantly increased to 57% on average and even more for the assets received from some of the beneficiary banks (i.e. Anglo and INBS). This led to additional recapitalisation efforts on the side

of the banks. They received circa EUR 32bn. of consideration paid (i.e. EUR 30.2bn. of government guaranteed senior debt (95% of the total) and EUR 1.6bn. of subordinated debt (5% of the total).

Table 5.23. The Irish transfer perimeter at a glance

Beneficiary banks	Book value [EUR mn.]		Compensation paid [EUR bn.]	Haircut		State aid %
	Loans	Derivatives		[EUR bn.]	%	
Anglo	34,261	145	13.4	21.0	61	20
AIB	20,381	74	9.0	11.5	56	21
Bol	9,867	44	5.6	4.3	44	22
INBS	8,739	-	3.4	5.3	61	28
EBS	903	-	0.4	0.5	57	23
Total	74,414	263	31.8	42.6	57	22

Source: Own elaboration, based on Comptroller and Auditor General (2014).

After the completion of the assets transfer to NAMA it received circa 1,500 individual debtors with circa 12,000 individual loans. The assets received were geographically concentrated in (i) Ireland (66.8%), (ii) Great Britain (20.7%), and (ii) Northern Ireland (6.2%), with some residual exposures in USA (2.7%) and other countries (3.6%).

In its 2010 Business Plan NAMA noted that it would “manage the largest 100 debtors (€50 billion) directly and will delegate the management of another 1,400 debtors”. Then, this proposal was expanded to a direct management of the 170 largest debtors. Then, around 85% of the loans (in aggregated value) would be managed directly by NAMA. For the rest, the beneficiary entities would serve as primary servicers for the assets received from them.

Moreover, the 2010 Business Plan clarified that “NAMA is expected to have a lifespan of seven to ten years and when, in the view of the Minister for Finance, it has made sufficient progress towards achieving its overall objectives, it will be wound up”. It also clarified that “if, by the time its work is finished, it has made a surplus, that surplus will accrue to the Exchequer”, whereas in case of losses “the participating institutions will absorb the first loss through non-redemption of their holdings of

NAMA subordinated debt”. The original business plan included the following debt reduction targets, which were later revisited in the 2012 Business Plan. The year-end 2013 target was included the *EU-IMF Programme of Support* as a specific commitment of the Irish authorities. To achieve this goal the 2012 business plan noted that NAMA should focus on the “early disposal of UK assets that had limited potential to increase in value over the medium term. Irish assets that were considered likely to appreciate in value over the medium term were to be held” (Comptroller and Auditor General, 2018).

Table 5.24. NAMA Debt reduction targets

2010 Business Plan		2012 Business Plan		
Year	Target (%)	Period	Target (%)	Target (EUR bn.)
2013	25	2010-2013	25	7.5
2015	40			
2017	80	2014-2016		8
2018	95			
2019	100	2017-2020		16

Source: Own elaboration, based on Comptroller and Auditor General, 2018.

In October 2017, NAMA fully repaid the EUR 30.2bn. in government-guaranteed bonds, ahead of schedule, whereas in March 2020 it repaid the EUR 1.6bn. of subordinated debt.

Despite having adjusted its operations to its business plan and the relevant legislation, in Ireland NAMA did not have a good reputation, and even some Irish companies decided to litigate with NAMA. As Lefeuvre (2017) argued the “number of cases showed that NAMA faced quite often difficulties with borrowers, even though only a small portion of them generated trials. These procedures remained time consuming for NAMA that was supposed to work out the assets in the best delays”.

Some argued that its reputation was damaged due to the transfer to its exposure to NAMA and insinuated that the Irish government decided to restructure banks at the expense of the borrowers. For example, in the *Dellway Investments & Ors v NAMA*

& Ors, the plaintiff noted that “Since NAMA was regarded as a “bad bank” by most the market participants and commentators, the acquired loans were “bad loans”. “Going into NAMA” was not well considered”. Surprisingly, the opposite situation led also to Court. As some borrowers were also “unhappy with the non-transfer of their loans to NAMA”. In *Citywide Leisure Ltd v Irish Bank Resolution Corporation Ltd* Anglo’s borrowers were not able to pay their loans. Irish Bank Resolution Corporation wished to transfer these loans to NAMA, but it was impossible as they were beneath the threshold NAMA set as Lefeuvre (2017) noted.

Some property developers even challenged NAMA against the European Commission. In particular, five Irish developers submitted a complaint⁵⁴ alleging that Ireland has granted unlawful State aid to NAMA and its operations. They considered that NAMA was jeopardising the adequate functioning of the real estate market in the country. The European Commission (2018) decided that the alleged measures were “existing, and thus do not constitute new nor unlawful aid with regard to the alleged State guarantee and the alleged extraordinary post-acquisition powers granted to NAMA”. It also rejected the unfair “alleged access to confidential information by NAMA, the alleged relationships of NAMA with local authorities and government departments, and the alleged indirect acquisitions of land at steep discounts by NAMA”.

The political scrutiny on NAMA was, actually, mandated by section 227 of Law on the establishment of NAMA. It stipulated that the Minister for Finance had to assess at the end of 2012 and every five years the extent to which the AMC had achieved adequate progress with regard to its objectives, and decide whether its continuation was justified. On 16 July 2014 the Comptroller and Auditor General published its first report where it focused on NAMA’s performance until 2013 and concluded that its continuation was necessary.

On 29 June 2018, in the second report, the Comptroller and Auditor General concluded that NAMA had significantly achieved its main objectives and the focus should be placed on preparing for its future wind-down strategy envisaged for 2025.

⁵⁴ Decision C(2018) 464 final.

This was corroborated by its *Progress on achievement of objectives as at end 2021* (Comptroller and Auditor General, 2023).

In the coming years the activity of NAMA should continue with the phased wind-down of its activities while also ensuring that its secondary objectives are also met. In fact, in 2014, two main secondary objectives were entrusted to NAMA, namely (i) the facilitation of the development of office accommodation in Dublin (i.e. the Dublin Docklands strategic development zone); as well as (ii) the development of social housing via the *National Asset Residential Property Services DAC*, one of its subsidiaries, in cooperation with local authorities. However, it is worth noting that in compliance with section 10 of its regulation, “NAMA’s primary objective is to obtain the best achievable financial return for the State, being the delivery of residential housing units secondary to that objective”.

In terms of delivering financial results, the draft business plan of 13 October 2009 projected a profit amounting to EUR 4.8bn. at the end of NAMA’s operations. This was watered down in the 2010 Business Plan, which presented three scenarios: the baseline case was EUR 1bn. of profit, with two alternative scenarios with a deviation of 10% on the estimated long-term economic value, which would deliver respectively EUR 3.9bn or EUR -0.8bn of results. At the end of 2012, NAMA estimated a final surplus of circa EUR 300mn. This was updated later, and in 2018, NAMA (2018) declared in its annual report that it already expected to transfer to the Irish budget EUR 4.5bn. of profits, of which EUR 3.5bn. have been already transferred. This does not include more than EUR 400mn. in taxes already payed as of year-end 2021 (NAMA, 2022).

Table 5.25. Evolution of NAMA’s financial results

Year	Results after taxes [EUR mn.]	Dividends payed [EUR mn.]
2010	-1,179,990	
2011	241	5
2012	228	4
2013	213	2.1
2014	458	1.5

2015	1,826	0.4
2016	1,503	0.4
2017	481	0.55
2018	795	0.45
2019	265	-
2020	192	⁻⁵⁵ 2,000 paid to the Exchequer
2021	195	1,000 paid to the Exchequer
2022	81	500 paid to the Exchequer

Source: Own elaboration, based on NAMA Annual Reports 2010-2022.

Moreover, based on the NAMA (2023) expects to paid EUR 350 mn. to the Exchequer in 2023 and 2024, as well as EUR 300 mn. and any additional final compensation.

Table 5.26. Main elements of the establishment of NAMA

Topic	Description
Objective	Address the issue of asset quality in the Irish banking system by allowing participating financial institutions to sell to NAMA assets whose declining and uncertain value prevents the longer-term shoring-up of bank capital and the return to a normally functioning financial market.
Action	That transfer process took place in nine tranches starting from 26 February 2010 (initially for a 12-month period, but it had to be extended up to March 2012). The loans of the larger debtors were acquired in the first tranche.
Beneficiary	Any credit institution, including Irish subsidiaries of foreign credit institutions that applied within a 60-day application period. This 60 day application window opened on 21 December 2009 and closed on 19 February 2010. Five institutions have formally applied Allied Irish Bank (AIB), Educational Building Society (EBS), Bank of Ireland (BoI), Anglo Irish Bank and Irish National Building Society (INBS).
Participation	Formally voluntary.
Procedure	The Minister, after consultation with the Governor of the Central Bank and the Regulatory Authority, designated the beneficiary institutions within three months. For the asset transfer several steps were envisaged: (i) identifying eligible assets; (ii) gathering of loans and borrowers data; (iii)

⁵⁵ In March 2020 NAMA repaid the subordinated debt and on 26 May 2020, it purchased the private investors shareholding for EUR 56.1 mn., so once it became debt-free it started to transfer the retained profits to the Exchequer.

	assessment of the data; (iv) valuation of loans; (v) acquisition of assets; (vi) payment of the compensation.
Recipient of the identified perimeter	NAMA
Ownership	Public-private ownership (51% private)
Budget/Size	EUR 31.8bn.
Scope of assets	(i) all loans issued for the purchase, exploitation or development of land as well as loans either secured or guaranteed by land, and (ii) some of their associated commercial loans and derivatives attached to them. There was a minimum threshold of EUR 5 million for BOI, Anglo Irish Bank and AIB to reduce the number of borrowers
Transfer price	Book value
Cuff-off date	Balance sheet of 31 December 2008
Minimum haircut	57%

Source: Own elaboration, based on European Commission⁵⁶, 2010.

5.2.4. UK - UKAR

The British economy was one of the most affected by the GFC. The first systemic measures were taken in October 2008 with the launch of a programme to support the banking system. *Northern Rock* and *Bradford & Bingley* were among the banks more exposed to this crisis and had to be nationalised. However, the crisis continued to intensify, a situation that particularly led to uncertainty among the market participants regarding the valuation of British bank assets. The reaction of the British authorities would not wait. On the one hand, the government announced in January 2009 a new package of measures, including the launch of a banking asset protection scheme. On the other hand, the establishment of public-sponsored AMCs was also envisaged.

In this case the technical solution implemented was not a pool of assets received from several beneficiary banks to be managed by a central AMC from a legal viewpoint. The authorities decided to separate this into individual AMCs but under

⁵⁶ Decision C(2010)1155 final.

the same public management. Therefore, at least from a financial viewpoint it could also be seen as a publicly-owned central body running two independent portfolios.

In particular, the business units and viable assets of *Northern Rock* were separated, creating *Northern Rock Asset Management* (hereinafter, NRAM) as of 1 January 2010, with the commitment that it would not manage new business. Therefore, it limited its activity to the management of the existing one at the time of the separation. A similar procedure was followed with business not sold to a private investor of *Bradford & Bingley* (hereinafter, also B&B).

The management of these separate legal entities was entrusted to the *UK Financial Investments Limited* (hereinafter, UKFI), a public sector entity created in November of 2008. On 1 October 2010 to operating structure was reshuffled. UKFI created a new holding company, the *UK Asset Resolution Limited* (hereinafter, UKAR) as its specialised subsidiary to manage NRAM and *B&B*. This corporate structure was kept until end of March 2018, when UKFI was discontinued and transferred its participation in UKAR to the *UK Government Investments* (hereinafter, UKGI).

Table 5.27. Main elements at the inception of UKAR

Topic	Description
Objective	Disposing of the HM Treasury’s investments in the already publicly-owned beneficiary banks while maximising the value taxpayers and servicing the customers.
Action	Establishment of UKAR as parent of NRAM and Bradford & Bingley
Beneficiaries	Northern Rock and Bradford & Bingley
Participation	Mandatory
Procedure	HM Treasury decision.
Recipient of the assets transferred	No assets transferred to UKAR, they were managed by B&B and NRAM
Budget (including recapitalisation measures)	Not disclosed.
Scope of assets	Residential and commercial mortgages, mortgage-backed securities, derivatives, and unsecured loans
Cuff-off date	Balance sheet as at 1 January 2010

Minimum haircut	0%
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Source: Own elaboration, based UKAR 2010 Annual Account.

Compared to other cases, it is worth noting that as *Northern Rock* and *Bradford & Bingley* were already publicly-owned companies ahead of their restructuring, this new structure was not subject to the compatibility checks against the State Aid rules. Consequently, it was only validated by the *Financial Services Authority*. As there were no transfers of assets nor ownership from the private to the public sector at this time, there was no need to perform any valuations. The balance sheet of UKAR simply included the loans and advances, participations and any provisions for loan losses already booked (Lefevre, 2017).

NRAM and UKAR did not have direct employees, as all were seconded from B&B, the subsidiary from where all staff was hired. Compared to other AMC established during this period to perform its duties UKAR and its subsidiaries did not leverage heavily on outsourcing until 2016. On 4 May 2016 it was announced a seven-year contract with *Computershare Mortgage Services Ltd*, a company led by the former UKAR's CEO, to manage the mortgage portfolio of NRAM and B&B. Consequently, this transaction changed the operating model, as circa 1,700 employees were transferred to this service provider of the group (UKAR, 2016). Once B&B was sold, UKAR outsourced the provision of all services in PwC. These operational decisions justified the data reported in the table below.

Table 5.28. Evolution of number of employees working for UKAR and its subsidiaries

Year	2009	2010	2011	2012	Q12014 ⁵⁷	Q12015	Q12016
Total						2,078	1,992
NRAM		208	1,364	1,359	1,117		
B&B	817	975	1,029	1,065	1,128		
Year	Q12017	Q12018	Q12019	Q12020	Q12021	Q12022	Q12023
Total	477	179	161	108	78	-	-

Source: Own elaboration, based on B&B 2009 Annual Report, UKAR 2010-2023 Annual Reports.

⁵⁷ There was a transition (15-month annual report) from the annual report as of year-end 2012 to the end-of-March 2014 annual report. From that year onwards all the fiscal exercises go from 1/04/X to 31/03/X+1.

In October 2010, UKAR had a total balance sheet of £115.8bn. and more than 800,000 customers. Its portfolio included residential and commercial mortgages, as well as some mortgage-backed securities, derivatives, and unsecured loans (UKAR, 2018). It was steadily reduced over more than a decade. As Lawson (2021) argued “throughout its lifespan, the company avoided giving too many details on its wind-down procedures, but later communications indicated that its operations could cease as soon as 2020”. Precisely, on 26 February 2021, UKAR announced the sale of its final assets from B&B and NRAM to *Citibank* and *Davidson Kempner Capital Management LP*. In particular, *Citibank* acquired the loan portfolio, whereas *Davidson Kempner* received the participations in NRAM and B&B. However, UKAR has not been liquidated, as UKAR (2022) mentioned it would be still responsible for “meeting contractual obligations to the buyer, sponsoring the legacy defined benefit pension schemes for B&B and NRAM, and administering other non-loan assets and liabilities”. In any event, it confirmed that as soon as these contractual obligations are terminated UKAR will be dissolved.

In terms of funding UKAR started its mandate with circa £50bn. of funds coming from HM Treasury and the Financial Services Compensation Scheme previously granted to its subsidiaries. Then, it continued to benefit from access to very affordable funding. As Tattersall (2022) admitted “following the government’s interventions in 2008, UKAR’s former subsidiaries had access to low, or zero, cost funding, without which their capital base would have been eroded and they would not have made profits”.

UKAR managed to successfully run its operations by posting a profit every year after 2010. Its highest profit, £1.5bn., refers to the year-end 2011 fiscal exercise, whereas in March 2019 it recorded only £0.3bn. of profits. Then, once the bulk of its portfolio was already disposed it recorded some anecdotal losses. After the sale of the remaining assets of NRAM and B&B in 2021, UKAR distributed to HM Treasury through dividends, with £4.85bn of dividends. This goes on top of the full repayment of the government loans.

5.3. Phase II of the establishment of AMCs: 2012-2015

5.3.1. Spain - SAREB

The evolution of the financial crisis in Spain can be described as paradoxical. After the outbreak of the subprime crisis in the USA, it was thought that the Spanish banking system was going to resist and even serve as an example for other European banking sectors. This positive outlook was driven by the fact that any Spanish bank was significantly exposed to the structured products that originated the GFC.

However, there were existing imbalances that emerged with the outbreak of the so-called sovereign debt crisis. At that juncture, two interlinked problems became palatable: (i) poor risk management and governance issues, paired with (ii) the bust of the real estate bubble.

As Cuerpo and Pontuch (2013) explained “the 1997-2007 Spanish housing market upswing was unusually long and intense by historical and cross-country standards. House prices grew at 11.4 per cent per year on average during the 11 years preceding the 2007Q3 peak, with cumulated growth of 232 per cent”. In parallel, there was a rapid private credit growth fuelled by the start of the Euro. This resulted in highly indebted households and firms, respectively 81 and 135% of GDP at year-end 2012.

To assist on the restructuring of the saving banks sector, the, at the time, Fund for Orderly Bank Restructuring (hereinafter, “FROB”) was established on 27 June 2009. With the worsening of the financial and real estate crises in Spain several entities had to be nationalised, becoming FROB its owner with a significant cost for the Spanish taxpayer. At year-end 2011 the NPL ratio in the real estate and construction sectors grew up to 20% and represented 45% of the total stock of NPLs in the country (Bank of Spain, 2017).

The limited fiscal capacity of Spain to address the challenges that was facing led the Spanish authorities to request external assistance, for which a Memorandum of Understanding (hereinafter, the “MoU”) was signed on 23 July 2012. In exchange of up to EUR 100bn. a number of measures should be implemented in the short and

medium-term. This included the request for the transfer of distressed assets from several banks to a centralised asset management company by year-end 2012.

To implement this commitment an emergency regulatory reform was deployed in August 2012 with the Royal Decree Law 24/2012 (later converted into Law 9/2012 of 14 November), which instructed FROB to create an AMC. This was detailed in the Royal Decree 1559/2012, of 15 November, which indicated that the exclusive purpose of the AMC, denominated *Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria* (Management Company for Assets Arising from Bank Restructuring, hereinafter, “SAREB” for its Spanish acronym), would be the holding, management and administration, direct or indirect, acquisition and disposal of the assets received over a maximum timespan of 15 years (i.e. until 2027).

The European Commission took a separate decision per beneficiary bank as they encompassed not only the creation of the SAREB, but also the restructuring measures addressed to them and their recapitalisation. Those decisions were taken in two batches (i) on 28 November for NCG Banco⁵⁸, Catalunya Banc S.A.⁵⁹, and Banco de Valencia S.A.⁶⁰, and (ii) on 20 December for BFA Group-Bankia⁶¹, Banco CEISS⁶², Banco Mare Nostrum S.A.⁶³, Banco Grupo Cajatres, S.A.⁶⁴ and Liberbank S.A.⁶⁵

With the green light from the European Commission for this asset relief programme obtained, on 31 December 2012, SAREB received the assets transferred from Group 1 banks (i.e. the entities controlled by FROB: BFA-Bankia, Banco de Valencia, Catalunya Banc, NCG-Banco Gallego) for a total amount of EUR 36,695mn. Months

⁵⁸ Decision C(2012) 8762 final.

⁵⁹ Decision C(2012) 8759 final.

⁶⁰ Decision C(2012) 8849 final.

⁶¹ Decision C(2012) 8764 final.

⁶² Decision C(2012) 9878 final.

⁶³ Decision C(2012) 9886 final.

⁶⁴ Decision C(2012) 9830 final.

⁶⁵ Decision C(2012) 9840 final.

later, on 28 February 2013, the assets of the entities in the process of restructuring, Group 2: BMN, Liberbank, Banco Caja3 and Banco CEISS, were transferred for a total of EUR 14,087mn. The average haircut amounted to 53% of the book value (SAREB, 2013).

Table 5.29. Assets transferred to SAREB

Beneficiary entity	Transferred assets (in EUR mn.)
Group 1	36,695
BFA-Bankia	22,318
Catalunya Banc	6,708
NCG-Banco Gallego	5,707
Banco de Valencia	1,962
Group 2	14,087
BMN	5,820
Banco CEISS	3,137
Liberbank	2,918
Banco Caja3	2,212

Source: SAREB, 2013.

One of the limits included in the Spanish legislation was that the total transfer price of the assets SAREB could not exceed EUR 90bn. This amount was not exceeded, since finally the value of the nearly 200 thousand assets transferred⁶⁶ amounted to EUR 50,781mn., of which EUR 34,438mn. were financial assets, in particular loans to developers, and EUR 11,343mn. were real estate assets. To pay the consideration to the beneficiary entities, SAREB issued state-guaranteed debt for more than EUR 50bn., with different maturities. For its issuances, their yield would be the lower of: (i) the Spanish government bond yield for the same maturity; and (ii) 12-month Euribor plus 200 bps. It was established with EUR 1.2bn. of capital and issued EUR 3.6bn. of subordinated debt.

⁶⁶ Carrascosa (2021) noted that there were exclusions in terms of minimum amounts of eligible assets “to simplify both the process and cost of transferring the assets and their subsequent management, loans with a value of less than €250,000 and foreclosed assets of less than €100,000 were excluded. Around 39,000 loans and 60,000 foreclosed assets were excluded”, as well as in terms of type of assets “the impaired portfolios of small and medium-sized enterprises, consumer and retail mortgages” as it was considered that the beneficiary banks were better place to manage them.

Another factor to take into account is the transfer price, which in accordance with Article 36.2 of Law 9/2012 and Article 48.3 of Royal Decree 1559/2012, was determined by the Bank of Spain following the legislative authorisation conferred. However, FROB (2012) clarified that the REV would be set based on the “expected losses in the baseline scenario of the bottom-up exercise performed by Oliver Wyman for each of the banks transferring assets”, which were used as reference. Then, for the final transfer price the inherent operational and financial costs would be factored in. This two-step process resulted in the following haircuts per category:

Table 5.30. Average haircut per asset type

Category	Haircut
Land	79.5%
Unfinished developments	63.2%
Finished housing	54.2%
Loans to developers	45.6%
Finished projects	32.4%
Loans to finance urban land	53.6%

Source: FROB, 2012.

As discussed, this is, of course, one of the most controversial aspects of the creation of any AMC. FROB (2012) noted that “the transfer value, taking into account the above-mentioned haircuts, is very conservative”. However, at first glance some of these haircuts could have already been considered as insufficient in some cases. In particular, the valuation of land, either as an asset *per se* or as collateral, could be considered very benevolent given that, at that time, and for many years then, it was an asset that was difficult to sell in the market even at very low prices (Alonso-Rodriguez, 2016).

However, the ECB (2012), as part of its opinion on the establishment of SAREB and, precisely, with regard to the transfer price, mentioned “the methodology (...) appears appropriate and considered, and should lead to conservative prices, which in turn should minimise the risks to the vehicle”.

These calculations are always made under high degree of uncertainty. When valuing the asset it is necessary not only to think about its market price at that particular

moment but also bring about the possibility of generating future cash flows that would allow recovering at least a great amount of its nominal value. The haircuts made were well below market prices. Proof of the above is that SAREB had to carry out important adjustments in its first years of activity, which have hampered its results since then.

In this regard, Carrascosa (2021) explained that SAREB had only five months to design the vehicle, set it up and transfer the assets to honour the commitment of the MoU. He acknowledged that this “prevented the necessary due diligence from being carried out before the transfer. SAREB subsequently launched a comprehensive due diligence process of its assets, which was completed in 2014. In light of this exercise, the AMC revised its business plan”.

Five years after the inception of SAREB, Lehmann (2017) highlighted that “the further provisions that Sareb had to undertake in recent years underlines the need for a conservative valuation from the start”. However, as Carrascosa (2021) argued “the choice in 2012 was a lower price (with a higher certain amount of the banking system bailout in 2012 to compensate for the higher losses of the transferring banks and, in some cases, to recapitalise them) versus a higher price (with higher potential losses of SAREB within 15 years)”. At that time the authorities decided to go for the second option. Only time has shown, via SAREB’s accumulated losses year after year, that the transfer price was too high.

The transfer price to SAREB was calculated by types of assets. However, in 2015, the Bank of Spain published its Circular 5/2015, of 30 September, which requested SAREB to perform an individual valuation of its real estate assets, to be repeated every three years. This resulted in EUR 3.3bn of accumulated impairments as at year-end 2016, which led to the conversion of EUR 2.17bn. of the subordinated debt into equity. The remaining subordinated debt (i.e. EUR 1.43bn.) was converted into equity in 2021.

Already in 2015, Muehlbronner and Lemay (2015) had warned about its financial performance and expected evolution: “Sareb’s financial performance continues to

be negatively affected by write-downs on its assets. Its original capital of €1.2 billion has already been nearly depleted, standing at only €354 million at the end of 2014, after having absorbed losses over the prior three years”. Therefore, they considered that “Sareb will remain a contingent liability for the Spanish government for several years to come. However, its debt burden is at manageable levels, standing at €46 billion at the end of 2014 (approximately 4% of GDP)”. This assessment shows an evolution of the fiscal capacity of the Spanish general government, as in 2012 the fiscal position of Spain was rather weak, whereas in 2015 it was already perceived that SAREB would not be a severe burden on the Spanish fiscal position over time.

Another area which has drawn the attention of the academia about the case of SAREB is the ownership structure. As we will cover in more detail later in this chapter, to avoid that the debt of this entity would compute within the general government debt ratio it was crucial that the participation of the FROB, a public entity, was less than 50% of SAREB’s ownership rights to comply with Eurostat rules. This objective was met with the entry into the shareholding structure of SAREB, initially, of ten banks and four insurance companies. Subsequently, six other banks also became shareholders. Private investors owned 55% of SAREB⁶⁷. In addition, six insurers invested in the company's subordinated debt.

As Alonso-Rodriguez (2016) argued this ownership structure did not seem the most appropriate as the participation in the shareholding structure of banks with very relevant real estate portfolios could easily lead to a conflict of interest. Since logically they would give priority to the removal of those assets from their own balance sheets before pushing for SAREB to do it. Perhaps, at first, this was mitigated by entering into management agreements with the beneficiary banks, which did not participate in the ownership, to use their network of offices to sell such assets. However, even this mitigating measure was discontinued at a later stage.

⁶⁷ After Eurostat’s decision of the inclusion of SAREB within the general government category, the Royal Decree Law 1/2022, of 18 January, authorised FROB to become its majority shareholder (i.e. as of April 2022 FROB owns a 50.14% stake).

In fact, at the end of 2014, when those service agreements were about to expire a call for tender was carried out that would change the commercial policy maintained until then. In a nutshell, the nine beneficiary entities were replaced in the administration, management and sale of almost 170 thousand assets, approximately 85% of the original portfolio, by *Altamira Asset Management*, *Haya Real Estate*, *Servihabitat* and *Solvia*, being the two last entities part of banking groups that were also shareholders of the entity (SAREB, 2014).

To control the SAREB, in addition to being subject to Bank of Spain's supervision, a Monitoring Commission for compliance with the general objectives was created. It had to evaluate and validate that the business plan would ensure compliance with both the asset divestment and the debt amortisation plans. However, due to mostly external circumstances to SAREB its business plan has been modified repeatedly. On this, García Montalvo (2015) highlighted that “since coming into operation, SAREB has been caught up in various controversies concerning the feasibility of the business plans it has presented, possible conflicts of interest on its board of directors, and various changes to its top executives and corporate structure”. At least some of the controversies he noted have continued over time, i.e. the continuous adaptation of its business plan and changes to its top managers.

Baudino, Herrera and Restoy (2023) explained that the accounting framework had a decisive impact on the winding up process, as until the Royal Decree Law 6/2020 of 10 March, SAREB had a clear incentive to only dispose assets whose market value was above the transfer price regardless of its accounting value. However, the Royal Decree Law 6/2020 changed the situation as it “enabled the company to operate despite being in a negative equity situation”. Consequently, SAREB could refocus its priorities to sell “its assets, generating maximum value and cancelling debt instead of concentrating sales on assets with a positive margin”.

Until year-end 2022 SAREB has reduced its total debt by EUR 20,301mn. (i.e. 40% of the original total) and its asset portfolio by EUR 24,456mn. (i.e. 48% of its total assets). Moreover, since its engagement in social housing, only in a three-month

period, by year-end 2022, already 1,938 homes were successfully rented to social tenants (SAREB, 2023).

Table 5.31. SAREB's portfolio evolution

Category	As at 28/02/2013 [EUR mn.]	As at 31/12/2022 [EUR mn.]	Delta [EUR mn./%]
Real estate and developer loans	39,438	10,802	-28,636 [72.6%]
Real estate assets	11,343	15,523	4,180 [36.9%]
Total	50,781	26,325	-24,456 [48.2%]

Source: Own elaboration, based on SAREB, 2023.

This case exemplifies that the calculation of the REV, even when adjusted downwards via the inclusions of operational and financial cost of the AMC, and its impact on the transfer price seems to be an imperfect model. As Hellwig (2017) noted “the more than € 2 billion in additional provisions that Sareb had to take in 2015 and that required a conversion of over € 2 billion of subordinated debt into equity were due to a revision in asset valuations mandated by the Bank of Spain”. However, due to the uncertainty in the valuation of the assets subject to be transferred to an AMC it is almost impossible to think about other solution that would respect State aid compatibility rules and an adequate allocation of losses to original shareholders and bondholders of the beneficiary bank (i.e. the burden-sharing).

Table 5.32. Main elements of the establishment of SAREB

Topic	Description
Objective	The restructuring of the financial system, while minimising the use of public funds and avoiding market distortions as much as possible.
Action	Transfer process executed in two batches. On 31 December 2012 from Group 1 entities and on 28 February 2013 from Group 2 entities.
Beneficiary	Group 1 and 2 entities as per the 2012 stress test.
Participation	Mandatory.
Procedure	After the AQR and stress test performed, the assets transferred were executed after the identification of the eligible assets. In exchange beneficiary banks received state-guaranteed securities

Recipient of the identified perimeter	SAREB
Ownership	At inception: Public-private ownership (55% private); As of April 2022 FROB is the majority shareholder (public ownership: 50.14%).
Budget/Size	Max. EUR 90 bn. / EUR 50.78bn
Scope of assets	i) foreclosed assets whose net carrying amount exceeds EUR 0.1 mn.; ii) loans/credits to real estate developers whose net carrying amount exceeds EUR 0.25 mn., calculated at borrower, rather than transaction, level; and iii) controlling corporate holdings linked to the real estate sector.
Transfer price	REV
Cuff-off date	Balance sheet of 31 December 2012 for Group 1 and 28 February 2013 for Group 2.
Minimum/Average haircut	53%

Source: Own elaboration, based on European Commission⁶⁸, 2010.

5.3.2. Slovenia - DUTB

The Slovenian economy after the accession to the EU was characterised by fast GDP growth and low unemployment rate, which led to the country to also join the Eurozone in 2007. However, this period was also the start of an excessive credit growth and corporate indebtedness. With the outbreak of the GFC the internal imbalances became more palatable. Nevertheless, the Slovenian authorities delayed the reaction to address the repercussions of a sharp drop in GDP and employment. This shock turned into an increase in the budget deficit, public debt and financing costs for its government and companies. Consequently, this resulted in a sudden increase in corporate insolvency (i.e. corporate NPL ratio peaked at 28%), accumulation of distressed assets and losses in the banks' financial statements Balogh (2018).

The Slovenian banking system was characterized by having a significant percentage of assets in the hands of state-owned entities, which were facing serious solvency

⁶⁸ Decision C(2010)1155 final.

problems. After some initial reluctance to intervene, at the end of 2012 and trying to avoid a Troika bailout, the Slovenian authorities designed a scheme to clean the Slovenian banks' balance sheets of NPLs and, thus, be able to focus on financing to the real economy. This was the *Law 105/2012 on regulating measures of the Republic of Slovenia to strengthen the stability of banks* (hereinafter, ZUKSB for its Slovenian acronym), subsequently amended by Law 63/2013, which set out the legal foundations of an AMC in the country. The more operational aspects were developed in a decree in 2013, the *Decree for the implementation of measures to strengthen financial stability*.

On 20 March 2013, the Slovenian AMC was established under the denomination of *Družba za upravljanje terjatev bank, d.d* (Bank Assets Management Company, hereinafter, “DUTB” for its Slovenian acronym⁶⁹). It was a fully-owned public entity aiming to remove uncertainty about the future value of the Slovenian banks' most problematic assets and promote financial stability.

At its inception, the envisaged lifespan was only five years (i.e. until 2017) after which it should wind down its operations by transferring the remaining assets to another public body, the *Slovenia Sovereign Holding*. It had an initial budget of up to EUR 4bn. of government guaranteed bonds (i.e. circa 11% of 2013 GDP) to purchase the distressed assets from beneficiary banks.

The creation of DUTB was heavily contested. As the first president of the AMC, Nyberg (2014), admitted “in the autumn of 2012 the issue became so politically affected that voices were raised in favour of bringing it to a national referendum” on whether an AMC should be established, but the Slovenian Constitutional Court ruled against a referendum. This generated a vivid political debate as well as some confusion as regards the mandate and objectives of the DUTB. This situation even deteriorated over time, when the DUTB's operations were about to start. As Nye (2021) noted “Slovenian politics became increasingly chaotic between late 2013 and

⁶⁹ BAMC, for its English acronym.

the end of 2014. Popular discontent over fiscal consolidation and corruption forced multiple coalition governments to collapse” and this had also an impact on DUTB.

Upon consultation with the European authorities it was decided that prior to any transfer of assets to DUTB an asset quality review as well as stress tests on the Slovenian banking system should be performed by independent experts. The results were released in December 2013 and revealed the need to further recapitalise the Slovenian entities. As Sila (2015) argued “the exercise, despite costly (...), significantly reduced uncertainty and calmed the financial markets. The sovereign bond yields that had been edging up to 7% over the summer and autumn of 2013, dropped below 5% soon after the announcement of the results, and subsided further ever since”. Therefore, it brought transparency to the financial markets and reduced the pressure on the public budget.

Before any assets transfer the European Commission, under the State aid rules, approved the recapitalisation and subsequent transfer of assets to DUTB between 2013 and 2014 of several state-owned banks, starting by the two largest banks in the country, *Nova Ljubljanska Banka* (hereinafter, “NLB”) and *Nova Kreditna Banka Maribor* (hereinafter, “NKBM”), on 20 December 2013.

Then, they were followed by the third-largest public bank, Abanka, and Banka Celje. After having received assets with a book value of EUR 4.86bn. in exchange of EUR 1.56bn. (i.e. haircut of 68%) from those state-owned banks, DUTB also received corporate exposures from two small private banks, *Probanka* and *Factor banka*, at market prices, in 2014. These entities were finally merged into DUTB on 19 February 2016, via a simplified merger process upon the Slovenian government decision.

To serve as consideration for the assets DUTB had to issue guaranteed-debt in the markets. On 19 December 2013, it issued its first two issuances, totalling EUR 505.8mn. at 3.75% and 4.5%, for a term of 2 and 3 years, respectively. The coupon paid was reduced significantly in the third issuance on 22 October 2014 (i.e. 1.5% for a 3-year bond). These bonds had a state guarantee for which DUTB would pay 1.25% per year of their nominal value to the Slovenian State. The beneficiary banks

instead of illiquid assets they would receive bonds that were eligible as collateral for ECB operations.

Only taking into account the transfers of assets from the three-largest public-owned banks, the NPE ratios in the Slovenian banking sector decreased from 16.9% to 10.4%, and from 24.6% to 8.8% in those three banks, as presented in the following table.

Table 5.33. Reduction of NPEs in the main Slovenian banks

Metric	Prior to the transfer	Transfer of NPEs	After the transfer
Total gross exposure	19,870	-2,191	17,679
Transfer value		1,147	
Gross exposure to non-performing clients	4,890	-3,337	1,552
NPE ratio	24.61%		8.78%

Source: Own elaboration, based on Government of the Republic of Slovenia, 2013.

However, there would have been room for further transfers, as only half of corporate NPLs were transferred to DUTB. Any of the NPLs with exposures in other Balkan countries was transferred, which accounted for a quarter of total remaining NPLs (Sila, 2015).

The assets transferred to DUTB, upon the validation of the European Commission, were calibrated at REV. Therefore, according to the calculations of the experts the European Commission hired the State aid granted to the beneficiary banks amounted to EUR 623mn.

Table 5.34. State Aid calculations for the transfers to DUTB

Entity	REV [EUR mn.]	Estimated market value [EUR mn.]	State aid [EUR mn.]
NLB	711	580	131
NKBM	422	227	195
Abanka	452	218	234
Banka Celje	127	64	63
Total	1,712	1,089	623

Source: DUTB, 2015.

Nevertheless, DUTB could not take this transfer price at face value and prepare with it its first financial statements. On the contrary, following the international accounting standards DUTB had to calculate the fair value of those assets received. As DUTB (2015) explained in its Business Strategy 2016-2022 report this resulted in booking losses in the first years of operation, as presented in the table below.

Table 5.35. The transfer of assets to DUTB between 2013 and 2014 at a glance

Portfolios	Book value	Transfer value (adjusted REV)	Fair value adjustment
NLB and NKBM (December 2013)	EUR 3.3 bn.	EUR 1,008.4mn.	EUR -39.9mn.
NKBM (H1 2014)	-	EUR 11.6mn.	EUR -68mn.
Abanka (October 2014)	EUR 1,142.4 mn.	EUR 423.8mn.	
Banka Celje (December 2014)	EUR 392.2 mn.	EUR 125.7mn.	
Factor banka and Probanka (2014)	EUR 172.0 mn	EUR 38.6mn.	-

Source: Own elaboration, based on DUTB, 2015.

It should be noted that DUTB did not participate in the discussions with the European Commission on the transfer prices nor had direct access to the details of the asset quality review and stress test performed. Therefore, it is natural that from the beginning it had doubts about the valuation method used. These uncertainties led the DUTB to carry out a preliminary analysis that led to the recognition of losses amounting to EUR 92.6mn. in the preparation of its 2013 annual accounts. However, KPMG Slovenia, the designated auditor, did not issue the pertinent audit report as it harboured significant doubts about the valuation of the portfolio initially transferred to the DUTB from NLB and NKBM (Alonso-Rodriguez, 2016). In total, based on Balogh (2018) from the EUR 5.8bn. of gross book value transferred, DUTB identified a deviation amounting to EUR 179mn., which led the entity to stress its thesis of an overvaluation of the assets received.

As a result of the doubts of its auditor, DUTB decided to undertake a more exhaustive analysis, which involved reviewing a set of assets whose valuation amounted to 80% of the value of the portfolio received. This process was accompanied by a legal and financial due diligence, since the documentation received from the beneficiary banks had important deficiencies in terms of data quality (DUTB, 2014). The ultimate objective was to better understand the real situation of its portfolio in order to design the best formula for its orderly disposal and subsequently adapt its business plan, where needed.

In terms of the quality of the assets received, DUTB had to face several constraints. In fact, Nyberg (2014) argued that the Slovenian AMC did not receive “each bank’s full exposure to company groups with significant non-performing loans, but only the worst-performing exposures for each borrower”, which “unduly undermines the BAMC’s hand in restructuring negotiations with non-cooperative business owners”. Moreover, the DUTB only received circa 50% of the large corporate NPLs, which left a significant amount of distressed assets outside its portfolio.

For the design and implementation of the DUTB the Slovenian authorities decided to hire internal experts in the area. Their work would be supervised by both the Slovenian authorities and representatives of the European Commission, the ECB and the EBA (Bank of Slovenia, 2013). However, the political, media and social pressure as well as some alleged wrongdoings⁷⁰ of part of its management and advisors led to a significant change in the composition of DUTB’s Board as well as on the scrutiny and even political orientation exercised by the public authorities (i.e. the Ministry of Finance, as its sole owner and supervisor, the Court of Audit and the Slovenian Congress).

In light of these events, and the political turmoil that delayed the policy implementation, in February 2015 the IMF (2015) reacted and set among the main

⁷⁰ The heavy rely on outside consultants, some of which were connected with some Board members, as well as issues as regards the remunerations of the Board were among the factors that led to a drastic reshuffling the Board. The internal experts left the company and were mostly replaced by Slovenian citizens.

policy priorities for Slovenia, two particularly important for the DUTB: (i) to “address the still high non-performing loans, including through more transfers to the bank asset management company”; and (ii) to “restructure the corporate sector by making full use of existing tools, such as the BAMC, whose independence should be safeguarded”. As regards the first priority it recommended that DUTB should play a leading role in corporate restructuring, for which all large corporate NPLs should be transferred to it. The Slovenian authorities disagreed with this statement and eventually did not follow it as they considered that individual banks had already the capacity and means to restructure and sale those corporate NPLs.

As regards the need for an independent management of the assets transferred, the IMF (2015) stressed the importance of the “independence from political interference, and professional and highly skilled management and staff (...), is essential to achieve sustainable debt-restructuring solutions and maximize taxpayer returns”. The IMF acknowledged that the Slovenian government noted that “its independence also comes with obligations to maintain transparency and accountability”. In this regard, they suggested that remuneration may need to be lowered and governance changed.

On 28 December 2015, the Slovenian Congress approved the *Law 104/2015 amending the Act Defining the Measures of the Republic of Slovenia to Strengthen Bank Stability* (the so-called “ZUKSB-A”), which somehow addressed the IMF’s concerns about the governance in DUTB. As Nye (2021) highlighted it “clarified that the Ministry of Finance cannot issue instructions to the BAMC for action on individual cases” and that “responsibility for management of the BAMC rests with its executive directors”. This amendment also extended DUTB’s powers and its lifespan until year-end 2022⁷¹.

In May 2017, as part of the next Article IV Consultation, the IMF (2017) argued that “BAMC effectiveness hinges crucially on its independence, and this should be upheld

⁷¹ This was a long-lasting request from the DUTB management to avoid fire sales.

by the Slovenian authorities by maintaining an appropriate governance framework and abstaining from frequent changes in senior management”. At the same time, the IMF acknowledged that the ZUKSB introduced amendments to the functioning of DUTB that pointed into the right direction, but concluded by reiterating that “BAMC should be shielded from all kinds of outside interference and encouraged to take full advantage of the powers the amendments confer”.

As of year-end 2018, the fifth year of operation, DUTB had already repaid EUR 1.3bn. of debt (i.e. only 35% or EUR 700mn. of its original debt was still outstanding). The Slovenian AMC had EUR 830.1mn. of assets at fair value under its management and 609 individually claims.

After several months of discussion, in April 2019, DUTB adopted its *Business Strategy 2019-2022*, which was subsequently approved by the Slovenian government. At the end of its lifespan, DUTB projected to have circa EUR 127mn. in assets (i.e. EUR 80.9mn. in claims and EUR 45.8mn. in real estate exposures), EUR 178.9mn. of equity and record a 13.7% average yearly ROE (DUTB, 2019). It planned to steadily reduce its financial liabilities amounted, which amounted to EUR 695.4mn. at year-end 2018 to a full amortisation by year-end 2022. Consequently, it would continue to reduce its staff to adequate it to the business needs, as follows:

Table 5.36. Evolution of number of employees at DUTB

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	11	78	111	144	129	126	130	99	84	45

Source: DUTB, 2019 and 2023.

Finally, on 30 December 2022, pursuant to Article 36(1) of the ZUKSB, the DUTB completed the wind-down of its operations by transferring all assets as well as rights and obligations to the *Slovenian Sovereign Holding*, as universal successor (Slovenian Sovereign Holding, 2023a). As at the time of writing this section there is not available data as regards the transferred portfolio. Based on data as of June 2022, DUTB still “owned 208 real estate units with a total book value of EUR 95.1 million” and “had under management 308 claims with minor exposure to debtors, and 440 claims with

significant exposure to debtors” (Slovenian Sovereign Holding, 2023b). Therefore, it seems there was a significant deviation from the 2019-2022 Business Strategy plan.

Table 5.37. Main elements of the establishment of DUTB

Topic	Description
Objective	Remove uncertainty about the future value of the Slovenian banks' most problematic asset portfolios and promote financial stability.
Action	The transfer process took place in several batches from December 2013 to February 2016
Beneficiary	Four state-owned banks as well as two small private banks.
Participation	Mandatory.
Procedure	The selection of banks as well as assets was subject to administrative discretion in the hand of an inter-ministerial committee.
Recipient of the identified perimeter	DUTB
Ownership	Public
Budget/Size	Originally, EUR 4bn. Then, it was expanded up to EUR 5.8bn.
Scope of assets	Bankrupt companies, claims to be restructured, claims with real estate collateral, financial holdings and other NPLs
Transfer price	REV
Cuff-off date	Several depending on batch transferred.
Minimum haircut	64-77%, depending on the transferred portfolios.

Source: Own elaboration, based on European Commission, 2013⁷² and 2014⁷³.

5.3.3. Hungary - MARK Zrt.

According to Blazsek (2016) the impact of the GFC came to Hungary via exchange rate changes. Several customer had entered into loans with banks denominated in CHF since mid-2000s, as at the time they were perceived as cheaper than those denominated in HUF. As he acknowledged “the market did not calculate the crisis. From 2008 onwards, the exchange rate between the Swiss Frank and the Hungarian Forint changed in an adverse way, (...), the consequence of which was that the

⁷² Decisions C(2013) 9632 final and C(2013) 9634 final.

⁷³ Decisions C(2014) 5857 final and C(2014) 9858 final.

monthly instalments of the said loans increased to such extent that caused a very high percentage of defaults.”

Hungarian banks accumulated a significant stock of NPLs, which became particularly worrisome with the CRE loans. In fact, for many corporate loans the balance sheet clean-up took place, but in the particular case of the CRE loans the size of the problem continuously escalated until 2014. At that juncture, the Hungarian central bank (hereinafter, MNB, for his Hungarian acronym) warned “the oversupply of problematic commercial properties, as well as the absence of demand for such type of receivables are fundamental problems” and its macroeconomic policy area decided to intervene (MNB, 2014).

Before 2015 and compared to the situation in other European markets, in Hungary, the private sector appetite on NPLs was rather limited. There were no many investors, especially international players, willing to enter the distressed assets market due to the size and fragmentation of the local NPLs market. MNB (2015) explained that “for the international investor an equity investment of EUR 45-50mn. (HUF 13-15 billion) would already be sufficient to enter the Hungarian market, but in investors' opinion, the Hungarian market is too small for this” and, moreover, “the portfolio of the individual actors is not sufficiently homogeneous to reach the desired level of investment”.

In this context, in November 2014 the MNB created the Magyar Reorganizációs és Követeléskezelő Zártkörűen Működő Részvénytársaság (the Hungarian Reorganization and Receivables Management Private Limited Company, hereinafter, “MARK Zrt.”) to deal with the persistently high level of NPEs in the commercial real estate sector. This separate legal entity would buy, at market prices, collateralised CRE NPLs as well as repossessed CRE. MNB set this entity, with a ten-year mandate, and an equity amounting to HUF 21.7bn. MNM committed itself to provide the funds needed, on arm’s length basis, for the assets purchase in the form of a loan of HUF 300bn. As its focus was on addressing the CRE sector as a whole, not only Hungarian banks, but also any solvent financial institutions of the European Economic Area with

CRE in the country was potentially eligible for the transfer of eligible exposures to the AMC.

In parallel, the activation of a systemic risk buffer on the basis of Article 133 CRD was announced, but it would enter into force as of 1 January 2017. The institution-specific buffer would range between 0% and 2% on top of the Pillar I capital requirement, considering the ratio of CRE NPEs to the Pillar I capital requirement for allocating the Hungarian credit institutions into buckets. This was designed to serve as an incentive for banks to reduce the existing stock of these exposures by year-end 2016 to avoid the add-on. This was an experiment, as ESRB (2016) highlighted “the use of the systemic risk buffer in this particular case is somewhat peculiar since its purpose is to address already materialised risks related to an existing stock of CRE exposures”. It is worth clarifying that typically this macroprudential tool is meant for avoiding the proliferation of future problems rather than to solve them.

To further develop the AMC scheme the MNB requested the technical assistance of European and also international bodies. The IMF sent a technical assistance mission to Budapest in mid-January 2015 and a second one from 4 to 6 June 2015 to evaluate the progress achieved and provide final recommendations. The focus of the first mission was to develop a clear mandate of the AMC and its operational framework. The IMF officials noted that “public sector ownership of real assets or loans is generally considered a fiscal function that can potentially generate conflicts with core monetary policy objectives”. Therefore, they suggested that MARK Zrt. should be provided with a governance and operational framework that would “ensure that no formal obstacles exist to “exit” through sale of shares in MARK (or refinancing MNB loans in the capital markets)” (IMF, 2015a).

In the second in-person mission the IRT official focused on explaining the best practices in the area of funding provisions of AMCs. They acknowledged that MARK was fully owned and funded by the MNB and noted that this setup had facilitated the prompt creation of MARK Zrt. However, they reiterated that the end goal of its

mandate should be that it would be “opened to international professional investors to bring MARK closer to the preferred ownership model” (IMF, 2015b). Therefore, they recommended that the AMC would issue bonds, eventually with a government guarantee, to pay the acquisition of assets instead of the MNB fully funding these transfers of assets to MARK Zrt. Nevertheless, as Dreyer (2021) argued, “the Hungarian officials did not ultimately change the plans for MARK’s initial financing but planned to refinance the loan in the market in the medium term”, without providing a clear timeline for its exit strategy in terms of the funding of the AMC⁷⁴.

Moreover, also in 2015 the Hungarian authorities contacted the European Commission to consult with them the operational features of MARK Zrt. before the start of its operations in 2016. In particular, from June 2015 to February 2016 the discussions focused on (i) the portfolio selection methods, and (ii) the pricing models. This should help to justify that the transfer of assets would be executed at market prices and avoid the provision of State aid to the beneficiary institutions.

For ensuring legal certainty, the Hungarian authorities officially notified the scheme to the European Commission on 19 January 2016. On 10 February 2016 the European Commission decided that, based on the information provided by the Hungarian authorities, the measure did not constitute aid. Therefore, it validated the portfolio selection methods as well as the pricing models. The MNB (2016b) clearly acknowledged that “following the successful conclusion of long negotiations with the European Commission and with the approval of the market pricing method, the domestic commercial real estate market became more transparent”. The MNB (2016a) also stressed the novelty of the scheme by confirming that “the launch of MARK Zrt. have been completed and accordingly, setting a new precedent in Europe, a market-based central asset manager”.

⁷⁴ In fact, the only clear commitment was that if by year-end 2024, MARK Zrt. would still hold any purchased assets and the entity would be still under the control of MNB, it should either be privatised or sell those assets and be wound down within twelve months.

With this validation, MARK Zrt. could start to fulfil its mandate. In this regard, it is worth clarifying that entering into discussions with MARK Zrt. was purely voluntary, as the potential beneficiary entities would have the final word on whether to transfer or not the CRE exposures (i.e. offices, industrial, retail, hotels and land plots) at the proposed transfer price. For the expression of interest MARK Zrt. on 21 March 2016 launched a three-month call for entities to react. By 21 June 2016 23 banks positively replied by sending the so-called “eligible assets lists” with an aggregated potential perimeter of more than the envisaged target (i.e. HUF 300bn.) with an estimated transfer price between HUF 90 and 125bn. MNB (2016b), in a press release, proudly noted that “financial institutions share the MNB’s commitment to the faster resolution of the high non-performing corporate exposure by international standards, thereby contributing to bank lending activity adequately supporting sustainable economic growth”.

At this juncture, the MNB, considered that it was time to guide others. The Executive Director Monetary policy, Financial Stability and Lending Incentives at MNB, Virág (2016), in a letter to the ESRB, explained that they took inspiration from the “idea of managing distressed assets as a central bank (...) from the example of Stabfund of the Swiss National Bank”. He also noted that “MARK is a unique macroprudential tool and thus it can clearly and fundamentally be distinguished from previous bad banks or asset management companies established within the European Union, where capital relief had occurred in case of banks in severe financial distress”. Therefore, he considered it could be useful for dealing with a similar countries in other Member States, so MNB offered its assistance as a hub of innovative practices in this area.

In terms of structure, already in 2015, MARK Zrt. created a subsidiary, *MARK Ingatlan Zrt.*, to manage the repossessed CRE and associated trading activities. Before the assets transfer a valuation and due diligence had to be conducted prior to sending to the beneficiary institutions even indicative transfer prices, under its pricing methodology.

MARK Zrt. decided to conduct the valuation of assets in several rounds, aggregating the eligible assets list in portfolios following a random selection process. For every beneficiary entity it would receive a first portfolio and upon its assessment within three months a second one and so on. This iterative process would be repeated until the completion of the valuation of all eligible exposures on the basis of an exhaustive review of the data tapes received and after performing a due diligence.

MARK Zrt. developed a detailed pricing methodology for the calculation of the market value of the transfer perimeter. Once the valuation of the CRE would be determined, that value will be used as an input in MARK's pricing model to calculate the theoretical maximum price using two discounts applied in the three scenarios envisaged (i.e. restructuring, enforcement and liquidation). A first deduction ranging from 1% to 8% as operational and risk cost, followed by a second deduction considering a weighted average cost of capital (hereinafter, also "WACC") of 7% to 15% over the enforcement time and the appropriate time to sale or liquidate, depending on the property type and its location. Moreover, to make sure that the final transfer price was adequately reflecting market prices, for designing its methodology the Hungarian authorities considered the NPL transactions executed in the country over the previous three years. Finally, as ultimate safeguard the so-called "cap price"⁷⁵ was included within the methodology as the maximum price to be offered to the beneficiary entities for their eligible assets (European Commission, 2016).

However, MARK Zrt., as subsidiary of the MNB, did not acquire nor manage any assets. In 2017, as part of its 2016 Annual Report the ECB (2017) disclosed that it had determined that the establishment of MARK infringed the relevant provisions under Article 123 of TFEU⁷⁶ and the Council Regulation (EC) No 3603/93, and considered the funding scheme of MARK a "violation of the monetary financing

⁷⁵ The sum of the gross outstanding amount of each NPL in the portfolio and the gross outstanding amount of the original NPL at the time when the CRE was repossessed.

⁷⁶ Article 123 of TFEU prohibits the ECB and the national central banks from providing overdraft facilities or any other type of credit facility to governments and EU institutions or bodies, as well as from purchasing in the primary market debt instruments issued by these institutions.

prohibition”. Therefore, it instructed the Hungarian central bank to correct this infringement. In 2016 the MNB had already announced its decision to rely on external funding without giving a precise timeline.

It is likely that the ECB’s disclosure of this infringement could have led the MNB to launch a private tender for the sale of MARK in 2017. However, MNB (2017) justified the sale of MARK on the grounds that it was no longer needed “as the share of corporate non-performing loans in the banking system was reduced by almost half, which can now be considered low, the remaining portfolio can already be managed by the market”. The Hungarian central bank also recognised that “the announcement of a systemic risk capital buffer for troubled commercial real estate exposures prompted banks to clean up their portfolios (...) and MARK Zrt. supported the market from the demand side”.

In 2014, MNB (2014) had already clarified that its intention was “to wait for the appropriate market environment to sell the assets at a fair price, in the meantime ensuring optimum management and where possible reorganization and restructuring, thus also ensuring the highest possible recovery”. For the fulfilment of this objective it envisaged a ten-year mandate for MARK Zrt., which at the end of the day was shortened significantly, as explained.

Precisely, on 30 June 2017, the MNB (2017), after reducing its capital to the statutory minimum, sold MARK Zrt. to a Slovak investor, *APS Investment s.r.o.*, with a profit of circa HUF 200mn. More important than this gain was that the innovative solution the MNB envisaged was successful: (i) a pricing methodology, validated by the European Commission, which enhanced the market transparency as it focused on determining market prices for the transfer of exposures to MARK Zrt., and (ii) the announcement of the inclusion of the macroprudencial buffer as of January 2017. All those features of the scheme clearly kick-started the secondary markets of CRE NPLs in Hungary and decisively contributed to revert the previous trend of accumulation of CRE NPLs in the balance sheet of Hungarian banks.

This was acknowledged by several international organisations which had been following closely the development of this AMC. The IMF (2017) highlighted that the establishment of the AMC as a subsidiary of the central bank was meant to be an interim solution prior to its transfer to a private market operator and argued that “its success in addressing the NPL overhang in the initial period accompanied by the pre-emptive introduction of the systemic risk buffer allowed for a significant drop in the problem portfolio already after 2 years”.

In turn, the OECD (2019) recognised that MARK “had an initial positive effect. Nonetheless, the sale runs somewhat against current European Union reform efforts to develop, among others, a secondary market for NPLs and prevent future NPL build-ups“. Therefore, in its view, the sale of MARK might have been done too early. In this regard, the OECD (2019) noted that “further reduction in NPLs is facilitated by the strong economy, but may be hampered by a lack of an official trading platform and a framework for selling impaired loans”.

Table 5.38. Main elements of the establishment of MARK Zrt.

Topic	Description
Objective	mitigate systemic risks stemming from non-performing project exposures and introduce incentive measures to stimulate the credit market
Action	No assets transferred.
Beneficiary	Any solvent and liquid credit institution (both corporations and co-operatives), either registered in Hungary or in the European Economic Area, which has commercial real estate exposure in Hungary or holds Hungarian commercial real estate on its balance sheet.
Participation	Voluntary.
Procedure	Eligible institutions voluntarily applied to participate in the scheme via sending a list of eligible assets, which were split into several portfolios by the central bank. Then, the assessment via detailed valuation methodology was performed. Following a review of the data tapes a due diligence conducted to the transfer price calibration prior to the assets transfer.

Recipient of the identified perimeter	MARK Zrt.
Ownership	Public
Budget/Size	HUF 300 billion [circa EUR 950 mn. as of mid-November 2014]
Scope of assets	(i) CRE NPLs (with a minimum outstanding value of HUF 500 mn.) and (ii) repossessed CREs (with a minimum market value of HUF 200 mn.) located in Hungary.
Transfer price	Market price
Cuff-off date	N/A
Minimum haircut	1-8% of operational and risk cost, followed by a second deduction considering a WACC of 7% to 15% depending on the disposal envisaged process.

Source: Own elaboration, based on European Commission⁷⁷, 2016.

5.3.4. The Italian case

After years of timid actions to address the proliferation of NPLs, caused by the severe and prolonged recession endangering the Italian economy, as of year-end 2014 the Italian banks' stock of NPLs amounted to EUR 350bn. with an average NPL ratio of 17.7%. Most of them referred to SME loans spread across several sectors. This was a distinctive feature compared to other case studies, where the NPLs were more concentrated in some sectors (e.g. real estate and construction in Ireland or Spain). Moreover, the fragmentation of the banking sector in Italy was also not helpful as small banks lacked the capabilities to efficiently manage those NPLs.

In this context the creation of a centralised AMC in Italy had already been a recurrent topic both among media commentators as well as in academia, when, in April 2015, the Bank of Italy decided to be more vocal about this tool. However, it warned that compared to previously established AMCs the EU legislation had changed in such a way that Italy should make sure that no State aid was granted to the beneficiary banks, so the proposed AMC should buy NPLs at market value (Bank of Italy, 2015).

⁷⁷ Decision C(2016) 820 final.

In September 2015, the Governor of Bank of Italy, Visco (2015), provided some light about the ongoing technical discussions with the European Commission. The proposal for the Italian systemic AMC would have distinctive features compared to previous cases, as it would target solvent banks and transfers at market prices in a purely voluntary scheme. Therefore, he noted that “these important differences substantially increase the complexity of the scheme, whose feasibility is still being studied. This is the object of the current interaction with the European Commission”.

The discussions at political level were more subtle until early 2016. Precisely, on 10 February 2016, the European Commission (2016) disclosed that in February 2015 the Italian authorities had informally communicated “their intention to establish a system-wide Asset Management Company whose operations would not involve State aid, to address the problem of NPLs on the balance sheets of Italian banks”. As disclosed, the Italian authorities and the European Commission services held several exchanges where the Italian authorities provided additional information on the context of their plan. This informal consultation ran from February to December 2015. However, at the end of 2015, the Italian authorities also informally noted to the European Commission that “they no longer wished to pursue a solution based on a centralised Asset Management Company but would consider other options”.

A few days later, on 12 January 2016, the Italian authorities formally submitted a proposal to the European Commission expressing their intention to create a guarantee scheme to support the securitisation of NPLs. Consequently, the Italian authorities decided to follow another option to tackle the high level of NPLs booked on Italian banks’ books. Instead of the centralised AMC they decided to introduce a state-guarantee securitisation scheme (in particular to the senior tranches of securitisation structures containing NPLs from Italian banks), the so-called “GACS”⁷⁸.

⁷⁸ Garanzia Cartolarizzazione Sofferenze.

However, on 3 May 2016 the Ministry of Finance decided to acquire *Società per la Gestione di Attività - SGA S.p.A.* This former state-owned company⁷⁹ was since 1996 focused on disposing the transferred perimeter from Banco di Napoli S.p.A. upon its failure in 1996 with significant success. It only became profitable as from 2003 onwards, but at the time of its sale to the Ministry its retained earnings amounted to circa EUR 500mn. from an initial transferred perimeter of EUR 6.4bn. The Italian authorities paid circa EUR 600 mn. for this entity to Intesa Sanpaolo S.p.A.

According to Maglio et al. (2017) with this acquisition they aimed to intervene in the NPL secondary market in Italy. Therefore, Article 7(2) of the Decree-Law n.59 of 3 May⁸⁰ enhanced the mandate of SGA, S.p.A. to perform activities beyond its initial mandate of disposing the assets received from Banco di Napoli. In this regard, Ramos Muñoz and Lamandini (2021) argued that re-using existing legal entities could facilitate the prompt action when looking for prompt action to address the accumulation of NPLs in the banks' balance sheets.

This process concluded with the amendment of the SGA's bylaws, approved by its general assembly, on 5 October 2016 to pave the way for its new role, i.e. to allow for the acquisition and management of loans received from other institutions than the Banco di Napoli (SGA, 2017).

In November 2017, Visco (2017) called for a reform of the EU relevant legislation to allow for enhanced flexibility in the use of public funds. He argued that “it is important to carefully evaluate the costs directly and immediately borne by the State in each single intervention. However, those that may arise from a mismanagement of the crisis should also be carefully considered”. Particularly, he stressed the need to improve the bank crisis resolution regime and reconsider the importance of systemic tools such as AMCs to effectively tackle “the seriousness of

⁷⁹ Since then the Ministry of the Economy and Finance owned 99.78% of its shares, whereas 0.22% were held by other shareholders.

⁸⁰ Decreto Legge 3 maggio 2016, n. 59 Disposizioni urgenti in materia di procedure esecutive e concorsuali, nonche' a favore degli investitori in banche in liquidazione. (16G00076). Decreto-Legge convertito con modificazioni dalla L. 30 giugno 2016, n. 119 (in G.U. 02/07/2016, n. 153).

macroeconomic shocks”, “the negative externalities that come from the dismal performance of the real economy”, and “the market failures that result from the lack of a robust secondary market for NPLs” with them, even if there is the need to use public funds.

He reiterated some of the features to effectively tackle the NPLs burden. In his view, it would be crucial for an AMC to draw the interest of a significant number of banks, while being a voluntary scheme. Moreover, there should be predefined standard restructuring plans and the transfer prices should be determined striking the balance between profitability of the AMC and the consideration of the REV as main indicator to come up with prudent but realistic valuations that would also be considered a reasonable recovery rate over time.

Between 2016 and 2017, SGA, S.p.A. participated, in conjunction with the Italian Recovery Fund, in “Progetto Cube”, “Progetto Este”, “Progetto Berenice” and “Progetto Valentine” with Banca Marche S.p.A., Nuova Cassa di Risparmio di Ferrara S.p.A., Casa di Risparmio di Cesena S.p.A. and Gruppo MPS, respectively. Moreover, in late December 2017 the entity became a shareholder of Banca Carige S.p.A., a stake that was classified as available for sale (SGA, 2018).

In 2018, the Ministerial Decree n. 221 of 22 February 2018 assigned to SGA S.p.A. AMCO NPLs portfolios from two Venetian entities in liquidation: several portfolios from Veneto Banca S.p.A. in administrative compulsory liquidation of EUR 7,723mn. of total gross value and EUR 2,426mn. of net value and several portfolios from Banca Popolare di Vicenza S.p.A. in administrative compulsory liquidation of EUR 9,019 mn. of book value and EUR 2,769mn. of net value. In addition to the NPLs of the two banks, the transfer also involved securitisation securities issued by Flaminia SPV S.r.l. and Ambra SPV S.r.l., and the ownership of foreign loans relating to the banks formerly controlled by Veneto Banca S.p.A. in Croatia, Albania, Moldova and Romania (AMCO, 2019).

On 19 July 2019, via an extraordinary general assembly, it was approved the change of denomination to AMCO - Asset Management Company S.p.A. (hereinafter, also

“AMCO”), which was registered as at 4 September 2019. On 20 December 2019 AMCO acquired a NPLs portfolio with a gross book value of EUR 2.3 bn. from Banca Carige Group S.p.A. and the potential transfer of a leasing finance portfolio of EUR 0.5bn. of book value subject to some preconditions in 2020. The compensation paid amounted to EUR 1,059mn. All transactions were done at market prices, which the European Commission confirmed that were conducted being compatible with the State Aid rules.

As in 2018 it had already acquired some Unlikely to Pay exposures (hereinafter, also “UTP”) from the Venetian banks, in 2019 the entity launched a new project, the Cuvée real estate fund, which aimed to be first multi-originator of UTP to better structure its management of these exposures.

This was the start of a new U-turn in its role as manager of NPEs. In 2020 Za (2020) reported that “AMCO has also started participating in the sale of debts from healthy lenders, creating a stir in the market” and complemented this information by expressing the concerns among private investors in this market, as “state backing allows AMCO to raise cheaper financing, and in accepting lower returns than private investors AMCO can offer more for loans”. However, AMCO denied these accusations by explaining that during the year its bids were not successful in several transactions.

In September 2020, in the context of the COVID-19 crisis, Visco (2020) called for a revision of the existing European rules to facilitate the establishment of domestic AMCs “without being subject to some of the current rules, for example by not having to automatically activate burden-sharing if loans are sold at their ‘true economic value’” to the AMCs. Moreover, he highlighted the important role AMCO, which he denominated as “a de facto AMC”, had for the Italian economy in managing distressed assets.

In 2021, AMCO entered into transfer agreements with Banca Carige S.p.A., and Iccrea Cooperative Banking Group. From Banca Carige S.p.A AMCO acquired two NPL portfolios, one of EUR 70mn and another one of EUR 18mn..of gross book value

resulting from lease agreements, primarily in the real estate sector From Iccrea AMCO received EUR 264 mn. (gross book value), which referred to EUR 222mn. in loans and receivables from corporate clients of Iccrea Banca, Banca Sviluppo, and 30 other mutual banks as well as EUR 42 mn. in non-performing corporate lease receivables from Iccrea Bancalmpresa. Moreover, it purchased additional UTP exposures from BPER Banca, Banco Desio and Iccrea Banca and CRA Binasco for a total of circa EUR 200mn. of gross book value. At year-end 2021 the Cuvee platform had already EUR 1.1bn of UTP exposures under management.

With its newly extended firepower and following a more comprehensive approach, in 2022 AMCO acquired several NPL portfolios with a total gross book value of EUR 5.8bn.: (i) On 20 November 2022 EUR 206mn. from Banca Monte dei Paschi di Siena; (ii) On 14 December 2022 EUR 2,557mn. from Unipol Recl.; (iii) On 15 December 2022 EUR 1,543mn. from Banca Popolare dell'Emilia Romagna; (iv) On 19 December 2022 EUR 1,364mn. from Intesa Sanpaolo. As of year-end 2022 the AMCO had EUR 36.4bn. of assets under management (AMCO, 2023a).

Table 5.39. Evolution of AMCO in terms of portfolio managed and number of employees

Indicator	2017	2018	2019	2020	2021	2022
Assets under management [EUR bn.]	2	20	23	34	33	36.4
Number of employees	71	144	233	287	342	373

Source: Own elaboration, based on AMCO, 2023b.

Moreover, on 26 August 2022 the European Commission confirmed that the Italian plan to enable the transfer of certain state-guaranteed loans, typically Stage 2 assets, to a newly created platform managed by AMCO would not entail any State aid, as the sale of the loans to that platform would be conducted on market terms.

5.4. Phase III of the establishment of AMCs: 2016-2019

5.4.1. Calls for EU-wide AMC and drawbacks

During 2016 and 2017 the role of AMCs in how to tackle the still high level of NPLs at European level was an important part of the European academic and political

debate. However, to be fair we should go a few years back not to forget the pioneers in this debate.

In November 2013, Beck and Trebesch (2013) proposed the establishment of a unified Eurozone approach which should combine both centralised control with decentralised implementation, the so-called Eurozone Restructuring Agency (hereinafter, ERA). They considered that it should be a purely temporary body to deal with legacy problems to be clearly delimited by the 2014 asset quality review and stress tests. This agency, owned by the Eurozone Member States with the same allocation of capital as in the European Stability Mechanism (hereinafter, ESM), would either liquidate or restructure weak or failing banks. The ESM, precisely, would provide for its initial funding needs, which would be replaced over time by Eurozone Member States guarantees or directly by issuing in the markets. In their own words: “At the end of the process, the ERA will thus become a mother entity with decision and delegation power over national resolution schemes”. Therefore, ERA would provide assistance in form of loans and even capital to AMCs already established in the Eurozone Member States. This entity would have “centralised decision power over the bad banks and their assets portfolio”, but they argued that “bank management and the liquidation of the non-performing assets are, in our opinion, best done at the local level”. Therefore, they advocated for a decentralisation of the implementation of the strategy adopted at ERA level.

In June 2016 the OECD (2016) reinvigorated the debate when it mentioned that, in the context of policy options for the improvement of the monetary transmission by resolving NPLs, setting up an AMC at European level could be a very efficient tool, as it would “maximise economies of scale and diversify asset recovery risks. At the same time, potential cross-country risk sharing could be compensated by some financial sector conditionality applied to countries benefiting from the European AMC”. The OECD did not develop how to structure its idea based on the existing EU legal framework, but called for a more flexible interpretation of the EU applicable legislation: “measures to treat NPLs on bank balance sheets within the existing rules without triggering bail-in and resolution procedures should be examined, including

possible initiatives at the European level”. It did not go any further than suggesting that two alternative way-forward: “a very high level of NPLs should be considered a serious economic disturbance and warrant such a waiver to bail-in and resolution procedures within the existing rules” or “a more lenient approach in the definition of the price level triggering state aid - and hence resolution - could be applied”.

In January 2017 the proposal jumped from the academic debate to the forefront of the policy debate. EBA staff members prepared a proposal, Haben and Quagliariello⁸¹ (2017), which was then published on 20 February in a specialised news outlet. They advocated for the establishment of a European-wide AMC or at least a coordinated blueprint for state-owned AMCs. From their point of view, which they clarified was not necessarily the one of the EBA, would have a number of advantages, namely: (i) lower funding and operational costs; (ii) ensure a critical mass on both supply and demand side; and (iii) help to interpret the interplay between the State Aid rules and the recovery and resolution framework. It could be operationalised via the precautionary recapitalisation instrument combined with a transfer of assets at REV with a “clawback in the form of warrants to national government with a strike price which would be triggered if the final sale price is lower than the real economic value”.

A few days earlier, on 30 January 2017, this proposal even jumped to the political debate, as Enria (2017), at the time chairman of the EBA, pencilled the proposal of its staff members in an event the ESM organised. He explained that the eligible NPLs would be some pre-agreed segments, not all. He stressed that the proposal was complaint with the State aid rules as well as the new recovery and resolution framework. Finally, he also argued that the adequate burden-sharing would be in place with the clawback warrants, as if the sale price of the assets transferred would be lower than the transfer price, the subsequent bank’s recapitalisation would dilute the original shareholders of the beneficiary bank.

⁸¹ Piers Haben was at the time EBA’s director of oversight, and Mario Quagliariello was at the time EBA’s head of the risk analysis unit.

In the same event, the ESM managing director, Regling (2017), welcomed Enria's proposal as it did not entail a mutualisation of risk, but stressed that there were a number of issues that would need further clarifications, namely governance, funding and the role of the national governments. Moreover, he argued that aiming to manage circa EUR 200-250 bn. of NPLs would be extremely challenging, as it would mean the transfer of millions of loans of borrowers which should be worked-out. He noted that a simplistic solution was not feasible to effectively tackling the problematic aspects of NPLs, because this proposal "should not just be a vehicle to clean up the balance sheets of banks, so as not to simply shift the problem between the public and private sector. If the problem of over-indebtedness is not dealt with, it will come back to haunt us later".

The first reaction outside that event came only a few days later, on 3 February, Constâncio (2017), Vice-president of the ECB, also welcomed the initiative, "particularly because it would facilitate raising private funding in the market", but stressed that "a true European AMC faces however difficulties in the present environment". Therefore, he advocated for "the creation of a European blueprint for AMCs to be used at national level. This European blueprint should clarify what is possible within a flexible approach to the existent regulation and encourage countries to adopt all necessary measures in a well-defined time frame".

In March 2017, Nouy (2017), head of the Supervisory Board of the Single Supervisory Mechanism, also welcomed that this option was put on the political debate. She acknowledged some of its benefits: "it reduces the stigma for the banks and the countries using it" and it would also shift the bargaining powers from the buyers to a "strong centralised seller", but she argued that "it's not a panacea for sure; it will not fix all issues. It's just one of the tools among a few others". She also argued that she was in clear disagreement with some of its more distinctive features, such as the clawback mechanism.

In the academia, there were also diverging views. Hellwig (2017) was not satisfied with Enria's proposal as he noted that the "clawback requirements are problematic.

If they are credible they are likely to defeat the purpose of the exercise because risk is merely shifted from the asset side to the liabilities side of the banks' balance sheet". He argued that this proposal might be seen as an accounting trick as "the accounting rules may allow the banks to hide this risk but then the accounting rules do not do justice to the economics of the situation".

However, in April 2017 Beck (2017) adopted a new approach compared to its 2013 proposal, as he advocated for an AMC "at the Eurozone level". He justified his proposal based on four aspects: (i) the economies of scale and reduction of operating costs; (ii) limited pressure exercised on banks to clean up their balance sheets at national level; and (iii) the need to ensure the single market for banks, as large EU banks already had direct and indirect exposure to NPLs in several Member States; and (iv) as secondary objective it would "provide an important impetus for institutional reforms in the countries with the highest levels of NPLs". He lamented that his 2013 proposal "could have been established relatively easily before the adoption of the EU Bank Recovery and Resolution Directive, provided that the political will had been there". However, he admitted that, in his view, the existing legislation would constrain its creation as "the tighter rules on taxpayer-funded recapitalisation and state aid concerns make the establishment of such an agency difficult from a legal point of view".

This proposal also received some critics. De Haas, Markovic and Plekhanov (2017) argued that Beck's proposal "may bring about moral hazard as NPLs are unevenly spread across the Eurozone countries, while the burden is equally shared between taxpayers". Moreover, its restriction to the Eurozone was not addressing the "significant NPL burden of many countries outside the Eurozone, especially in Central, Eastern and South-Eastern Europe (CESEE). Additional measures would need to be taken in this region, in particular since the smaller absolute size of their NPL markets renders". Therefore, they advocated for putting the spotlight on collective efforts, such as the NPL Initiative of the Vienna Initiative platform, coordinated by the European Bank for Reconstruction and Development.

Vice-president Dombrovskis (2017) closed the debate when he argued that “tackling NPLs is primarily the responsibility of Member States, because the level and structure of NPLs differ from one country to another and policy instruments to address the NPLs are within the competence of Member States”. Instead of the EU-wide AMC he noted that among Member States “there was a broad support to develop a blueprint on how to devise a national asset management company”. For this he highlighted that, on one hand, there were “existing market experience of already existing AMCs which are working already in several Member States” and it was crucial that there were clarity on how to interpret the new EU legal framework.

5.4.2. The AMC Blueprint of the European Commission

In March 2018 the European Commission, as a Commission staff working document, and in the context of the Second Progress Report on the Reduction of Non-Performing Loans in Europe, published its *AMC Blueprint*. With this policy development, it fulfilled the mandate of the European Council on its *Action Plan To Tackle Non-Performing Loans In Europe* of 11 July 2017. It aimed at providing guidance on how to design and set up an AMC in Europe for the Member States to duly considered it, but, at the same time, it recognised that “other ways of designing and operating an AMC may be possible” as long as they comply with the EU legal framework, particularly the State aid rules as well as the recovery and resolution framework (European Commission, 2018).

From the policy side this was a recurrent request. For example, Fell et al. (2017) clearly called for this EU initiative: “We see value in developing a European blueprint for national AMCs that clarifies how such AMCs can be established in full respect of the EU legal framework and drawing on international best practices”.

From the State aid viewpoint, as Boudghene and Maes (2012) noted “albeit the discretion lies with the Member States, we would hope that Member States start using national schemes more than they have been doing so far”. They considered that this approach would be beneficial as it would facilitate a level playing field and the convergence of best practices across Member States for the asset relief design,

including “valuation approaches, remuneration, balancing bank versus State insurance, eligibility of assets, etc. (...). Eventually the publication of this Blueprint would facilitate the development of national schemes to deal with NPLs instead of bank-specific solutions”.

This well-deserved guidance for the establishment of centralised AMCs under the EU legal framework could be articulated in four main building blocks as presented below.

- **Design, Set-up and Corporate Structure**

- Legislative footprint of the objectives, functions and main features as well as the need for strong oversight.
- Clear mandate, avoiding any secondary objective not clearly subordinated to the main objectives.
- Independent legal functioning, avoiding political interference even in the case it is publicly-owned.
- Lack of bank license to facilitate its functioning.
- Transfers of assets executed in one-go, unless extraordinary circumstances are ex ante foreseen.
- Mandatory transfer of assets identified under the scope.

- **Strategic Planning**

- Ensure economies of scale by identifying appropriate critical minimum size.
- Facilitate its functioning via economies of scope by reducing the eligibility of impaired assets transferred.
- Maximize recoveries thanks to robust collateral management policies and adequate data documentation.

- Determine the universe of eligible impaired assets subject to being transferred, prioritising commercial real estate (hereinafter, CRE) over residential real estate (hereinafter, RRE).⁸²
 - Identify a robust funding structure, focusing on leverage. This could be structured via the issuance of senior unsecured bonds (eventually with the governmental guarantee based on a feasibility assessment) over the recourse to large equity contributions.
 - Design of a structure that ensures that the government could decide which is the most favourable sector classification for the AMC in the national accounts (e.g. typically as a financial corporations, instead of under the general government).
- **Conditions for Assets Transfer**
 - Definition of fair asset valuation, which ensures adequate relief to the troubled banks as well as maximization of the recoveries for the AMC that at least cover the costs incurred by its operations.
 - Observation of the State aid rules for minimising the impact on the public finances.
 - Identification of the real economic value of assets as guiding principle for the asset transfer methodology.
 - Determination of a floor for the valuation via performing a realistic quantification of the future cash flows and expected costs to be incurred during the management of the impaired assets to avoid the set-up of a loss-making AMC.

⁸² The management and realisation of collateral linked to RRE is typically challenging due to social and political unrest.

- **Internal Organisation, Staffing and Effective Operations**

- Ensure its budgetary and managerial independence as a tool to avoid political interference.
- Design a robust policy for staff hiring (merit-based) and adaptation throughout its operations.
- Implement a sound remuneration scheme to specialised staff with unique skills that would facilitate staff retention.
- Leverage on external servicing platforms, unless otherwise recommended.
- Define internal best practices to be replicated.
- Set up robust internal controls applicable to the entire organisation to secure its operations and ensure external credibility.
- Put in place a comprehensive disclosure framework to ensure adequate transparency of its operations.

5.4.3. Comparative assessment of NAMA, SAREB and DUTB against the EU Blueprint criteria

As explained, the first systemic asset management company established in the European Union after the impact of the GFC was NAMA. Consequently, when setting up the SAREB the Spanish authorities tried to replicate, to the extent possible, the best practices introduced by NAMA. Then, the Slovenian authorities leveraged on the experiences of NAMA and SAREB to design the DUTB. However, every country had to adapt the design of its AMC to their local specificities as well as the discussions with the European Commission as regards the compatibility of the envisaged scheme with the existing State aid rules.

For its success there are two key factors that are somehow not directly under the control of the AMC, which put an additional constraint on its efforts to deliver as per its strategic plan. The first one refers to the typology and volume of assets received. Of course, the higher the homogeneity and the larger its volume, the

easier its management. The second one is the macroeconomic evolution, in general, and the recovery in the real estate market, in particular (Alonso-Rodriguez, 2018). As such, in Ireland both factors had a positive sign since the early stages of NAMA. This might have facilitate that since 2011 it posted continuous profits. In the case of SAREB we have the opposite example.

- **Design, set-up and corporate structure**

The national relevant authorities in the three countries, following the European and other international bodies' recommendations, put in place a comprehensive legal framework ahead of the official establishment of the AMC. They clearly defined the objectives and main features of these companies ex ante and proposed a clear mandate. However, over time the political interference was gradually escalating, especially in Slovenia and more recently in Spain. This put into question the independent functioning of the AMC and even endangered its original mandate, in the case of SAREB with the definition of secondary objectives (e.g. social housing) and in the case of DUTB with the interference of the Ministry in the day-to-day running of the business at least until late 2015.

Table 5.40. Design, set-up and corporate structure of the AMCs

Principle	NAMA	SAREB	DUTB
Legislative footprint of the objectives, functions and main features as well as strong oversight	Yes	Yes	Yes
Clear mandate, avoiding any secondary objective not clearly subordinated to the main objectives.	Yes	Yes (until 2021), potential conflict with social housing expectations since 2022	Yes

Independent legal functioning, avoiding political interference even in the case it is publicly-owned.	Yes	Yes (until 2021), ídem	Doubtful
Lack of bank license to facilitate its functioning.	Yes	Yes	Yes
Mandatory transfer of assets identified under the scope.	No, formally speaking, but great incentives for banks to transfer	Yes	Yes
Transfers of assets executed in one-go, unless extraordinary circumstances are ex ante foreseen.	Yes	Yes, one per group of banks during the first months of its inception	No

Source: Own elaboration, based on publicly available data disclosed by the AMCs.

- **Internal organisation, staffing and effective operations**

NAMA decided to put in place a stylised structure, leveraging greatly on the business tools, support and IT services provided by the NTMA. Moreover, it relied on the transferring banks as well as on consultants and third party providers to execute its mandate (Martin, 2010). It put in place a detailed framework in terms of disclosures and staff eligibility, while was later replicated by SAREB and, to some extent, by DUTB. The latter was a good example of how to deal with the lack of specialised managerial profiles in the country, as it decided to hire international experts that would contribute not only with their technical knowledge but also with their independence to the success of its operations.

However, in the case of the Spanish AMC the initial set-up was not ideal, as within its ownership there were banks with significant NPLs. Therefore, potential conflict of interest could easily arise when managing the portfolio. This was exacerbated when SAREB decided to externalise key activities to servicers, some of which were

part of the same banking groups of their main private shareholders (Alonso-Rodriguez, 2016).

Table 5.41. Internal organisation of the AMCs

Principle	NAMA	SAREB	DUTB
Ensure its budgetary and managerial independence as a tool to avoid political interference.	Yes	Yes	No, at least until the applicable law was amended in late 2015.
Design a robust policy for staff hiring and adaptation throughout its operations.	Yes	Doubtful, as since its inception the AMC relied heavily on third-party providers	Yes
Implement a sound remuneration scheme to specialised staff with unique skills that would facilitate staff retention.	Yes	Yes	Yes
Leverage on external advisors and servicing platforms, unless otherwise recommended.	Yes	Yes	Yes
Set up robust internal controls applicable to the entire organisation to secure its operations and ensure external credibility.	Yes	Yes	Yes, despite some alleged scandals.
Put in place a comprehensive disclosure framework to ensure adequate transparency of its operations.	Yes	Yes	Doubtful, as even its original management argued that some aspects of its set-up were unclear.

Source: Own elaboration, based on publicly available data disclosed by the AMCs.

- **Conditions for assets transfer**

In the case of SAREB, the asset valuation was performed following a two-step approach. The starting point was the baseline scenario of the bottom-up exercise Oliver Wyman obtained, which would be considered as their economic value. Then, this preliminary valuation was adjusted to factor in the management and administration costs related to the asset transferred as well as the expected time for their disposal. This additional haircut was meant to recognise the nature of the activities of SAREB and the expected costs the AMC would face over the 15 years of its existence (FROB, 2010). However, these calculations were proven too optimistic, as SAREB had posted significant losses from the first year of its activity onwards.

Similarly, in what concerns the case of DUTB, the company did not participate in setting the transfer price, so from the outset it had doubts about the valuation method used. This led the DUTB to carry out its own analysis, which resulted in the recognition of circa EUR 93mn. of losses in its 2013 annual accounts. This new assessment set as accounting criterion fair value instead of real economic value. Similarly, its external audit, KPMG Slovenia, notified that it would not issue its audit report as it had significant doubts about the methodology and final valuation of the portfolio initially transferred to the DUTB. This casted some doubts about the AMC itself and its future functioning. This circumstance, paired with some social and political discontent, could be one of the causes that led to frequent changes in the management of the entity in its early years.

Table 5.42. Assets transfer to the AMCs

Principle	NAMA	SAREB	DUTB
Definition of fair asset valuation, which ensures adequate relief to the troubled banks as well as maximization of the recoveries for the AMC that at least cover the	Yes	Doubtful, as the AMC booked significant losses during the first years of its activity due to the deterioration	Doubtful, as the AMC was not involved and had to recognise losses once it reassessed the valuation of the assets transferred.

costs incurred by its operations (e.g. via involvement of external advisors).		of the assets received.	
Observation of the State aid rules for minimising the impact on the public finances.	Yes	Yes (until 2020)	Yes, however due to its set-up it was clear from its onset its classification under the general government block.
Identification of the real economic value of assets as guiding principle for the asset transfer methodology	Yes	Yes	No, only at its inception
Determination of a floor for the valuation via performing a realistic quantification of the future cash flows and expected costs to be incurred during the management of the impaired assets to avoid the set-up of a loss-making AMC.	Yes	No, miscalculation of the future cash flows and expected costs.	No

Source: Own elaboration, based on publicly available data disclosed by the AMCs.

- **Strategic Planning**

This dimension is essential in any new undertaking. The more complex an assignment is, the more adequate strategic planning is needed. Taking into account the complexity of creating a single portfolio coming from several transferring entities, it is key that economies of scope and scale are dully observed. In this regard, “the

AMC's size, suitable asset classes and the geographical coverage are critical success factors" as "the broader the scope, the greater the questions about how it would be managed in practice" (Carrascosa, 2020). These were features well-understood in the design of NAMA, whereas for SAREB and DUTB the focus was mainly placed on how to ensure adequate recapitalisation of the failed banks and sound balance sheets rather than identifying and transferring only assets that could be easily sold when the real estate market would recover.

Moreover, both the managers of NAMA and DUTB realised that they needed more time for the completion of the tasks entrusted to them, in an effort to avoid fire sales. Therefore, they requested for an extension of the AMC's timeframe. In the case of NAMA this was mostly driven by the fact that there were either ongoing legal actions or certain assets would benefit greatly for the heightening in the residential development market in the coming years. Based on these arguments the European Commission granted an extension of NAMA's timeline until December 2025 (Nye, 2021).

Similarly, originally the DUTB's exit strategy was severely constrained by its short lifetime (only 5 years, e.g. by mid-December 2017). However, it was later extended until 2022 to facilitate the disposal of assets and consequently avoid fire sales. Finally, despite rumours about a second extension, via a merger the remaining assets of DUTB were integrated into the Slovenian Sovereign Holding balance sheet as of 30 December 2022.

In the case of SAREB the most remarkable consideration refers to the amendment of its legal framework in January 2022, after the reclassification of the company under the general government. Consequently, the limits to the State's shareholding were removed (e.g. FROB could acquire additional shares). Moreover, a new objective was included within its mandate. As such, the new principle of sustainability would eventually play a key role by focusing on the implementation of social housing policies, leveraging on the existing assets of the company (Eurostat, 2022).

Table 5.43. Strategic planning of the AMCs

Principle	NAMA	SAREB	DUTB
Ensure economies of scale by identifying appropriate critical minimum size.	Yes	Yes	Yes
Facilitate its functioning via economies of scope by reducing the eligibility of impaired assets transferred.	Yes, limited	Doubtful, as even sizeable amount of land was transferred.	Yes
Maximize recoveries thanks to robust collateral management policies and adequate data documentation.	Yes	No, the data tapes received from troubled banks were incomplete.	No, the data tapes received from troubled banks were incomplete.
Determine the universe of eligible impaired assets subject to being transferred, prioritising CRE over RRE.	Yes	Yes, mainly corporate exposures	Yes, mainly corporate exposures
Identify a robust funding structure, focusing on leverage. This could be structured via the issuance of senior unsecured bonds (eventually with the governmental guarantee based on a feasibility assessment) over the recourse to large equity contributions.	Yes	Yes	Yes
Design of a structure that ensures that the government could decide which is the most favourable sector classification for the AMC in the national accounts (e.g. typically as a financial corporations, instead of under the general government).	Yes	Yes (until 2020)	No, due to the existing limitations (e.g. mostly state-owned banking sector)

Source: Own elaboration, based on publicly available data disclosed by the AMCs.

5.5. Phase IV of the establishment of AMCs: 2020-2022

5.5.1. Another call for an EU-wide AMC or further coordination among national centralised AMCs?

On 4 May 2020 a member of the German parliament, Mr Schäffler, sent a letter to the ECB asking for the ECB's views relating to the creation of a European asset management company. On 25 May 2020, Enria (2020a) replied noting that “the ECB Banking Supervision does not have a position on this issue”. He stressed that he had personally supported that idea in the past and noted that it could be “a useful tool in case of a significant, system-wide deterioration of asset quality. However, I also consider that it is premature to draw any definite conclusions with regard to potential damages arising from the COVID-19 crisis”.

On 7 July 2020, Carrascosa (2020) clearly disregarded the use of a European AMC to deal with NPLs in the aftermath of the COVID-19 crisis: “I do not see the need for - or feasibility of - setting up a European bad bank beyond the current resolution framework”. Moreover, he argued that potential surge on NPLs would come from SMEs and self-employed workers, as well as consumer loans, so the argument of ensuring economies of scale would not fly under this scenario, as they “would represent a huge number of loans, with a relatively low nominal value and mostly without valuable collateral”. He stressed that “this kind of asset does not fit with the usual features of assets managed by bad banks in the previous crisis, such as Spain's Sareb and Ireland's Nama” and considered that “keeping the loans on the bank balance sheet is more effective, as these customers belong to their core business”.

On 26 October 2020, Enria (2020b), this time as chair of the Supervisory Board of the SSM, noted that according to ECB's estimates “in a severe but plausible scenario non-performing loans at euro area banks could reach €1.4tn, well above the levels of the 2008 financial and 2011 EU sovereign debt crises. While we can hope for the best, we must prepare for the worst”. He also argued that “we also must do better than in previous crises (...) we need an integrated European response rather than a

plethora of uncoordinated national initiatives”. He advocated for either a European AMC or a network of national AMCs.

For such a network to be effective two of its more important features should be decided at EU level: funding and pricing arrangements. The centralised funding provision would “benefit from the EU’s credit standing and enjoy better market access”, whereas this should be paired with “standardised valuation methodologies and data to determine the price at which NPLs are transferred”⁸³. In terms of eligibility, European entities could transfer NPLs to the AMC(s) if ahead of the COVID-19 crisis they had a viable business model, while for other banks they should be subject to restructuring measures. He considered that the existing EU legal framework would be flexible enough to accommodate this proposal, but in case that was not the case authorities should be ready to fix it.

On 16 December 2020, the European Commission (2020) supported the establishment of “a cross-border network” of AMCs, where “national AMCs could exchange best practices and experience, implement data and transparency standards and coordinate creditor actions where necessary”. This network could therefore increase the collective effectiveness of national AMCs across the EU. Moreover, the European Commission argued that “the benefits of a network approach depend on the degree of homogeneity and number of national AMCs”. However, in any event this cooperation would be useful to exchange relevant and confidential data that would be useful respecting the EU antitrust legislation.

On 28 December 2020, Carrascosa (2020) considered that the focus of the European authorities should not be on the discussions around a European AMC, as it was unclear how to design its ownership, funding and pricing features. However, despite of not being his preferred option (i.e. adequate tools and incentives for banks to deal with NPLs themselves), he welcomed “the idea of a network of smaller asset

⁸³ Also the day after, on 27 October 2020, in the occasion of the Hearing at the European Parliament’s Economic and Monetary Affairs Committee of 27 October Enria (2020c) repeated his proposal: “A European initiative, for instance connecting in a network national AMCs, via common funding mechanisms and harmonised pricing, could be a useful tool for addressing the expected rise in NPLs and ensuring a level playing field within the banking union.”

management companies (AMCs), that are not publicly funded could be part of the solution”. He stressed the importance of going for an option with private funding of the AMC, as otherwise it would be difficult to comply with the application EU legal framework. In his view, there were three critical factors to be duly considered: “the AMC’s size, suitable asset classes and the geographical coverage”, as “the broader the scope, the greater the questions about how it would be managed in practice”.

Segall et al. (2021) argued that whether an AMC would be useful in the COVID-19 context it was somehow still premature to assess, as “it is not yet clear if NPLs that are expected to arise from the current pandemic crisis are different in nature to those of the previous crisis, and if so, whether AMCs are likely to be effective in dealing with them”.

Replying to a second letter received from Mr Schäffler, on 14 January 2021, Enria (2021) clarified that his proposal at the Financial Times did not represent the ECB’s position in this regard. He noted that it “remains a personal contribution to the policy debate, as the establishment of asset management companies, and the conditions for their compatibility with the EU legal environment, are outside the competences of the ECB”. Moreover, he stressed that some of its features were already considered in the European Commission’s detailing an action plan to tackle non-performing loans, which proposed the establishment of an EU network of AMCs.

Grünwald and Read (2022) noted that at the end of the day the establishment of centralised AMCs will be a discretionary decision of Member States. In their view, “comparative advantage in working out impaired loans through the transfer to an AMC is high for loans secured by commercial real estate and large corporate exposures, but that the effectiveness of AMCs may be limited for mortgages and SME loans”. As explained in the previous chapter, for the time being NPLs have not mounted due to the COVID-19 crisis. If so, they project that they “will likely be quite heterogeneous in terms of sectoral structure”. In their lecture of the EU Blueprint they consider that there are four scenarios for future AMCs:

Table 5.44. The use of AMCs based on the current EU legal framework

Scenarios	Description/Example
Used in a ‘going concern-scenario’ (i.e., outside of resolution or insolvency proceedings) and does not involve the award of State aid	Here we could leverage on the experience of MARK Zrt.
Used in a ‘going concern-scenario’ and does involve the award of State aid	It must be in line with the requirements for precautionary recapitalisation as set out in the bank resolution framework.
Used in resolution to operationalise the asset separation tool	It should be compliant with Article 42 BRRD and Article 26 SRMR as regards the asset separation tool.
Used in national insolvency proceedings to perform an asset separation	Here an example would be AMCO in the case of the Venetian banks. However, this entity was already an established entity whose mandate was extended.

Source: Own elaboration, based on Grünewald and Read, 2022.

5.5.2. The Greek case

Discussions on whether there was a need to create a centralised AMC were recurrent in Greece before this phase, but with the COVID-19 crisis they became more frequent. They started with the media, market participants and academia to move later on to the policy and political spheres.

On 29 May 2011, Reuters (2011) noted that the Greek media was already covering this topic, and there were proposals on establishing an AMC to centrally manage “the risky Greek bonds held by state-controlled lenders slated for privatization”. In 2013 the press was still echoing this possibility with different features. This time the proposal was to integrate the management of individual AMCs or units already created by several Greek banks under the same roof. In this regard, on 6 October 2013, Kontogiannis (2013) argued that “a national asset management company may assume the troubled assets of existing bad banks. These are steps in the right direction for banks to provide credit to the economy and avoid a short-lived creditless recovery”.

On 14 August 2015, this time in the political arena, the Eurogroup (2015) while evaluating the process made by Greece in the context of the existing MoU with regard to NPLs stressed that “given the magnitude of the problem, we urge the authorities to develop all necessary instruments to that end, including (...) exploring the possibility of a bad bank.” As Hradiský et al. (2016) argued “a number of measures were therefore committed to that end in the MoU of 19 August 2015, albeit it did not mention any concrete step toward the creation of a bad bank, beyond an assessment by the Bank of Greece of the banks' capacity to deal with each NPL segment.” However, again this idea did not fly.

On 19 September 2019, the governor of the Bank of Greece, Stournaras (2019) argued that Greece lost an opportunity to tackle its NPLs burden in the aftermath of the GFC during the first economic adjustment programme by “implementing the necessary legislative changes much earlier and introducing a systemic solution via a centralised Asset Management Company”. He called for a drastic reduction of NPLs via the establishment of a systemic AMC and highlighted that it was time to act as “similar solutions have been implemented in almost all Member States under financial stress”. Therefore, Greece was not only lagging behind but also not implemented a tool that had already been proven successful. On the contrary, in November 2019 the Greek Ministry of Finance decided to follow the Italian securitisations' path of GACS and established the Hellenic Asset Protection Scheme (also denominated “Hercules” or “HAPS”) in similar terms.

Later on, with the COVID-19 crisis and, at the time, its forecasted effects on NPLs the discussions around the establishment of a centralised AMC gained momentum again. Greece had a double problem: the legacy NPLs and the potential NPLs as a result of the COVID-19 crisis. Consequently, on 3 August 2020, Kourtali (2020) reported that “debt rating agencies have a positive view of the creation of a “bad bank” to handle nonperforming loans (NPLs) dragging down commercial banks' profits and ratings”. Apparently, they were putting pressure on Greece officials

saying that “the so-called Hercules plan to restructure the loans “is good but insufficient”.

In July 2020 the Bank of Greece (2020) announced that it was “developing a proposal for a scheme that involves the set-up of an Asset Management Company (AMC) in order to comprehensively tackle Greek banks’ troubled assets”. In operational terms, it noted that “the proposed scheme will fully utilise banks’ existing infrastructures as well as the NPL servicing platforms of third-party providers”. It clarified that the “potential losses related to the existing NPL legacy stock will be covered only by the private sector and not by the Greek taxpayer, up to the level of the minimum capital adequacy requirement” and disclosed that any transfer of assets would be at market prices. Therefore, the compatibility of the proposal with the State aid rules would be ensured. Finally, this should be considered a going-concern measure, not triggering any resolution measure to be imposed on Greek banks in this regard.

Also in July 2020, to operationalise this proposal Stournaras (2020a) disclosed that the Bank of Greece had selected, via a tender process, three investment banks and consultants to assist on the development of the features of the scheme. In September 2020, Mourmouras (2020), senior deputy governor at the Bank of Greece, argued that the transfer price should follow the REV, so it was not clear that Bank of Greece’s proposal would finally advocate for transfers at market price. In terms of funding of the systemic AMC, beyond the recourse to the issuance of senior bonds, he suggested that the ESM funds could also play an important role.

In December 2020 Stournaras (2020b) proposed the amendment of the State aid framework to allow for the establishment of systemic AMCs outside the resolution framework, as he considered that the “BRRD can address the failing of single banks, but cannot address systemic crises where financial stability is at risk”. He proposed to complement the HAPS by establishing a systemic AMC that should target the circa EUR 30bn. of NPLs outside the HAPS as well as the circa EUR 10bn expected as a

result of the COVID-19 crisis. In his view, the assets transfer should be at net book value to incentivise the transfers from Greek banks as well as “eliminate asymmetries in the cost associated with participation in the proposed scheme”.

The Bank of Greece sent its proposal to the Greek government arguing that it would complement the HAPS and would facilitate the prompt resolution of the NPLs burden on the Greek economy. However, this proposal was not detailed any further by the Greek government and was discarded.

5.6. The role of Eurostat and the national accounting rules

Eurostat applicable rules at the time of inception of the AMCs had a significant influence on their design in most European countries. As Braakmann and Forster (2011) argued “the allocation of such units to the government or to the private sector will have a substantially differing impact on government debt figures, which in turn may well affect the government’s credit standing and on its capital market refinance conditions”. On 15 July 2009, Eurostat (2009a) clarified the interpretation of the applicable framework with a specific decision to address public interventions to support financial institutions and financial markets during the, at the time, ongoing financial crisis⁸⁴. There was a clear preference for the “substance over form”. Therefore, the spotlight should be “on the economic reality and not the legal or administrative framework in which those operations are carried out”. However, the focus of this decision was on the concept of ownership, as the ESA 95⁸⁵ concept of control was basically restricted to verify the ownership.

However, as Gandrud and Hallerberg (2014) acknowledged “that ownership choices are not simply ‘window dressing’ but alter the way AMCs operate and their likely

⁸⁴ Decision of Eurostat on deficit and debt: The statistical recording of public interventions to support financial institutions and financial markets during the financial crisis.

⁸⁵ Council Regulation (EU) n° 2223/96, of 25 June 1996 on the European system of national and regional accounts in the Community (ESA 95).

efficiency at returning the banking system to health”. Its impact goes beyond the mere accounting terms of the AMC under the national accounting rules. In this regard, they highlighted that “Eurostat rules and the need to encourage private-sector involvement lead majority privately owned AMCs to acquire assets at higher haircuts”.

On 22 September 2009, the Irish authorities consulted with Eurostat about the sectorial classification of NAMA and its Master SPV. Only a few weeks later, on 16 October 2009, Eurostat (2009b) considered that NAMA should be classified within the general government sector, whereas for its Master SPV, in charge of the purchase and management of the assets, after assessing the purpose, duration and size of the expected losses, if any, concluded that it should be classified in the financial corporations sector.

Ireland and Spain found the way to meet the applicable rules to exclude the Master SPV of NAMA and SAREB from their impact to public debts, which at the time were already under significant pressure. However, as the beneficiary banks had to be recapitalised, in part, due to the haircuts included in the transfer prices, these recapitalisation amounts impacted in the deficit of the first year, but not any longer. In the case of Slovenia due to state-dominated banking system it was not feasible even to consider the identification of potential workarounds, so the DUTB was fully-owned by its government and consequently classified as general government sector. In the case of MARK Zrt. it was created as a subsidiary of the central bank. Finally, there were also no doubts in the case of UKAR or the two German AMCs, EEA and FMS-WS, as they were also part of the general government sector (Gandrud and Hallerberg, 2014).

5.6.1. The case of SAREB: Eurostat’s assessment at the time of inception

Upon the Spanish government request in 2012, Eurostat studied the classification of SAREB under the relevant national accounting rules, ESA 95 and the *Manual on government deficit and debt*, taking also into consideration the *15 July 2009 Eurostat decision on deficit and debt*. This decision aimed at clarifying the statistical

recording of public interventions to support financial institutions and financial markets during the financial crisis. It included the cumulative criteria that should be met to classify AMCs outside the general government section.

Table 5.45. Criteria and initial assessment of SAREB by Eurostat in 2013

Cumulative criteria		Assessment
Autonomy	It is an institutional unit	New entity with full governance capacity and autonomy of decision
Ownership	It is majority privately owned	54% privately owned, without any Golden vote for the public authorities
Mandate	The main purpose of the new unit must address solely the financial crisis	Focus on addressing solely the financial crisis among the Spanish saving banks
Timespan	The unit is established with a short, temporary duration	Up to 15 years
Performance	The expected losses that the unit will bear must be small in comparison with the total size of the liabilities	The business plan expected an average RoE above 10%

Source: Own elaboration based on Eurostat, 2013.

Consequently, as Eurostat did not oppose to the Spanish proposal as regards the fulfilment of the five conditions with the establishment of SAREB, it was classified by the Spanish National Institute of Statistics (INE, for its acronym in Spanish) in the financial corporations sector (S.12) with effect from 2012 onwards. Therefore, in practical terms, the guarantees provided by the Spanish government to this AMC were not treated as a liability of the government in the Spanish national accounts. This resulted in the non-registration of any fiscal impact on the general government due to its classification as a private financial institution not controlled by the government.

5.6.2. The case of SAREB: Adaptation of the assessment in the light of new circumstances

In October 2014, Spain adopted the new national statistical accounting standards, the Regulation (EU) No 549/2013 on the European system of national and regional accounts, known as ESA 2010, which replaced ESA 95. Among the changes introduced by ESA 2010 a new definition of public sector ownership was provided, broadening the concept of control. According to Medina Cas and Peresa (2016), ESA 2010 “led to a further tightening of the rules for AMCs to be classified outside of the general government sector” as the focus was now on the “entity that effectively bears the financial risk (and whether it is ultimately the sovereign) regardless of the AMCs’ ownership structure”.

In 2019 the issue of the sector classification of SAREB was raised again during the 2019 Excessive Deficit Procedure visit to Spain. As a follow-up action of this visit, Eurostat asked the INE to reconsider its initial decision or to provide adequate justification. This led to several exchanges of documentation between the parties that ended with the final Eurostat assessment, as presented in the table below.

Table 5.46. Updated assessment of SAREB by Eurostat in 2021

Cumulative criteria		Updated assessment	
Autonomy	It is an institutional unit	New entity with full governance capacity and autonomy of decision	Unchanged
Ownership	It is majority privately owned	54% privately owned, without any Golden vote for the public authorities	Changed: Based on the clarification provided by ESA 2010 paragraph 20.309.

Mandate	The main purpose of the new unit must address solely the financial crisis	Focus on addressing solely the financial crisis among the Spanish saving banks	Unchanged
Timespan	The unit is established with a short, temporary duration	Up to 15 years	Unchanged
Performance	The expected losses that the unit will bear must be small in comparison with the total size of the liabilities	The business plan expected an average RoE above 10% (e.g. 13%)	Changed: Due to high losses recorded since its inception (including complete impairment of FROB's capital position as of year-end 2019) and losses expected to continue in the future

Source: Own elaboration based on Eurostat, 2021.

On the basis of the ownership and performance criteria, Eurostat requested the INE to either reclassify SAREB as from its inception or from 2020 onwards. Spain chose the reclassification from 2020 onwards, which led to the recognition of EUR 10bn. of additional government deficit and additional debt of EUR 34bn., which represented 3% of GDP at market prices (Bank of Spain, 2021).

Once this reclassification was performed only technical issues remained unresolved. In particular, Eurostat raised the need to provide a consistent treatment to the “property investments and real estate assets, recorded on SAREB’s balance sheet (...), for which no expenditure had been imputed in national accounts at the time of

the sector reclassification in 2020” (Eurostat, 2022). With this requirement, Eurostat aimed to ensure that there was no gain recorded at the time of the disposal of those assets.

As a result of the reclassification of SAREB the government decided that its mandate could be enhanced to facilitate other economic objectives beyond its original strategic plan, e.g. the provision of social housing. This resulted in the implementation of its new legal framework and the introduction of a new operating model.

This reassessment, considering new legislation and methodologies that had not entered into force at the time of inception, might introduce uncertainty as regards the strategic design of the AMC. Moreover, there is a factor not fully taken into account, which refers to the fact that typically AMCs improve their cash flow generation over time, as the recovery of the real estate market is typically lagged compared to the general economic recovery. Therefore, the highest recovery rates could only become apparent towards the middle of the operations of the AMC. In this regard, if the reassessment is based on continuous losses of the AMC and then it starts to post profits, this might end up in a new reclassification, subject to the fact that other criteria are fulfilled.

In the particular case of SAREB this does not seem to be the case as in 2022 Spain modified the governance and mandate of the AMC and SAREB itself recognised that it does not expect future benefits by year-end 2027. However, the risk of not having in place a clear framework for the reassessment of the analysis conducted at the time of inception, as regards timeline, deviations from the original strategic plan, etc., is problematic. Therefore, setting up such framework in a transparent manner would allow for greater clarity and predictability over the existence and functioning of AMCs.

5.7. Synopsis of the chapter

Several EU Member States had varying motivations for sponsoring the creation of AMCs since 2008. In the UK and Germany, this tool emerged as a coordinated

government response to aid failing entities within their jurisdictions in the aftermath of the GFC. However, despite that the legislation allowed for several banks to transfer problematic assets to the AMC in the case of UKAR it only received assets from two entities, B&B and Northern Rock. In the German case, the relevant legislation envisaged the establishment of separate AMCs for each beneficiary entity. This tool was only used for the failure of two regional banks, which synthetically transferred assets to two separate AMCs, namely EAA and FMS-WM.

In Ireland the establishment of the AMC was the first purely systemic remedy in the EU after the GFC due to widespread distress in its banking sector. This led to extensive recapitalization and the transfer of troubled assets to NAMA from the large Irish banks. In Spain, the establishment of SAREB was prompted by a change in government and the conditions set by the MoU targeting the Spanish banking sector.

Slovenia, despite a prior negative experience with this tool, viewed it as a means to swiftly alleviate NPLs burden in several publicly-owned banks. In Hungary the model followed was also different, as it witnessed the central bank taking the lead in establishing MARK Zrt.

Other Member States, like Italy and Greece, engaged in discussions about creating a publicly-sponsored AMC to tackle, from a systemic viewpoint, the high levels of NPLs they had, but ultimately opted for sponsoring securitisation programmes instead. However, Italy took a combined path, as an existing bank-specific AMC, SGA S.p.A. shifted its focus to acquiring NPLs, initially from the Venetian banks put in administrative liquidation and later from any Italian banks. The rebranded entity, AMCO, currently competes with private market operators in the NPL secondary markets.

As regards the limiting factors for the establishment of AMCs there are two main categories: one refers to the fiscal capacity of the Member State and the other one involves the State aid as well as national accounting rules, which evolved over time, and the more recent legislation on recovery and resolution. Therefore, one could argue that the requirements for the establishment of an AMC were lighter in 2008

than in 2015. Actually, since the entry into force of the aforementioned revised or new EU legislation no systemic AMC has been established in the EU. Countries that explored this possibility, such as Italy or Greece, finally opted for publicly-sponsored securitisation programmes instead.

In the table below the three types of publicly sponsored programmes as regards the establishment or resignification of AMCs in the EU between 2007 and 2022 are presented. The first case refers to the AMCs established in the UK and Germany (in light rose). In both countries the authorities designed a framework that was meant to be used by multiple beneficiary entities under 100% ownership of the public authorities. However, its design did not envisage a systemic approach to transfer risks (and/or assets) to the newly created AMCs, as it was limited to a subset of entities that did not account for a sizeable amount of the national banking system. On the contrary, the systemic considerations were the centrepiece of the second case of AMCs (in light green) which were established in Ireland, Spain, Slovenia and Hungary.

The third case, in Italy, could be considered as a *de facto* AMC (in light green). It has several distinctive features, starting from the fact that no AMC was established, but the mandate of an existing one was amended to allow for the acquisition of assets beyond its original remit, i.e. addressing an individual bank failure. Moreover, the Italian authorities acquired the operating company from a private investor and since the change of its mandate started to acquire NPLs primarily from some banks under liquidation. Furthermore, the subsequent transactions were made via competing with private operators in the NPL secondary markets. Therefore, in this case another distinctive feature is that the focus of the AMC is on reducing the asymmetries of information and/or the bargaining power of private operators in the NPL secondary markets. Consequently, it offers Italian banks with wider options when they decide to sell the NPLs booked in their balance sheets.

Denomination	UKAR	EAA	FMS-WM	NAMA	SAREB	DUTB	MARK	AMCO ⁸⁶
Country	UK	Germany	Germany	Ireland	Spain	Slovenia	Hungary	Italy
Year of creation	2010	2009	2010	2009	2012	2013	2014	1996, resigned in 2016
Ownership at inception	100% public	100% public	100% public	51% private 49% public	55% private 45% public	100% public	100% public (central bank)	100% public (since 2016)
Type of assets transferred	Residential mortgages and unsecured loans	Structured securities, securities, loans, and derivatives	Non-strategic and non-performing assets, including derivatives	loans to real estate sector, and associated exposures, including derivatives	foreclosed assets, corporate holdings and loans to real estate sector/developers	Bankrupt companies, corporate holdings, and loans to real estate sector	Collateralised CRE NPLs and repossessed CRE	NPLs and UTP loans (since 2018)
Size	£115.8bn.	EUR 201.9bn.	EUR 173bn. of assets and EUR 258bn. of derivatives	EUR 31.8bn.	EUR 50.78bn.	EUR 1.7bn.	No assets transferred	EUR 6.6bn. as at year-end 2022 (transfers ongoing)
Location of assets	UK	Worldwide	Worldwide	Ireland, UK	Spain	Slovenia	Hungary	Italy

Transfer price	Book value	Book value	Book value	Adjusted REV	Adjusted REV	Adjusted REV	Market value	Market value
Average haircut	-	-	-	57%	53%	68%	-	-
Number of beneficiary banks	2	1	1	6	8	6	Potentially, 23	3, as of 2016; Expanded afterwards
Duration	Ongoing, but with limited activity	Ongoing, not defined	Ongoing, not defined	Ongoing, until 2025	Ongoing, until 2027	Initially until year-end 2017; Extended: Until 2022	Until 2017	Ongoing
Results	Positive	Negative	Negative	Positive	Negative	Positive	-	Positive
Business model	Both, change in May 2016	Decentralised	Centralised	Decentralised	Decentralised	Decentralised	-	Centralised
Employees (max.)	Hired by B&B: 2,078	178	542	Seconded: 369	392	144	-	373

Table 5.48. Comparative assessment of the publicly sponsored AMCs in the EU from 2007 to 2022

Source: Own elaboration.

⁸⁶ AMCO could only be considered as a *de facto* AMC with its own features since 2016.

6. CONCLUDING REMARKS AND FUTURE RESEARCH PROPOSALS

6.1. Research questions

This doctoral dissertation started in Chapter 1 by defining four research questions: (i) Which are the definitions of non-performing and forbearance practices in the EU?; (ii) Which are the determinants of the non-performing loans and the forbearance practices?; (iii) How did non-performing loans evolve during the period of observation (i.e. 2007-2022)?; and (iv) What led many Member States to sponsor the creation of asset management companies and what were the limiting factors for their establishment?. For the sake of clarity, in this chapter a summary of the findings linked to the four questions are presented.

6.1.1. Which are the definitions of non-performing and forbearance practices in the EU?

Chapter 2 addressed this question, which was crucial to better understand the size of the distressed assets in the European banks' balance sheets and ensure comparability across banks in the region. The starting point was a pure recognition of the lack of comparability of definitions used by European banks.

There were well-established definitions in the regulatory area with the concept of “default”, whereas in the accounting territory the standard was the concept of “impairment”. However, there was not clear definition of an overarching concept, the “non-performing loans”. This was the situation at the beginning of the period of observation, i.e. 2007 and even for some years onwards. Moreover, banks did not disclose their forbearance practices in detail and even national regulations used different concepts to describe the concessions granted to borrowers when they were under financial difficulties.

Only in May 2013 the Central Bank of Ireland decided to define the relevant concepts banks should use in the area of asset quality, such as “exposure”, “non-performing loan” or “forborne exposure”. Shortly after that Irish move, in October 2013, the EBA decided to promote the homogenisation of those concepts at European level. As the scope of the definitions was limited to the EU and the use of diverse definitions

of “non-performing loans” was paramount in the international sphere, it decided to coin a new concept, the “non-performing exposure”. Those homogenisation efforts also covered the concept of “forborne exposure”.

The EBA work crystallised in the enhancement of the European legislation in this regard and forced banks to use these new concepts in their regulated reports. However, as a sample of EU banks, considering the ten largest EU banks, with data as at year-end 2022 demonstrated they follow the mandatory reporting rules, but whenever they are free to disclose information to the markets, they maintain the more common denomination of “non-performing loans”.

This phenomenon also undermines the efforts of the BCBS since 2016, which also tried to provide for a common definition of the aforementioned concepts in the international sphere. However, it is understandable. As explained in Chapter 2 the adoption of those international standards is still partial.

Moreover, in the dissertation there are several examples that prove that the concepts defined by the EU legislation are not identical to the ones of the BCBS. At the same time, it is also acknowledged that those differences are not so fundamental as to jeopardise comparability across banks if the BCBS definitions were adopted worldwide.

Beyond the implementation of the BCBS standards in some jurisdictions, there is also the need for banks to use the homogenised terms in their unregulated reports to facilitate comparability across banks and banking sectors.

Summing up, progress has been achieved in terms of comparability across banks in the EU. However, efforts made have not led to overwrite the well-established, but still unclear, concept of “non-performing loan” and replace it by the “non-performing exposure” denomination (and its constituent features). The case of “forborne exposures” is similar. It is widely used in the regulated reports, but European banks still use different denominations in the publication of financial results.

Consequently, additional efforts are needed before we could talk about full comparability of asset quality metrics across the European banking sector. The progress made refers to the regulated reports, mostly used by European authorities and institutions, but it is still not the case in the unregulated reporting, mostly used by international research projects, media and market participants.

6.1.2. Which are the determinants of the non-performing loans and the forbearance practices?

Chapter 3 of the dissertation has broadened the research scope from the EU to a global outreach to include studies with a global scope. This allows for cross-country comparisons not only at European, but also at global level. It also devoted close attention to country-specific analyses within the EU.

Many quantitative studies showed that the determinants of non-performing loans come both from macro and microeconomic indicators. Several authors highlighted that the explanatory power of macroeconomic determinants of NPLs is higher than any other bank-specific indicator. However, to have a more complete picture there is the need to take into account both sets of indicators. This is, actually, the approach taken by many studies either at global, regional or local level.

Among the macroeconomic determinants GDP growth, unemployment rate, interest rate and exchange rate were cited as those with the highest explanatory power. Interestingly, inflation rate was found to be significant only in a subset of studies. Within the bank-specific determinants for methodological purposes this dissertation distinguished between (i) quantitative indicators linked to profitability, solvency and efficiency indicators, and (ii) qualitative indicators supported by quantitative studies, such as mismanagement, herd behaviour, role of shareholders, business model and size.

As regards forbearance practices this dissertation provided an overview of the studies that have covered the implications for the economy where these practices are massively implemented. As mentioned, the academic efforts to cover this topic have been arduous as the lack of a clear definition has paired with the lack of information publicly disclosed by banks of their lending forbearance practices.

Many studies highlighted the discretionary nature of this tool, which could only have a positive impact if it is applied to borrowers suffering from temporary problems. On the contrary, these practices would lead to a misallocation of credit to the economy with impacts to the productivity, investment, employment and growth, as it is normally accompanied by the tightening of the lending conditions to healthy businesses.

To complete the scene, the dissertation also focused on better understanding the roots of these practices. They include the avoidance of the recognition of the deterioration of assets to contain credit losses, especially among undercapitalised banks. Several studies argued that a decisive factor in many banking crises that led to massive forbearance was the lack of diversification or overinvestment in some economic sectors (i.e. real estate). Other studies focused on the role played by asymmetric information, the regulatory incentives accompanied by lenient supervision, the size of the lender or the influence of the borrower.

To conclude, this dissertation considered that it was key to examine whether credit institutions have the correct incentives to apply sound policies in the area of lending forbearance, such as adequate enforcement systems, reduced cost of liquidation, efficient judicial and extrajudicial procedures, etc. Moreover, taking into account that macroeconomic determinants have the highest explanatory powers with regard to the proliferation of NPLs it is essential that banks have robust tools to forecast the macroeconomic tendencies affecting the countries or regions where they perform their business activities and that those analyses are duly considered when the management sets the strategic and tactical goals in a prudent manner.

6.1.3. How did non-performing loans evolve during the period 2007-2022?

At year-end 2007 the levels of the NPL ratio were not showing any significant deterioration of the asset quality in most European banking systems. Only in Italy, Poland and Malta the NPL ratio was above 4%. However, only in two years' time this threshold was surpassed in 17 Member States (i.e. in Hungary, Latvia and Lithuania it was already above 10%).

The proliferation of NPLs continued during the following years, reaching a peak in most countries between 2013 and 2016. In the case of the Eurozone the sovereign debt crisis led to a serious threat in terms of its potential fragmentation. In this regard, the NPL ratio in the Eurozone peaked in 2013 at 8%, whereas it continued growing for the “periphery” of the Eurozone until 2014, when this subset of countries recorded a NPL ratio of 15.6% (with Cyprus and Greece presenting NPL ratios above 45% and 40%, respectively).

The accumulation of NPLs was more severe (i.e. almost three times more) in the non-financial corporate sector than in households, with a significant concentration in the construction and real estate sectors (particularly, among SMEs and commercial real estate loans).

At EU level the efforts made over the period December 2014 - June 2019 were remarkable to reduce the NPLs ratio (i.e. from 6.5% to 2.7%). The reduction trend was shared by both SME and commercial real estate loans. The exception was Greece, where the NPL ratio was steadily increasing until Q32017, with a subsequent stabilisation until Q32018. Still, at year-end 2019 the NPL ratio was above 5% in several Member States, Portugal (6.5%), Italy (6.7%), Bulgaria (7.2%), Cyprus (19.3%) and Greece (35.2%).

This was the asset quality landscape in the EU when the COVID-19 outbreak arrived in the first half of 2020. In anticipation of the foreseen deterioration of the asset quality driven by the pandemic, the EU institutions as well as the national governments decided to react quickly and adopted a number of measures aimed to provide relief to households, businesses and banks. Among others, those measures included moratoria and public guarantee schemes.

Due to those extraordinary measures loans under moratoria could be associated with increased credit risk. However, the NPL ratio was perceived at this juncture not to be a good indicator to assess this increased credit risk. In fact, the use of Stage 2 categorisation became the most prominent indicator used to capture the increase in the credit risk.

By year-end 2020 the early signs of deterioration in the asset quality of banks became more evident. However, thanks to the large-scale measures implemented across the EU, the asset quality of the European banks was theoretically preserved despite the sharp recession, but the concerns about potential “zombie lending” re-emerged. In fact, the sales of legacy NPLs in Cyprus, Greece, Italy and Portugal led the aggregated NPL ratio to record 2.7%, but forborne exposures were in clear increase as well as Stage 2 assets.

Despite the expiry of moratoria on aggregate terms the NPL ratio in the first half of 2021 continued its slower pace in the NPL reduction and recorded 2.4%, driven by further reduction in the numerator. At the time, the ECB considered that the effects of the pandemic over the bank asset quality could take two years to become visible. While the NPL ratio continued its downward trend, the Stage 2 ratio was still increasing. This situation continued unchanged in 2022. In order to have a proxy of potential future developments of NPLs in Europe the dissertation analysed the declarations of bankruptcy, which also presented a significant increase during 2022. They could be considered as an early warning indicator that needs to be carefully monitored.

6.1.4. What led many EU Member States to sponsor the creation of asset management companies and which were the limiting factors for their establishment?

Chapter 5 of this dissertation explained that the reasons that led several EU Member States to sponsor the establishment of AMCs had different features. In the UK and Germany this tool was the authorities coordinated response to assist failing entities in their respective jurisdictions as a result of the GFC, but in practical terms it had a limited outreach in terms of beneficiary entities covered. In Ireland, in turn, this was envisaged as a purely systemic solution as not only a subset but most of the Irish banking sector was under extraordinary distressed. This led to a widespread recapitalisation of beneficiary banks prior to the transfer of problematic assets to NAMA.

In Spain, the establishment of SAREB was driven by a change in the government and the conditions imposed by the MoU targeting the Spanish banking sector. In Slovenia,

this was the tool that was perceived to provide a prompt relief to the NPLs booked in several state-owned banks despite a previous bad experience with the use of an AMC. In Hungary, it was the initiative of its central bank the driving factor of the establishment of MARK Zrt.

In other Member States there were recurrent discussions about the establishment of an AMC to deal with the high level of NPLs of their national banking sectors, such as in Italy and Greece. However, in those countries the systemic AMC was not established as they preferred to recourse to sponsor securitisation programmes instead. However, in the case of Italy an existing bank-specific AMC changed its mandate to acquire NPLs first from the Venetian banks put in administrative liquidation and then from any Italian banks willing to transfer NPLs at market prices to AMCO.

When considering the factors that set the limits and configuration of the AMCs, two primary categories emerge. The first category pertains to the fiscal capacity of the Member State, while the second category involves State aid regulations and national accounting rules, which have evolved over time, alongside the more recent legislation on recovery and resolution.

Consequently, one could argue that the prerequisites for creating an AMC were less stringent in 2008 compared to 2015. In fact, since the implementation of the revised and new EU legislation aforementioned, no systemic AMC has been established in any EU Member State. Countries that explored this option, such as Italy and Greece, ultimately chose to pursue public-sponsored securitisation programmes instead.

6.2. Lessons learnt

- A. **The efforts led by the EBA has made possible a common definition of non-performing and forborne exposures in the EU. They favour the comparability across European banks via the regulated reports.**

The Pillar 3 disclosure requirements aims to promote market discipline and complement the minimum capital requirements of Pillar 1 and the supervisory review of Pillar 2. The rationale is that market participants could access

relevant information on bank's regulatory capital and risk exposures. This should increase transparency and, consequently, comparability across banks and their business and operating models. It also covers how banks manage and effectively mitigate those risks.

This transparency should reduce asymmetric information effects and, eventually, promote the confidence of market participants with regard to the risks a particular bank has entered into and the way it manages them. However, as a result of the GFC and among its lessons learnt it was concluded that there were significant deficiencies in this area. Therefore, the BCBS included its enhancement as part of the Basel III reform.

In Europe, the EBA, in the fulfilment of its mandate, created templates via implementing technical standards. In 2018, it developed the *Guidelines on disclosure of non-performing and forborne exposures* following the request of the European Council in July 2017. This was its first main deliverable which was refined over time up to the adoption of the *Commission Implementing Regulation (EU) 2021/637 of 15 March 2021* laying down implementing technical standards with regard to public disclosures by institutions of the information referred to in Titles II and III of Part Eight of CRR.

This framework provided institutions with a comprehensive set of harmonised disclosure templates and tables, which among other indicators included the non-performing and forborne exposures. Consequently, under this framework European banks need to disclose in uniform tables the same data. This allows for comparability among European banks and facilitates market discipline in the area of credit risk.

- B. However, banks still use other pre-existing concepts, such as NPLs, accounting terms, or restructured loans in their unregulated disclosures instead of the aforementioned common definitions.**

European banks followed the aforementioned disclosure requirements in their Pillar 3 reports. In fact, the SSM or the national supervisory authorities are responsible for regularly assessing banks' compliance with the Pillar 3

disclosure requirements and inform about any deviations in this regard for banks to address them.

Despite the progress achieved in this area compared to the starting point in 2010, when Basel III was adopted by the G20, neither the templates and tables of the regulated reports nor the concepts of non-performing and forborne exposures are used by the largest EU banks in their unregulated disclosures. For instance, in their quarterly results presentations, they use well-established concepts among market participants, such as non-performing loans, restructured loans, and even more the purely accounting categories of the IFRS 9 (i.e. Stage 3 assets). Ultimately, this is the information used by the media, market participants and even academia and supervisors in practical terms beyond the regulated supervisory reporting.

Consequently, there is the need to continue progressing in the area of reporting to arrive at a uniform use of regulatory terms when banks are not forced to disclose data following a particular format or template. For this, the homogenisation path at international level that the BCBS anchors should continue.

Until then, most European banks will keep using a two-tier reporting system, subject to whether they are requested to use a particular format or they are free to disclose their relevant financial data with definitions that have a longer tradition and a wider use in the international financial markets and among their participants.

C. The macroeconomic determinants have the highest explanatory power to describe the evolution of NPLs.

There is a common denominator in all studies reviewed that compared macroeconomic and microeconomic or bank-specific indicators. Regardless of whether their scope is global, regional or local the conclusion is that the macroeconomic determinants are a better tool to understand the evolution of NPLs than the bank-specific indicators.

Among the macroeconomic determinants most covered by those studies (i) GDP growth, (ii) unemployment rate, (iii) interest rate, and (iv) exchange rate were widely cited as those with the highest explanatory power. The government debt levels as well as the short and long-term rates of its debt were also found to be statistically significant in several studies. This also applied for the investment metrics, the growth rate of the credit supply to the economy as well as the firms and household indebtedness.

On the contrary, there was no conclusive assessment as regards the inflation rate. It was only statistically significant in some studies, whereas in others it was rejected. Therefore, there is the need to study the interplay between the inflation rate and the evolution of NPLs further to be in a position to conclude about its explanatory power.

D. Nevertheless, most studies adopted a comprehensive approach by also including bank-specific indicators to complement the macroeconomic determinants.

Many studies tested and confirmed that both macroeconomic and bank-specific indicators explain the evolution of NPLs. Therefore, to have a complete understanding of the dynamics that determine the accumulation or reduction of the NPL stocks there is the need to consider both.

Among bank-specific determinants, there are indicators such as return on equity or return on assets (i.e. profitability indicators), but also solvency and efficiency indicators which were found to be statistically significant in many studies.

Besides the purely quantitative indicators, there are also other indicators supported by quantitative studies that justify the explanatory power of those indicators. This refers to the mismanagement hypothesis, herd behaviour, role of shareholders, business model and size.

Therefore, when considering the determinants of NPLs there is the need to go beyond the macroeconomic indicators. Only by considering both,

macroeconomic and bank-specific indicators, the researcher could have a good approximation to the size of the problem and forecast its future evolution with a high degree of confidence based on historical data.

E. The reinforcement of the Pillar 3 disclosure requirements and the decisive action of the EBA in the area of lending forbearance are significant achievements at the EU level.

Several studies showed that even the approximation to this phenomenon was challenging before the EBA stepped in. On one hand, there was no clear definition of the concessions granted to borrowers. Therefore, it was difficult to evaluate these practices. On the other hand, banks typically did not disclose any relevant information about their lending forbearance practices. Consequently, it was not feasible to understand the real dimension of the banks' action in this regard.

Moreover, there are discretionary elements linked to forbearance practices that deserve even enhanced scrutiny. Actually, the borderline to conclude on whether a borrower is experiencing temporary or persistent financial difficulties is blurred. This is even more worrisome in the absence of clear definitions and detailed operational frameworks banks follow, which could facilitate at least comparability among them.

With the EBA definition of “concession” and “financial difficulty” there was a clear step forward, as it set the boundaries of the forbearance phenomenon from a regulatory point of view. However, whereas it provided a clear definition of “concession”, the definition of “financial difficulty” was rather vague: “difficulties in meeting its financial commitments”. Luckily, the BCBS guidelines via the definition of a non-exhaustive list of examples shielded some light into this definition.

The second step taken by the EBA was the inclusion of the concepts of “forbearance” and “forborne exposures” in the templates and tables within the Pillar 3 disclosure requirements. This effort did not eradicate the subjective approach that cannot be dissociated from the forbearance

practices, but at least enhance the transparency of these practices among European banks.

F. Beyond the descriptive definition of the phenomenon of lending forbearance, it is key to examine whether banks have the correct incentives to apply sound policies in this regard and whether the legislation in place facilitates the prompt action from banks.

Research has determined that when forbearance practices are timely and wisely applied they have positive results. However, for this positive outcome there is the need that those practices are applied to borrowers only facing temporary difficulties. On the contrary, if they just contribute to “extend and pretend” behaviours they result in the misallocation of credit within the economy, supporting “zombie” borrowers at the expense of healthier ones.

This phenomenon has direct consequences in terms of productivity, investment, employment, and overall growth. Moreover, in close connection with the aforementioned impacts, they could lead to stricter lending conditions for healthy businesses.

This discretionary nature of forbearance cannot be removed in its entirety, but at least it could be mitigated. Among those mitigating actions, the supervisory practices have an important role. In particular, beyond on-site inspections, requesting banks to set up policies that promote prompt recognition of losses as well as close monitoring by the supervisor are paramount for dealing with lending forbearance in the long-run.

This enhanced supervisory scrutiny needs to be accompanied by an adequate context which deserves for adequate enforcement systems, reduced cost of liquidation, efficient judicial and extrajudicial procedures, etc.

G. The GFC and the sovereign debt crisis had a different impact on the evolution of the NPLs in the EU.

Between year-end 2007 and 2009 the NPL ratio moved in the same direction in all Member States. This could have facilitated a truly EU coordinated action

to tackle the accumulation of NPLs, but the initiatives at EU level were rather limited. They focused on adjusting the State aid rules for the financial sector as well as the clarification Eurostat provided with regard to the national accounting rules in mid-2009.

This derives from the fact that the macroeconomic imbalances ahead of the GFC and, consequently, their impact on the national economies varied significantly. Therefore, the focus was more on bank-specific cases rather than on national banking sectors.

That rationale is also valid for the starting point of NPL levels, which was also uneven across the EU, but in any event worrisome for 2007 and 2008 in most EU Member States. At year-end 2009 the NPL ratio was already above 4% in 17 Member States, whereas in Hungary, Latvia and Lithuania it was already above 10%.

The proliferation of NPLs continued during the following years, reaching a peak in most countries between 2013 and 2016. However, the increase trend experienced between 2007 and 2009 in all Member States was no longer the case between 2010 and 2015. In the case of the Eurozone, the sovereign debt crisis led to a serious threat in terms of its potential fragmentation between the core and periphery.

There was also a relevant distinctive factor compared to the aftermath of the GFC, as the focus moved from bank-specific crisis cases to the systemic banking sector crises, which deserved a comprehensive action to tackle the excessive accumulation of NPLs (i.e. Cyprus and Greece recorded NPL ratios above 45% and 40%, respectively, at year-end 2014).

In some Member States of the so-called periphery, such as Ireland, Spain or Slovenia the authorities decided to confront the financial stability fears by combining a recapitalisation of a significant part of their banking systems with the establishment of systemic AMCs. On the contrary, in Italy, Greece or Cyprus the authorities only decisively intervened at a later stage with another type of measures accompanying the recapitalisations (i.e. via securitisations).

H. The disaggregation of the NPL ratio per sector of activity and per type of products showed that there was significant concentration not only in terms of countries but also in terms of sectors and products.

The accumulation of NPLs was more severe (almost three times more) in the non-financial corporate sector than in households in most EU Member States, with the exceptions of Greece and Cyprus. The deterioration of credit quality mostly came from companies unable to pay back the loans they received, with a significant concentration in a few sectors, namely construction and real estate sectors, as a result of the burst of the housing bubble originated pre-GFC in several EU Member States.

Within the non-financial corporate sector, the SMEs and the commercial real estate loans showed the highest levels of NPLs, whereas the lowest levels were recorded by the residential real estate loans. This is also important to understand the type of assets transferred to the AMCs. For instance, in the case of Ireland they were mostly commercial real estate loans (i.e. with already good experiences of centralised management and disposal in past banking crises). On the contrary, precisely one of the concerns the Italian authorities had when exploring the possibility of creating a systemic AMC was the high level of NPLs in the SME loans category in the country (i.e. not particularly suitable for centralised management).

I. As a result of the unprecedented measures taken by European authorities to tackle the COVID-19 pandemic the aggregated NPL ratio continued its downward tendency despite the recession in the EU.

In anticipation of the foreseen deterioration of the asset quality driven by the COVID-19 pandemic, the EU institutions as well as the national governments decided to react quickly and adopted a number of measures aiming to provide relief to households, businesses and banks. This prompt coordinated economic response targeted not only emergency needs but also set the scene for greater solidarity efforts among Member States (i.e. *NextGenerationEU* initiative).

In particular, those loans with the public authorities' guarantee had the same treatment of those of the authority providing the guarantee. Moreover, the mere presence of public guarantees associated to those loans or the moratoria did not automatically trigger their classification as forborne exposures nor count for the number of days past due of the non-performing exposures. Therefore, this resulted in a lower capital consumption for banks during the time those extraordinary measures were in place compared to normal times and avoided the proliferation of NPLs.

This coordinated action was dependent on the fiscal capacity of Member States during 2020. Moreover, it was a bet on a V-shape recovery of the European economy after the exogenous shock produced by the COVID-19 pandemic.

- J. However, the increase of Stage 2 assets as well as the number of bankruptcies in Europe could be considered as two early warning indicators of a potential future increase of NPLs.**

The coordinated action among EU Member States and institutions as well as relevant authorities could not tackle the long-term viability of borrowers that benefited from the programmes.

By default, it was a short-term action to alleviate the potential burden on the financial stability in the EU as well as to support the viability of European businesses (particularly, entrepreneurs and SMEs) during a limited period of time. This action had an impact on the reduction of the declarations of bankruptcies as well as on the contention as regards the classification of exposures as Stage 3, according to the accounting standards.

By the end of 2020, initial signs of a decline in the asset quality of banks became more apparent. However, due to the extensive measures put in place, asset quality remained intact despite the severe economic downturn. Nevertheless, concerns regarding the possibility of "zombie lending" resurfaced. In turn, the sale of legacy NPLs in Cyprus, Greece, Italy, and Portugal continued and reduced the Eurozone NPL ratio to record 2.7%.

Concurrently, there was a noticeable increase in forborne exposures and Stage 2 assets.

Even with the expiry of moratoria, the NPL ratio in 2021 continued its gradual decline, primarily due to a reduction in the numerator. While the NPL ratio was on a downward trajectory, the Stage 2 ratio continued to rise. This situation remained unchanged in 2022. However, in 2022 once the support programmes and the extraordinary regulatory waivers were no longer applicable the number of bankruptcy declarations raised significantly in the EU.

With data as of year-end 2022 and in the understanding that the NPL proliferation comes with a circa 2-year lag it is still premature to assess the medium-term effectiveness of the measures taken during 2020, some of which were rolled over to 2021.

K. The fiscal capacity and the structure of the national banking systems of EU Member States had a decisive influence as regards the configuration of the publicly sponsored AMCs.

In the UK and Germany, at the time of the establishment of UKAR and the two German AMCs, *Erste Abwicklungsanstalt* and *FMS Wertmanagement*, the fiscal capacity of the public administration was not a concern. Therefore, there were not discussions about the optimal ownership structure of those AMCs. Moreover, the beneficiary entities of the asset relief schemes were already under the public remit, in any event. Particularly, in the German cases the focus was more on the fees to be charged to have an adequate burden sharing in place.

The situation was completely different in the cases of Ireland and Spain, as in both the fiscal capacity of the sovereign after the recapitalisations of several financial entities was already weak. Consequently, for the establishment of NAMA in 2009 the fiscal component had a pivotal role. From the first discussions, there was a clear idea: private investors should be

prevalent, being the involvement of the public sector a minority interest (i.e. below 50% of the ownership rights).

When Spain entered into the MoU in 2012 the same logic applied. Therefore, for the establishment of the SAREB it was also crucial the participation of the private sector (i.e. other banks and insurance companies, mostly) in the ownership of the Spanish AMC. However, due to the accumulation of losses, Eurostat revised its initial judgment later on based on its revised rules. This led to the consideration of SAREB as an entity under the direct remit of the general government for national accounting purposes.

In the cases of Slovenia and Hungary the focus was not on the ownership of the AMC, but on its management. In the case of DUTB the beneficiary banks were already state-owned banks and the authorities carefully selected international profiles for key Board positions. In the case of MARK Zrt., the Hungarian central bank created the AMC as its subsidiary and even covered its funding. This particular feature made ultimately impossible the transfer of assets to MARK Zrt. due to the infringement of the EU legislation.

The fiscal capacity was also an important element that the Italian and Greek authorities took into account when they opted for the securitisations programmes instead of the AMCs. In Italy, however, as detailed in this dissertation, the mandate of a pre-existing AMC was modified to allow for the transfer of assets from other beneficiary banks than the original one. Therefore, this provides an example for the compatibility of both securitisations and AMCs.

- L. The evolution of the legal framework had also an impact on the choices of the Member States regarding the establishment of (systemic) AMCs and played a defining role in shaping their characteristics.**

L.1. European Commission - State aid rules

Between 2008 and 2013 the European Commission detailed the applicable State aid rules for the financial sector. In the aftermath of the GFC, when a

harmonised regulatory framework to tackle severe distortions in the financial sector was lacking, these rules governing State aid control emerged as the primary EU coordinated policy response. They were instrumental in addressing bank failures across the EU, fostering renewed confidence in the EU banking sector as a whole.

They aimed to prevent the repercussions of bank failures on both the financial sector and the broader economy and ensure financial stability. Beyond that primary objective, they also established a comprehensive framework that was refined over time and favoured some degree of *ex ante* coordination of the financial support from EU Member States to their respective banking sectors.

Moreover, these rules tried to ensure a level playing field in the European banking sector by (i) mitigating competition imbalances, both among banks and across different Member States; (ii) facilitating the long-term viability of the beneficiary banks; and (iii) promoting fair burden sharing. Particularly, the practicalities around the notion of burden sharing as well as the requested restructuring measures on banks that should accompany the asset relief schemes evolved over time, becoming stricter than the rules in the aftermath of the GFC.

In the case of the establishment of the AMCs, for the compatibility checks, the transfer price was key as well as the valuation methods used. When the asset transfers were not made at market prices, this resulted in the application of the concept of the real economic value, which was at the core of the asset transfers to NAMA or SAREB.

At the same time, this European *ex ante* compatibility checks delayed the transfers of assets to the AMCs, which had an impact on the timely relief of the beneficiary entities.

L.2. Eurostat - National accounting rules

The rules set by Eurostat exerted a substantial influence on the structure of AMCs across various European Member States. As explained before, for the

establishment of NAMA and SAREB they had a crucial role to avoid its consideration under the government debt at a time of several fiscal difficulties in Ireland and Spain.

In mid-July 2009, Eurostat provided clarification on how to interpret the applicable framework, particularly in the context of public interventions aimed at supporting financial institutions and financial markets. The emphasis was placed on assessing the "substance over form" of these interventions.

Then, theoretically, the focus should be on the economic reality rather than the specific legal or administrative framework. Notably, Eurostat's judgement centred on the concept of ownership, with the assessment of the autonomy, mandate, timespan and performance as complementary but cumulative criteria to assess the public sector involvement in the state-sponsored AMCs.

However, these rules also evolved over time. In 2013 the adoption of ESA 2010 standards in the EU resulted in a more rigorous set of criteria for categorising AMCs outside the general government sector. In particular, under these updated rules, the primary consideration shifted toward identifying the entity that genuinely shoulders the financial risk, irrespective of the ownership structure of the AMCs. This, ultimately, led to the reclassification of SAREB within the general government sector in 2019.

L.3. Recovery and resolution framework

With approval of the BRRD in 2014 additional constraints were introduced in the EU legal framework, as to fulfil the compatibility checks of State aid rules the general principle is that at least 8% of the beneficiary's total liabilities should absorb losses, the so-called "minimum loss absorption requirement". There is only one exception, the so-called "precautionary recapitalisation" of credit institutions.

- M. The creation of public-sponsored AMC's either directly or indirectly contributed to the improvement of the financial stability and the confidence in the national banking systems.**

One of the factors for assessing the success of an AMC is whether it manages to dispose its assets without posting losses. However, this is actually not its primary objective. In fact, there are other elements that should not be disregarded, such as the timely disposal of assets which allows for kick-starting the secondary markets for distressed assets.

Moreover, the transfer of those assets to AMC limits the financial distress in the banking sector and it significantly reduces the contagion channels. The assets received are restructured and/or disposed in a controlled and centralised environment. This reduces uncertainties and facilitates the beneficiary banks to refocus on their core activities, including the provision of credit to SMEs and households.

During the period of observation, even the announcement of the establishment of a public-sponsored AMC led to a sharp reduction of the risk premia in those Member States. In the particular case of MARK, even though any asset was transferred, the Hungarian solution was successful. It developed a pricing methodology, validated by the European Commission, which enhanced the market transparency and in combination with the announcement of the inclusion of the macroprudential buffer in the near future decisively contributed to revert the previous trend of accumulation of CRE NPLs in the balance sheet of Hungarian banks.

- N. However, the establishment of an AMC is a politically sensitive issue and it is influenced by the media attention as well as the public perception.**

As the establishment of public-sponsored AMC's involves the use of public funds to tackle the banking sector problems it raised concerns in the Member States where this tool was implemented. In the case of NAMA even a senator tried to block its establishment by challenging the Irish authorities in front of the European Commission in the context of the State aid compatibility

procedure. Moreover, several borrowers whose assets were either transferred or not transferred to NAMA went to Irish courts as well as market participants claiming unfair competition made their case again against Ireland in front of the European Commission.

In the case of DUTB, the high salaries paid to the international managers hired and some alleged wrongdoings drew the media attention and public confrontation until they were replaced. In Spain, after several years recording losses, there were voices advocating for the amendment of SAREB's mandate to provide social housing to the collectives in need. This request became a reality in 2022. A similar decision was taken by the Irish authorities in the case of NAMA despite it ran a profitable business.

6.3. Elements for future research

Two areas linked to NPLs deserve future academic and policy attention:

- A. One proposal refers to examine how the decisive actions of the public authorities could attenuate the impact of the macroeconomic determinants associated to the proliferation of NPLs. In particular, future research should be devoted to study the response of the EU Member States and institutions to the COVID-19 crisis and how it compares to the efforts to tackle the accumulation of NPLs in the aftermath of the GFC and during the sovereign debt crisis. This requires further attention once there is further clarity on the aftermath of the COVID-19 crisis.

This dissertation was constrained by a temporal component, which does not allow for performing a proper comparison in terms of effectiveness of the measures taken. Only time will prove whether the measures adopted to counteract the COVID-19 pandemic were effective or only served to postpone the hit, and, consequently, the proliferation of NPLs. In this regard, it is important to take into account that previous banking crises showed that the accumulation of NPLs came with a lag of circa two years on average.

For the time being, the significant increase of Stage 2 assets and of the number of bankruptcies in the EU seem to be worrisome. However, the macroeconomic components will probably dictate whether the prompt reaction of the authorities with extraordinary guarantees and moratoria, among other measures, could be considered as an effective tool to deal with sharp but temporary recessions and their impact on the banks' asset quality.

- B. The other proposal comes from the need to restrict the object of research to the public-sponsored AMCs in the EU. In this regard, it is clear that even the most powerful tool to timely address the accumulation of NPLs in the banking sector, the AMC, would not be successful on its own. It needs to be accompanied by either a number of preconditions or, where not pre-existing, a number of reforms to ensure a comprehensive approach when dealing with NPLs.

Aiyar et al. (2015) phrased those preconditions in a negative way, by calling them obstacles. They included (i) lenient prudential supervision; (ii) ineffective insolvency regimes, (iii) small distressed debt markets; (iv) informational obstacles driven by poor data quality and limitations to the access to relevant information; and (v) unfavourable tax treatment. The comprehensive approach that should complement the establishment of AMCs or securitisations includes clear supervisory policies, insolvency and debt enforcement reforms, and calls for fostering the development of secondary distressed assets markets.

Fell et al. (2016) listed a non-exhaustive list of options for addressing NPLs. In addition to AMCs, some tools referred to the direct action of banks, such as internal workouts, securitisations and direct sales, whereas others involved the authorities participation, such as asset protection schemes.

However, for a successful implementation of those tools the preconditions need to exist. The European Council (2017) set the following European priorities in this area: (i) bank supervision; (ii) the reform of insolvency and debt recovery frameworks; (iii) the development of secondary markets for

NPLs; and (iv) the restructuring of the banking industry by adopting more robust business models.

Despite the efforts made so far, in particular, reform of insolvency and debt recovery frameworks deserves further developments. The EU and its Member States are still far from efficient and convergent corporate insolvency frameworks which would avoid the current fragmentation driven by severe cross-country differences in insolvency regimes. The progress in this area would allow for setting a more favourable scenario for the restructuring efforts European credit institutions need to undertake when dealing with NPLs and would also facilitate the success of AMCs in the EU.

LIST OF REFERENCES

International standards, guidelines and reports

Basel Committee on Banking Supervision (2015). Supervisory guidelines for identifying and dealing with weak banks, 16 July.

Basel Committee on Banking Supervision (2017). Guidelines on Prudential treatment of problem assets - definitions of non-performing exposures and forbearance, 4 April. Basel.

Financial Stability Forum (2009). Report of the Financial Stability Forum on Addressing Procyclicality in the Financial System. 2 April. Basel.

International Accounting Standards Board (2009). Exposure Draft Financial Instruments: Amortised Cost and Impairment

International Accounting Standards Board (2014). IFRS 9: Financial instruments.

International Accounting Standards Committee (2004). IAS 39 “Financial Instruments: Recognition and Measurement.

International Monetary Fund (2015). Republic of Slovenia: 2014 Article IV Consultation. IMF Country Report No. 15/41, February.

International Monetary Fund (2017). 2017 Article IV Consultation—Press Release; Staff Report; and Statement by the Executive Director for Hungary. IMF Country Report No. 17/123, May.

International Monetary Fund (2017). Republic of Slovenia: 2017 Article IV Consultation. IMF Country Report No. 17/125, May.

International Monetary Fund (2015a). Hungary: Technical Assistance Report— Operational Aspects of Establishing an Asset Management Company. IMF Country Report No. 15/99, April.

International Monetary Fund (2015b). Hungary: Technical Assistance Report— Operational Aspects of Establishing an Asset Management Company. IMF Country Report No. 15/239, August.

Organisation for Economic Co-Operation and Development (2016). OECD Economic Survey of the Euro Area, OECD Publishing, Paris.

Organisation for Economic Co-Operation and Development (2019). OECD Economic Surveys: Hungary 2019, Overview, January.

World Bank Group (2013). Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises, 11th edition.

EU legislative acts and implementing regulations.

Commission Implementing Regulation (EU) 2015/227 of 9 January 2015 amending Implementing Regulation (EU) No 680/2014 laying down implementing technical standards with regard to supervisory reporting of institutions according to Regulation (EU) No 575/2013 of the European Parliament and of the Council.

Commission Implementing Regulation (EU) No 680/2014 of 16 April 2014 laying down implementing technical standards with regard to supervisory reporting of institutions according to Regulation (EU) No 575/2013 of the European Parliament and of the Council.

Commission Notice on the notion of State aid as referred to in Article 107(1) of the Treaty on the Functioning of the European Union (2016/C 262/01).

Council Regulation (EC) No 2223/96 of 25 June 1996 on the European system of national and regional accounts in the Community.

Council Regulation (EC) No 3603/93 of 13 December 1993 specifying definitions for the application of the prohibitions referred to in Articles 104 and 104b (1) of the Treaty.

Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions.

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 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.

Regulation (EC) n. 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards adopted the international accounting standards and required their application in the consolidated financial statements of companies issuing securities traded on listed markets.

Regulation (EU) 2019/630 of the European Parliament and of the Council of 17 April 2019 amending Regulation (EU) No 575/2013 as regards minimum loss coverage for non-performing exposures.

Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

Communications, decisions, guidelines, press releases and reviews from European institutions and agencies

Council of the EU (2017, July 11). Council conclusions on Action plan to tackle non-performing loans in Europe [Press release]. <https://www.consilium.europa.eu/en/press/press-releases/2017/07/11/conclusions-non-performing-loans/>

- Council of the European Union (2017). Report of the FSC Subgroup on Non-Performing Loans: 9854/17. 31 May.
- ECOFIN (2008). Council Conclusions on a coordinated EU response to the economic slowdown [Press release]. https://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ecofin/103203.pdf
- Eurogroup (2015, August 14). Eurogroup statement on the ESM programme for Greece [Press release]. <https://www.consilium.europa.eu/en/press/press-releases/2015/08/14/eurogroup-statement/>
- Eurogroup (2020, April 9). Report on the comprehensive economic policy response to the COVID-19 pandemic [Press release]. <https://www.consilium.europa.eu/en/press/press-releases/2020/04/09/report-on-the-comprehensive-economic-policy-response-to-the-covid-19-pandemic/>
- European Banking Authority (2014). Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013. 24 July.
- European Banking Authority (2016a). EBA Report on the dynamics and drivers of non-performing exposures in the EU banking sector, 22 July.
- European Banking Authority (2016b). Guidelines on the application of the definition of default under Article 178 of Regulation (EU) No 575/2013, EBA/GL/2016/07.
- European Banking Authority (2017). Guidelines on credit institutions credit risk management practices and accounting for expected credit losses, 26 July.
- European Banking Authority (2018, September 12). EBA revises standardised NPL data templates [Press release]. <https://www.eba.europa.eu/eba-revises-standardised-npl-data-templates>
- European Banking Authority (2019). EBA Report on NPLs: Progress made and challenges ahead, 8 November.
- European Banking Authority (2020a). Implementing technical standards on public disclosures by institutions of the information referred to in Titles II and III of Part Eight of Regulation (EU) No 575/2013, 15 March.
- European Banking Authority (2020b). Risk Dashboard: Data as of Q1 2020, 30 July.
- European Banking Authority (2020c). First evidence on the use of moratoria and public guarantees in the EU banking sector, EBA Thematic note, EBA/Rep/2020/31, November.
- European Banking Authority (2022). Risk assessment of the European banking system, December.
- European Central Bank (2012). Opinion of the European Central Bank of 14 December 2012 on asset management companies, (CON/2012/108), 14 December.
- European Central Bank (2014). Financial Stability Review, November. Frankfurt am Main.
- European Central Bank (2015a). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2015b). Financial Stability Review, November. Frankfurt am Main.

- European Central Bank (2016). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2017a). Guidance to banks on non-performing loans. March.
- European Central Bank (2017b). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2017c). ECB Annual Report 2016.
- European Central Bank (2017d). Financial Stability Review, November. Frankfurt am Main.
- European Central Bank (2018a). Guidelines on managing and provisioning NPLs and foreclosed assets.
- European Central Bank (2018b). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2018c). Financial Stability Review, November. Frankfurt am Main.
- European Central Bank (2019a). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2019b). Financial Stability Review, November. Frankfurt am Main.
- European Central Bank (2020). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2021). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2022a). Financial Stability Review, May. Frankfurt am Main.
- European Central Bank (2022b). Financial Stability Review, November. Frankfurt am Main.
- European Commission (2008). Communication from the Commission on the application of State aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis (2008/C 270/02).
- European Commission (2009). Commission decision of 12 May 2009 on State aid which Germany proposes to grant towards the restructuring of WestLB AG (C 43/08 (ex N 390/08)) (notified under document C(2009) 3900).
- European Commission (2009). N314/2009 - Germany - German asset relief scheme. Decision C(2009) 6134 final.
- European Commission (2009a). Communication on the recapitalisation of financial institutions in the current financial crisis: limitation of aid to the minimum necessary and safeguards against undue distortions of competition (2009/C 10/03).
- European Commission (2009b). Communication from the Commission on the treatment of impaired assets in the Community banking sector (2009/C 72/01).
- European Commission (2009c). 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).

European Commission (2010a). Commission Decision in case N725/2009, Establishment of a National Asset Management Agency (NAMA): Asset relief scheme for banks in Ireland, OJ C 94, 14.04.2010, p. 10.

European Commission (2010b). State aid N 200/2009 and N 47/2010 - Lithuania - Lithuanian bank support scheme. Decision C(2010) 5472 final.

European Commission (2010c). Communication from the Commission on the application, from 1 January 2011, of State aid rules to support measures in favour of banks in the context of the financial crisis (2010/C 329/07).

European Commission (2011a). Commission Decision in case N331/2010, Transfer of the first tranche of assets to NAMA, OJ C 37, 5.02.2011, p. 3.

European Commission (2011b). Commission Decision in case N529/2010, Transfer of the second tranche of assets to NAMA, OJ C 40, 9.02.2011, p. 6.

European Commission (2011c). Commission decision of 12 May 2009 on State aid which Germany proposes to grant towards the restructuring of WestLB AG (C 43/08 (ex N 390/08)) (notified under document C(2009) 3900)

European Commission (2011d). Commission Decision of 18 July 2011 on State aid C 15/2009 (ex N 196/2009), which Germany implemented and is planning to implement for Hypo Real Estate. Decision C(2011) 5157 final.

European Commission (2011e). Commission decision of 20 December 2011 on the State aid C 40/2009 and C 43/2008 for the restructuring of WestLB AG (*notified under document C(2011) 9395*)

European Commission (2011f). Commission Decision of 20 December 2011 on the State aid C 40/2009 and C 43/2008 for the restructuring of WestLB AG. Decision C(2011) 9395.

European Commission (2011g). Communication from the Commission on the application, from 1 January 2012, of State aid rules to support measures in favour of banks in the context of the financial crisis (2011/C 356/02).

European Commission (2011h). The effects of temporary State aid rules adopted in the context of the financial and economic crisis. Commission Staff Working Paper, October.

European Commission (2011i). The effects of temporary State aid rules adopted in the context of the financial and economic crisis, Commission Staff Working Paper, SEC(2011) 1126 final, 5 October.

European Commission (2012a). State aid n° SA. 33735 (2012/N) - Spain - Restructuring of Catalunya Banc S.A. Decision C(2012) 8759 final.

European Commission (2012b). State aid n° SA.33734 (2012/N) - Spain - Restructuring of NCG. Decision C(2012) 8762 final.

European Commission (2012c). State aid n° SA.34053 (2012/N) - Spain - Recapitalisation and Restructuring of Banco de Valencia S.A. Decision C(2012) 8849 final.

European Commission (2012d). State aid n° SA.34536 (2012/N) - Spain - Restructuring and recapitalisation of Banco CEISS Decision C(2012) 9878 final.

European Commission (2012e). State aid n° SA.35488 (2012/N) - Spain - Restructuring of Banco Mare Nostrum S.A. Decision C(2012) 9886 final.

European Commission (2012f). State aid n° SA.35489 (2012/N) - Spain - Restructuring of Banco Grupo Cajatres, S.A. Decision C(2012) 9830 final.

European Commission (2012g). State aid n° SA.35490 (2012/N) - Spain - Restructuring of Liberbank S.A. Decision C(2012) 9840 final.

European Commission (2012h). State aid n° SA.35709 (2012/N) - Slovenia - Recapitalisation of Nova Kreditna Banka Maribor d. d. (NKBM) - Slovenia. Decision C(2012) 9895 final.

European Commission (2012i). State aid SA.35253 (2012/N) - Spain - Restructuring and Recapitalisation of the BFA Group. Decision C(2012) 8764 final.

European Commission (2013a). Commission decision of 18.12.2013 on state aid SA.33229 (2012/C) (ex 2011/N) - Restructuring of NLB - Slovenia which Slovenia is planning to implement for Nova Ljubljanska banka d.d. Decision C(2013) 9632 final.

European Commission (2013b). Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis ('Banking Communication') (2013/C 216/01).

European Commission (2013c). State aid n° SA.35709 (2013/N) - Slovenia - Restructuring of Nova Kreditna Banka Maribor d. d. (NKBM) - Slovenia. Decision C(2013) 9634 final.

European Commission (2013d). Commission Decision of 18.12.2013 on State aid SA.33229 (2012/C) (ex 2011/N) - Restructuring of NLB - Slovenia which Slovenia is planning to implement for Nova Ljubljanska banka d.d., C(2013) 9632 final, 18 December.

European Commission (2013e). State aid n° SA.35709 (2013/N) - Slovenia Restructuring of Nova Kreditna Banka Maribor d. d. (NKBM) - Slovenia, C(2013) 9634 final, 18 December.

European Commission (2014a). Commission Decision in case SA.38562/2014, Transfer of the last tranches (from tranches 3 to 9) of assets to NAMA, OJ C393, 7.11.2014, p.5.

European Commission (2014b). State aid n° SA.38228 (2014/N) - Restructuring of Abanka Vipava Group - Slovenia. Decision C(2014) 5857 final.

European Commission (2014c). State aid SA.38522 (2014/N) - Slovenia - Restructuring aid for Banka Celje/Abanka. Decision C(2014) 9858 final.

European Commission (2014d). State aid n° SA.38228 (2014/N) - Restructuring of Abanka Vipava Group - Slovenia, C(2014) 5857 final, 13 August.

European Commission (2014e). State aid SA.38522 (2014/N) - Slovenia Restructuring aid for Banka Celje/Abanka. Decision C(2014) 9858 final, 16 December.

European Commission (2016). State Aid SA.38843 (2015/N) - Hungary Asset purchase programme by the Magyar Reorganizációs és Követeléskezelő Zrt., a Hungarian Asset Management Company. Decision C(2016) 820 final, 10 February.

European Commission (2017). *Quarterly report on the Euro Area. Institutional Paper, 049*, Brussels.

European Commission (2018). AMC Blueprint: Accompanying the document as Communication from the Commission to the European Parliament, the European Council, the Council and the European Central Bank, in *Second Progress Report on the Reduction of Non-Performing Loans in Europe*, COM(2018) 133 final.

European Commission (2018). European Commission decision C(2018) 464 final of 25 January 2018 (SA.43791(2017/NN)).

European Commission (2020). Action plan: Tackling non-performing loans (NPLs) in the aftermath of the COVID-19 pandemic, 16 December.

European Commission (2020, December 16). Coronavirus response: Tackling non-performing loans (NPLs) to enable banks to support EU households and businesses [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2375

European Commission (2022). State Aid SA.64169 (2022/N) - Italy - COVID-19 Italian platform of Guaranteed Loans Active Management - Project GLAM. Decision C(2022) 6071 final.

European Commission (2023). Post-Programme Surveillance Report: Spain, Spring 2023. *Institutional Paper: European Economy Institutional Papers*, 204.

European Parliament (2011). European Parliament resolution of 20 January 2011 on the Report on Competition Policy 2009 (2010/2137(INI))

European Systemic Risk Board (2016). A Review of Macroprudential Policy in the EU in 2015, May.

European Systemic Risk Board (2019). Macroprudential approaches to non-performing loans. Frankfurt am Main.

European Systemic Risk Board (2021). Measures taken in response to coronavirus (COVID-19) pandemic. Frankfurt am Main.

Eurostat (2009a). Decision of Eurostat on deficit and debt: The statistical recording of public interventions to support financial institutions and financial markets during the financial crisis, 15 July.

Eurostat (2009b). European Commission (Eurostat) Preliminary view on the ESA 95 accounting treatment of the National Asset Management Agency (NAMA) and related majority privately owned SPV, 16. October.

Eurostat (2013). Formal ex-ante consultation on the classification of the Sociedad de activos de Reestructuración (SAREB), 26.03.2013 [ESTAT/D-2/FL/LFO/SF/lj 0(2013) 576367].

Eurostat (2021). Sector classification of the Sociedad de activos de Reestructuración (SAREB): Follow-up of the 2019 EDP dialogue visit (Action point 23). [ESTAT/D1/LA/RJ/SF/ps].

Eurostat (2022). EDP dialogue visit to Spain: Final Findings' [e-source]. Available at:https://ec.europa.eu/eurostat/documents/1015035/14835582/Final+findings+Spain_EDP+DV+18-20+January+2022.pdf

Eurostat (2023). Quarterly registrations of new businesses and declarations of bankruptcies - statistics, May.

Communications, decisions, guidelines and press releases from national institutions and agencies

Bank of England (2011). Box 2: Forbearance. Financial Stability Report, 29. June.

Bank of England (2011). The Funding for Lending Scheme. Quarterly Bulletin 2012 Q4

Bank of Greece (2020). Financial Stability Review. July.

Bank of Italy (2013a). Circolare n. 272 del 30 luglio 2008, Aggiornamento n. 5 del 16 luglio 2013.

Bank of Italy (2013b). La recente analisi dei prestiti deteriorati condotta dalla Banca d'Italia: principali caratteristiche e risultati. *Approfondimenti*. 29 July.

Bank of Italy (2015). A special purpose company for the purchase of Italian banks' bad debts, in Financial Stability Review, n.1, April.

Bank of Portugal (2018): Portuguese Banking System: latest developments 2nd quarter 2018

Bank of Spain (2012). Circular n.º 6/2012, de 28 de septiembre, del Banco de España, a entidades de crédito, de modificación de la Circular 4/2004, de 22 de diciembre, sobre normas de información financiera pública y reservada, y modelos de estados financieros.

Bank of Spain (2017). Circular 4/2017, de 27 de noviembre, del Banco de España, a entidades de crédito, sobre normas de información financiera pública y reservada, y modelos de estados financieros.

Bank of Spain (2017). Report on the financial and banking crisis in Spain, 2008-2014.

Bank of Spain (2018): Memoria de Supervisión Bancaria en España, 2017

Bank of Spain (2020). Circular 3/2020, de 11 de junio, del Banco de España, por la que se modifica la Circular 4/2017, de 27 de noviembre, a entidades de crédito, sobre normas de información financiera pública y reservada, y modelos de estados financieros.

Bank of Spain (2021). Briefing note on the revision of general government debt according to the Excessive Deficit Procedure (EDP). Sareb reclassification in the general government sector [Press release]. https://www.bde.es/f/webbde/GAP/Secciones/SalaPrensa/NotasInformativas/Briefing_notes/en/notabe310321en.pdf

Central Bank of Croatia. (2013). Financial stability report for 2012. (No.11, VII 2013). Zagreb: Publishing Department.

Central Bank of Croatia. (2014a). Financial stability report for 2013. (No.13, VII 2014). Zagreb: Publishing Department.

Central Bank of Croatia. (2014b). Banks Bulletin for 2013. (No.26, VIII 2014). Zagreb: Publishing Department.

Central Bank of Hungary / Magyar Nemzeti Bank (2014) Asset management agency proposed by the central bank, in “Financial Stability Report”, November.

Central Bank of Hungary / Magyar Nemzeti Bank (2015). Mark LTD. - Market based tool of MNB for stability and corporate portfolio resolution. *Financial Stability Report*, May.

Central Bank of Hungary / Magyar Nemzeti Bank (2016a). Annual Report: The Hungarian central bank’s annual report for 2015.

Central Bank of Hungary / Magyar Nemzeti Bank (2016b, June 22). Twenty-three financial institutions registered for MARK’s asset purchase programme with over HUF 300 billion exposure [Press release]. <https://www.mnb.hu/en/pressroom/press-releases/press-releases-2016/twenty-three-financial-institutions-registered-for-mark-s-asset-purchase-programme-with-over-huf-300-billion-exposure>

Central Bank of Hungary / Magyar Nemzeti Bank (2017, April 10). The MNB sells the asset manager of MARK Zrt. [Press release]. <https://elischolar.library.yale.edu/cgi/viewcontent.cgi?article=10144&context=yyps-documents>

Central Bank of Ireland (2011). *The Financial Measures Programme Report*.

Central Bank of Ireland (2013). The Central Bank of Ireland Impairment Provisioning and Disclosure Guidelines. May.

Comptroller and Auditor General (2014). National Asset Management Agency: Progress Report 2010 - 2012. Special report, 81. April.

Comptroller and Auditor General (2018). National Asset Management Agency: Second Progress Report. Special report, 102. June.

Comptroller and Auditor General (2020). National Asset Management Agency: Progress on achievement of objectives as at end 2018. Special report, 111. June.

Comptroller and Auditor General (2023). National Asset Management Agency: Progress on achievement of objectives as at end 2021. Special report, 116. April.

FROB (2012, October 29). The transfer prices to the Asset Management Company (Sareb) will be sharply adjusted to ensure its profitability [Press release].

<https://www.bde.es/f/webbde/GAP/Secciones/SalaPrensa/InformacionInteres/ReestructuracionSectorFinanciero/Archivo/Ficheros/frob291012e.pdf>

Government of the Republic of Slovenia (2013). Slovenia's 2013-2014 National Reform Program, May.

Slovenian Sovereign Holding (2023a, January 3). The Bank Assets Management Company (BAMC) is merged into the Slovenian Sovereign Holding (SSH) [Press release]. <https://www.sdh.si/en-gb/news/4734/the-bank-assets-management-company-bamc-is-merged-into-the-slovenian-sovereign-holding-ssh>

Slovenian Sovereign Holding (2023b). Annual Asset Management Plan for 2023, February.

Legislative acts from EU Member States

Germany:

Gesetz zur Umsetzung eines Maßnahmenpakets zur Stabilisierung des Finanzmarktes (Finanzmarktstabilisierungsgesetz - FMStG) vom 17.10.2008 - BGBl. I 2008, Nr. 46 vom 17.10.2008, S. 1982.

Gesetz zur Fortentwicklung der Finanzmarktstabilisierung vom 17.07.2009 - BGBl. I 2009, Nr. 43 vom 22.07.2009, S. 1980

Lithuania:

Law on Financial Sustainability of 22 July, "Valstybės Žinios" 2009, No. 93-3985, i. k. 1091010ISTA00XI-393.

Ireland:

National Asset Management Agency Act, Number 34 of 2009.

Spain:

Ley 9/2012, de 14 de noviembre, de reestructuración y resolución de entidades de crédito (Law 9/2012, of 14 November, on the restructuring and resolution of financial institutions).

Real Decreto-ley 24/2012, de 31 de agosto, de reestructuración y resolución de entidades de crédito (Royal Decree-Law 24/2012, of 31 August, on the restructuring and resolution of financial institutions).

Real Decreto 1559/2012, de 15 de noviembre, por el que se establece el régimen jurídico de las sociedades de gestión de activos (Royal Decree 1559/2012, of 15 November, establishing the legal framework governing asset management firms).

Real Decreto-ley 6/2020, de 10 de marzo, por el que se adoptan determinadas medidas urgentes en el ámbito económico y para la protección de la salud pública (Royal Decree Law 6/2020, of 10 March, on the adoption of certain urgent measures in the economic sphere and for the protection of public health).

Real Decreto-ley 1/2022, de 18 de enero, por el que se modifican la Ley 9/2012, de 14 de noviembre, de reestructuración y resolución de entidades de crédito; la Ley 11/2015, de 18 de junio, de recuperación y resolución de entidades de crédito y empresas de servicios de inversión; y el Real Decreto 1559/2012, de 15 de noviembre, por el que se establece el régimen jurídico de las sociedades de gestión de activos, en relación con el régimen jurídico de la Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria (Royal Decree-Law 1/2022, of January 18, which modifies Law 9/2012, of November 14, on the restructuring and resolution of credit institutions; Law 11/2015, of June 18, on the recovery and resolution of credit institutions and investment services companies; and Royal Decree 1559/2012, of November 15, establishing the legal framework governing asset management firms, in relation to the legal regime of the Asset Management Company from Bank Restructuring).

Slovenia:

Law 105/2012, of 27 December, on regulating measures of the Republic of Slovenia to strengthen the stability of banks (Stevilka 105. Oradni list RS, st. 105/2012 z dne 27.12.2012 (Official Gazette No. 105/2012 dated 27.12.2012).

Regulation Implementing Measures to Strengthen Bank Stability (In Slovene, Uredba o izvajanju ukrepov za krepitev stabilnosti bank) (Oradni list RS, st. 103/2013 z dne 11.12.2013) (11 December 2013).

Law 104/2015 amending the Act Defining the Measures of akthe Republic of Slovenia to Strengthen Bank Stability (In Slovene, Zon o spremembah in dopolnitvah Zakona o ukrepih Republike Slovenije za krepitev stabilnosti bank (ZUKSB-A)) (Oradni list RS, st. 104/2015).

Italy:

Decreto Legge 3 maggio 2016, n. 59 Disposizioni urgenti in materia di procedure esecutive e concorsuali, nonche' a favore degli investitori in banche in liquidazione. (16G00076). Decreto-Legge convertito con modificazioni dalla L. 30 giugno 2016, n. 119 (in G.U. 02/07/2016, n. 153) *Convertito, con modificazioni, dalla legge 30 giugno 2016 n. 119.*

Ministero dell' Economia e delle Finanze Decreto n.221 22 febbraio 2018 attuazione dell'articolo 5 del decreto-legge 25 giugno 2017, n. 99, convertito, con modificazioni, dalla legge 31 luglio 2017, n. 121, recante: «Disposizioni urgenti per assicurare la parita' di trattamento dei creditori nel contesto di una ricapitalizzazione precauzionale nel settore creditizio nonche' per la liquidazione coatta amministrativa della Banca Popolare di

Vicenza S.p.a. e di Veneto Banca S.p.a.» (18A03712) (GU n.123 del 29-5-2018) (Ministry of Economy and Finance Decree n.221 22 February 2018 implementation of article 5 of the legislative decree 25 June 2017, n. 99, converted, with amendments, by law 31 July 2017, n. 121, containing: Urgent provisions to ensure equal treatment of creditors in the context of a precautionary recapitalization in the credit sector as well as for the forced administrative liquidation of Banca Popolare di Vicenza S.p.a. and Veneto Banca S.p.a.» (18A03712) (GU n.123 of 29-5-2018)

Speeches, keynotes, letters and op-eds of EU or national officials.

Constâncio, V. (2017, February 3). Resolving Europe's NPLs: challenges and benefits, speech given at the Bruegel conference on 3 February 2017. <https://www.bankingsupervision.europa.eu/legalframework/publiccons/html/index.en.html>

Dombrovskis, V. (2017, April 7). Remarks by Vice-President Dombrovskis at the informal ECOFIN press conference in Valletta [Press release]. *Speech 17/917*.

Enria, A. (2020a). Letter from Andrea Enria, Chair of the Supervisory Board, to Mr Schäffler of 25 May 2020. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.mepletter200525_Schaffler-4b5ffb68c8.en.pdf

Enria, A. (2020b, October 27). The EU needs its own 'bad bank'. Financial Times. <https://www.ft.com/content/cc3a9a51-4d9a-4c73-9ff0-9f623ecf4065>

Enria (2020c). Hearing at the European Parliament's Economic and Monetary Affairs Committee, 27 October.

Enria (2021). Letter from Andrea Enria, Chair of the Supervisory Board, to Mr Schäffler of 14 January 2021. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.mepletter210114_Schaffler-2746c4bf9b.en.pdf

Enria, A. (2017, January 30). The EU banking sector -risks and recovery: A single market perspective. Presentation at the ESM Seminar. https://www.esm.europa.eu/sites/default/files/2017_01_30_-_esm_risk_and_adjustment_at_eu_banks.pdf

Mourmouras, J.I. (2020, September 9). The pandemic crisis as a challenge - Greece the day after. Opening speech by Professor John Iannis Mourmouras, Senior Deputy Governor of the Bank of Greece, at the IMN's Greek Banking & NPL Management Virtual Event.

Nouy, D. (2017, March 27). Speech at Press conference on the ECB Annual Report on supervisory activities 2016.

Regling, K. (2017, January 30). Euro area stability and financial integration. *Speech at ESM Seminar*. <https://www.esm.europa.eu/speeches-and-presentations/speech-klausregling-esm-seminar-andrea-enria>

Stournaras, Y. (2019, September 19). Greece in Europe - reasons for optimism Speech by Mr Yannis Stournaras, Governor of the Bank of Greece, at the Annual Stavros Niarchos Foundation Lecture, Yale University, New Haven CT, USA.

Stournaras, Y. (2020a, July 21). European and Greek economic developments and prospects. Speech by Mr Yannis Stournaras, Governor of the Bank of Greece, at the online public discussion on “Trends in the European Economy and the prospects for Greece in a post Covid19 world”, organized by the Foundation for Economic and Industrial Research (IOBE) jointly with the Representation in Greece and Cyprus of the Konrad-Adenauer-Stiftung (KAS).

Stournaras, Y. (2020b, December 15). Paving the way for growth and financial stability in Greece and Europe Speech by Mr Yannis Stournaras, Governor of the Bank of Greece, at the 22nd Annual Capital Link Invest in Greece Forum: *Greece- Looking Ahead With Confidence*.

Virág, B. (2016). Notification of the start of operation of MARK Zrt. to mitigate systemic risks stemming from non-performing project exposures. Magyar Nemzeti Bank. 23 March.

Visco, I. (2015, September 15). Advancing European financial integration, Keynote address by Mr Ignazio Visco, Governor of the Bank of Italy, at the Euromoney - The Italy Conference, Milan.

Visco, I. (2017, November 6). Recent developments and open questions in the European banking industry Speech by Governor of the Bank of Italy Ignazio Visco at the Annual Convention of the Asociación de Mercados Financieros, Madrid.

Visco, I. (2020, September 16), The Italian economy and banks - implications of the pandemic and outlook Speech by Mr Ignazio Visco, Governor of the Bank of Italy, at the Italian Banking Association Executive Committee Meeting, Rome.

Books, papers, working papers and book chapters

Abascal, R., & González, F. (2019). Shareholder protection and bank executive compensation after the global financial crisis. *Journal of Financial Stability*, 40, 15-37.

Acharya, V. & Yorulmazer, T. (2007). Too Many to Fail - An Analysis of Time-Inconsistency in Bank Closure Policies, *Journal of Financial Intermediation*, 16, 1-31.

Acharya, V. V, Crosignani, M., Eisert, T., & Eufinger, C. (2021). Zombie credit and (dis-) inflation: evidence from Europe. *Working paper 27158*. National Bureau of Economic Research.

Acharya, V. V., & Yorulmazer, T. (2008). Information contagion and bank herding. *Journal of money, credit and Banking*, 40(1), 215-231.

Acharya, V. V., Borchert, L., Jager, M., & Steffen, S. (2021). Kicking the Can Down the Road: Government Interventions in the European Banking Sector. *The Review of Financial Studies*, 34, 4090-4131.

- Acharya, V. V., Crosignani, M., Eisert, T., & Steffen, S. (2022). Zombie lending: Theoretical, international, and historical perspectives. *Annual Review of Financial Economics*, 14, 21-38.
- Acharya, V. V., Lenzu, S., & Wang, O. (2021). Zombie lending and policy traps. *NBER Working paper*, w29606. National Bureau of Economic Research.
- Aiyar, M. S., Bergthaler, M. W., Garrido, J. M., Ilyina, M. A., Jobst, A., Kang, M. K. H., ... & Moretti, M. M. (2015). A strategy for resolving Europe's problem loans. *IMF Staff Discussion Note*, SDN/15/19, International Monetary Fund, Washington DC.
- Alessi, L., Bruno, B., Carletti, E., Neugebauer, K., & Wolfskeil, I. (2021). Cover your assets: non-performing loans and coverage ratios in Europe. *Economic Policy*, 36(108), 685-733.
- Al-Eyd, M. A. J., & Berkmen, P. (2013). Fragmentation and monetary policy in the euro area. *International Monetary Fund*.
- Alonso-Rodríguez, P. (2016). El uso de sociedades de gestión de activos como herramienta de resolución bancaria en la Unión Europea. *Revista Universitaria Europea*, 24, 125-158.
- Alonso-Rodríguez, P. (2018). La gestión de los activos improductivos en la UE: ¿Es necesaria la creación de un “banco malo” europeo?. *Revista de estudios europeos*, (71), 366-380.
- Anastasiou, D., Louri, H. & Tsionas, M. (2016). Determinants of non-performing loans: evidence from euro-area countries, *Finance Research Letters*, 18, 116-119.
- Anastasiou, D., Louri, H., & Tsionas, M. (2019). Nonperforming loans in the euro area: A re core-periphery banking markets fragmented?. *International Journal of Finance & Economics*, 24(1), 97-112.
- Andrews, D., & Petroulakis, F. (2019). Breaking the shackles: Zombie firms, weak banks and depressed restructuring in Europe. *ECB Working Paper*, 2240. European Central Bank.
- Ari, A., Chen, S., & Ratnovski, L. (2021). The dynamics of non-performing loans during banking crises: A new database with post-covid-19 implications. *Journal of Banking & Finance*, 133, 106-140.
- Arrowsmith, M, Griffiths, M, Franklin, J, Wohlmann, E, Young, G & Gregory, D. (2013). SME forbearance and its implications for monetary and financial stability. *Bank of England Quarterly Bulletin*, 53(4), 296-303.
- Ayuso Huertas, J., & Río Lopezosa, A. D. (2012). La resolución de activos bancarios a través de «bancos malos». *Estabilidad financiera*, 23, 9-23.
- Baboucek, I. & Jancar, M. (2005). Effects of Macroeconomic Shocks to the Quality of the Aggregate Loan Portfolio, *Czech National Bank Working Papers*, 2005/01. Czech National Bank.
- Balgova, M., Nies, M., & Plekhanov, A. (2016). The economic impact of reducing non-performing loans. *EBRD Working Paper No. 193*, European Bank for Reconstruction and Development.

- Balogh, I. (2018, May 15-16). Lessons Learned from the Work of DUTB [Conference Session]. World Bank/FinSAC: International Conference on NPL Resolution, Vienna.
<https://thedocs.worldbank.org/en/doc/922641527522965142-0130022018/original/NPLConferenceDay110ImreBalogh.pdf>
- Banerjee, R., & Hofmann, B. (2022). Corporate zombies: Anatomy and life cycle. *Economic Policy*, 37(112), 757-803.
- Bargagli-Stoffi, F. J., Riccaboni, M. & Rungi, A. (2020). Machine Learning for Zombie Hunting. Firms Failures and Financial Constraints. *IMT School for Advanced Studies Lucca Working Paper*, 01/2020.
- Barisitz, S. (2011). Nonperforming Loans in CESEE-What Do They Comprise. *Focus on European Economic Integration Q*, 4, 46-68.
- Barisitz, S. (2013). Nonperforming loans in Western Europe—A selective comparison of countries and national definitions. *Focus on European Economic Integration*, 1, 28-47.
- Barra, C., & Ruggiero, N. (2021). Do microeconomic and macroeconomic factors influence Italian bank credit risk in different local markets? Evidence from cooperative and non-cooperative banks. *Journal of Economics and Business*, 114, 105976.
- Bartlett, L., & Vavrus, F. (2017). Comparative case studies: An innovative approach. *Nordic Journal of Comparative and International Education (NJCIE)*, 1(1).
- Baudino, P., M. Herrera and F. Restoy (2023). The 2008-14 banking crisis in Spain, FSI Crisis Management Series, 4, July.
- Baudino, P., Orlandi, J., & Zamil, R. (2018). The identification and measurement of nonperforming assets: a crosscountry comparison. *FSI Insights on policy implementation*, 7. Bank for International Settlements, Financial Stability Institute.
- Beatty, A., & Liao, S. (2011). Do delays in expected loss recognition affect banks' willingness to lend?. *Journal of accounting and economics*, 52(1), 1-20.
- Beck, R., Jakubik, P. & PiloIU, A. (2015). Key determinants of non-performing loans: new evidence from a global sample, *Open Economies Review*, 26(3), 525-550.
- Beck, R., Jakubik, P., & PiloIU, A. (2013). Non-performing loans: What matters in addition to the economic cycle? *ECB Working paper*, 1515. European Central Bank.
- Becker, B., & Ivashina, V. (2022). Weak Corporate Insolvency Rules: The Missing Driver of Zombie Lending. *AEA Papers and Proceedings*, 112, 516-520.
- Berge, T. O., & Boye, K.G. (2007). An analysis of banks' problem loans. *Norges Bank Econ. Bull.*, 78, 65-76.

- Berger, A., & De Young, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking and Finance*, 21, 849-870.
- Bhat, G. S., G. Ryan & D. Vyas (2013). The implications of credit risk modelling for banks' loan loss provision timeliness and loan origination procyclicality. Working Paper.
- Bikhchandani, S., & Sharma, S. (2000). Herd behavior in financial markets. *IMF Staff papers*, 47(3), 279-310.
- Blanco, R., & Gimeno, R. (2012). Determinants of default ratios in the segment of loans to households in Spain. *Bank of Spain Working Papers*, 1210. Banco de España.
- Blattner, L., Farinha, L. & Rebelo, F. (2020), When losses turn into loans: The cost of undercapitalized banks, *ECB Working Paper No. 2228*, European Central Bank.
- Blazsek, V. (2016). A Comparative Analysis of the Bad Asset Management Companies of Spain and Hungary: the Devil is in the Details. In *Queen Mary Law Journal* (Vol. 8, pp. 69-78). QM Law Society.
- Boccuzzi, G. (2016). Banking Crises and State Aid Discipline. In *The European Banking Union: Supervision and Resolution* (pp. 154-164). London: Palgrave Macmillan UK.
- Bofondi, M., & Ropele, T. (2011). Macroeconomic determinants of bad loans: evidence from Italian banks. *Bank of Italy Occasional Paper*, 89. Banca d'Italia.
- Bonfim, D., Cerqueiro, G., Degryse, H., & Ongena, S. (2023). On-site inspecting zombie lending. *Management Science*, 69(5), 2547-2567.
- Botta, M. (2018). Competition policy: safeguarding the Commission's competences in State aid control. In *EU Policies in Times of Crisis* (pp. 47-60). Routledge.
- Boudghene, Y., & Maes, S. (2012). Empirical Review of EU Asset Relief Measures in the Period 2008-2012. *European State Aid Law Quarterly*, 11(4), 777-790.
- Boyd, J. H., & Graham, S. L. (1991). Investigating the banking consolidation trend. *Federal Reserve Bank of Minneapolis. Quarterly Review-Federal Reserve Bank of Minneapolis*, 15(2), 3.
- Braakmann, A. & Forster, T. (2011, August 21-26). Challenges in Improving the Measurement of the Government Financial Position and in the Classification of Units as Public Or Private [Conference session]. 58 ISI Congress - Dublin. *YPFS Documents (Series 1)*, 9622. <https://elischolar.library.yale.edu/ypfs-documents/9622>
- Brady, H. E., D. Collier & J. Seawright (2004), 'Refocusing the Discussion of Methodology', in Brady and Collier (eds.), *Rethinking Social Inquiry. Diverse Tools, Shared Standards*. Lanham, Md.: Rowman & Littlefield, pp. 3-21.
- Branco, T. A. P. (2015). Macro Determinants of nonperforming loans in Portugal (Doctoral dissertation). Nova School of Business & Economics.

- Brenna, G., Poppensieker, T. & Schneider, S. (2009). Understanding the bad bank. McKinsey&Company.
- Brown, C. O., & Dinç, I. S. (2011). Too many to fail? Evidence of regulatory forbearance when the banking sector is weak. *The Review of Financial Studies*, 24(4), 1378-1405.
- Bruche M, & Llobet G. L. (2014). Preventing Zombie Lending. *Review of Financial Studies*, 27(3), 923-56.
- Buder, M., Lienemeyer, M., Magnus, M., Smits, B., & Soukup, K. (2011). The rescue and restructuring of Hypo Real Estate. *Competition policy newsletter*, (3), 41-44.
- Bushman, R. M., & Williams, C. D. (2012). Accounting discretion, loan loss provisioning, and discipline of banks' risk-taking. *Journal of accounting and economics*, 54(1), 1-18.
- Bussoli, C., Caputo, V. & Conte, D. (2020). Macroeconomic and Bank-specific determinants of NPLs in Europe: the role of branches and bank size, *Bancaria*, 1, 22-43.
- Caballero, R.J., Hoshi, T. & Kashyap, A.K. (2008). Zombie Lending and Depressed Restructuring in Japan. *American Economic Review*, 98(5): 1943-1977.
- Calomiris, C. W., & Haber, S. (2014). *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*. The Princeton Economic History of the Western World. Princeton University Press.
- Carreira, C., Teixeira, P., & Nieto-Carrillo, E. (2022). Recovery and exit of zombie firms in Portugal. *Small Business Economics*, 59(2), 491-519.
- Cas, S. & Peresa, I. (2016). What Makes a Good 'Bad Bank'? The Irish, Spanish, and German Experience, *Discussion Papers*, 36. European Commission. <https://doi.org/10.2765/848761>.
- Cascarino, G., Gallo, R., Palazzo, F., & Sette, E. (2022). Public guarantees and credit additionality during the Covid-19 pandemic. *Bank of Italy Temi di Discussione (Working Paper)*, 1369.
- Castro, V. (2013). Macroeconomic determinants of the credit risk in the banking system: The case of the GIPSI. *Economic Modelling*, 31, 672-683.
- Cerruti, R., & Neyens, C. (2016). *Public asset management companies: a toolkit*. World Bank Studies; Washington, DC: World Bank.
- Chaibi, H., & Ftiti, Z. (2015). Credit risk determinants: Evidence from a cross-country study. *Research in International Business and Finance*, 33, 1-16.
- Charalambakis, E., Dendramis, Y., & Tzavalis, E. (2017). On the determinants of NPLs: lessons from Greece. In *Political Economy Perspectives on the Greek Crisis* (pp. 289-309). Palgrave Macmillan, Cham.
- Chari, A., Jain, L., & Kulkarni, N. (2021). The unholy trinity: Regulatory forbearance, stressed banks and zombie firms. *NBER Working paper*, w28435. National Bureau of Economic Research.

- Chopra, Y., Subramanian, K., & Tantri, P. L. (2021). Bank cleanups, capitalization, and lending: Evidence from india. *The Review of Financial Studies*, 34(9), 4132-4176.
- Christodoulou-Volos, C., & Hadjixenophontos, A. (2017). Empirical Determinants of the Non-Performing Loans in the Cypriot Banking System. *Journal of Finance and Investment Analysis*, 6(4), 1-1.
- Çifter, A. (2015). Bank concentration and non-performing loans in Central and Eastern European countries. *Journal of Business Economics and Management*, 16(1), 117-137.
- Ciukaj, R., & Kil, K. (2020). Determinants of the non-performing loan ratio in the European Union banking sectors with a high level of impaired loans. *Economics and business review*, 6(1), 22-45.
- Collier, D. (1991). *The comparative method: Two decades of change. Comparative Political Dynamics: Global Research Perspectives*, HarperCollins Publishers.
- Cong, L. W., Gao, H., Ponticelli, J. & Yang, X. (2019). Credit allocation under economic stimulus: Evidence from China. *The Review of Financial Studies*, 32, 3412-3460.
- Cuerpo, C., & Pontuch, P. (2013). Spanish housing market: adjustment and implications. *ECFIN Country Focus*, 10(8), 1-9.
- D`Hulster, K., & L. Qefalia (2016). Convergence in NPL definitions will facilitate comparison and resolution efforts. NPL Vienna Initiative. May.
- D`Hulster, K., R. Letelier, & V. Salomao-Garcia (2014). Loan classification and provisioning: current practices in 26 ECA countries - overview paper. *Financial Sector Advisory Center (FinSAC) working paper series*. World Bank Group. August.
- De Haas, R., Markovic, B., and Plekhanov, A. (2017). Reducing Non-Performing Loans in Europe. *European Economy - Banks, Regulation, and the Real Sector*, (1), 107-116.
- Della Porta, D. & M. Keating (2008). *Approaches and Methodologies in the Social Sciences: A Pluralist Perspective*, Cambridge University Press.
- Dreyer, M. (2021). Hungary: Magyar Reorganizációs és Követeléskezelő Zrt (MARK Zrt.). *Journal of Financial Crises*, 3(2), 757-771
- Druhova, V., Hirna, O., & Fostyak, V. (2021). A Factor Analysis of the Impact of Digitalisation on the Banking Industry, *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie* 1(991), 9-22.
- Edwards, F. R. (1977). Managerial objectives in regulated industries: Expense-preference behavior in banking. *Journal of Political Economy*, 85(1), 147-162.
- Edwards, J. M. (2011). FDICIA v. Dodd-Frank: Unlearned lessons about regulatory forbearance. *Harv. Bus. L. Rev.*, 1, 279.

- Eisenbeis, R. A., & Horvitz, P. M. (1994). The role of forbearance and its costs in handling troubled and failed depository institutions. In *Reforming Financial Institutions and Markets in the United States: Towards Rebuilding a Safe and More Efficient System* (pp. 49-68). Dordrecht: Springer Netherlands.
- Elferink, M. (2020). The effects of digitalisation of European banks on the credit market. Radboud Universiteit.
- Erjavec, N., Cota, B., & Jakšić, S. (2012). Sign restriction approach to macro stress-testing of the Croatian banking system. *Financial theory and practice*, 36(4), 395-412.
- Fell, J., Grodzicki, M., Martin, R., & O'Brien, E. (2016). Addressing market failures in the resolution of non-performing loans in the euro area. *Financial Stability Review*, 2. European Central Bank.
- Fell, J., Grodzicki, M., Martin, R., & O'Brien, E. (2017). A Role for systemic Asset Management Companies in solving Europe's non-performing loan problems. *European economy: Banks, regulation, and the real sector*, (1), 63-96.
- Fernández de Lis, S., Martínez Pagés, J., & Saurina Salas, J. (2000). Credit growth, problem loans and credit risk provisioning in Spain. Banco de España. Servicio de Estudios.
- Festic, M., Kavkler, A., & Repina, S., 2011. The macroeconomic sources of systemic risk in the banking sectors of five new EU member states. *Journal of Banking and Finance*, 35, 310-322.
- Flanagan, T., & Purnanandam, A. (2020). "Why Do Banks Hide Losses?", *University of Michigan Working Paper*. University of Michigan.
- Flanagan, Thomas, and Amiyatosh Purnanandam (2020). Why Do Banks Hide Losses?, *University of Michigan Working Paper*.
- Freixas, X. (2010). Post-crisis challenges to bank regulation. *Economic Policy*, 26(62), 377-399.
- Galand, C., Dutillieux, W., & Vallyon, E. (2017). Non-performing loans and state aid rules. *European Economy- Banks, Regulation, and the Real Sector*, (1), 137-159.
- Gandrud, C. & Hallerberg, M. (2014). Bad banks in the EU: the impact of Eurostat rules. *Bruegel Working Paper*, 2014/15.
- García Montalvo, J. (2015). Cleaning up the Spanish financial sectors real estate risk exposure: Situation and outlook. *Spanish Economic and Financial Outlook*, 4(5), 53-69.
- García-Marco, T., & Robles-Fernandez, M. D. (2008). Risk-taking behaviour and ownership in the banking industry: The Spanish evidence. *Journal of economics and business*, 60(4), 332-354.
- Gardó, S., Grodzicki, M., Klaus, B. and Metzler, J. (2019). Do corporate fundamentals explain differences in sectoral NPLs? *Financial Stability Review*, May 2019, 38-41.

- Gebhardt, G. & Novotny-Farkas, Z. (2011). Mandatory IFRS Adoption and Accounting Quality of European Banks. *Journal of Business Finance and Accounting*, 38(3-4), 289-333.
- Ghosh, A. (2015). Banking-industry specific and regional economic determinants of non-performing loans: Evidence from US states. *Journal of Financial Stability*, 20, 93-104.
- Giannetti, M. & A. Simonov (2013). On the real effects of bank bailouts: Micro evidence from Japan. *American Economic Journal: Macroeconomics*, 5, 135-67.
- Gila-Gourgoura, E. & Nikolaidou, E. (2017). Credit risk determinants in the vulnerable economies of Europe: Evidence from the Spanish banking system. *International Journal of Business and Economic Sciences Applied Research*, 10 (1), 60-71.
- Godlewski, C.J. (2004). Capital regulation and credit risk taking: Empirical evidence from banks in emerging market economics, *Economics Working Paper Archive at WUSTL*, SSRN Electronic Journal, 1-25.
- Gorton, G., & Rosen, R. (1995). Corporate control, portfolio choice, and the decline of banking. *The Journal of Finance*, 50(5), 1377-1420.
- Grunewald, S., & Read, M. L. L. (2022). Dealing with non-performing loans: Mapping the applicable rules for asset management companies. *Revista General de Insolvencias & Reestructuraciones: Journal of Insolvency & Restructuring (I&R)*, (6), 251-282.
- Haben, P., & Quagliariello, M. (2017). Why the EU needs an asset management company. *Central banking*, 20, 1-7.
- He, D., Ingves, S., & Seelig, S. A. (2004). Issues in the establishment of asset management companies. In *Bank Restructuring and Resolution* (pp. 212-226). London: Palgrave Macmillan UK.
- Hellwig, M. (2017). Carving out legacy assets: A successful tool for bank restructuring? *Preprints of the Max Planck Institute for Research on Collective Goods*, No. 2017/3, Max Planck Institute for Research on Collective Goods, Bonn.
- Hellwig, M. F., Sapir, A., Pagano, M., Acharya, V., Balcerowicz, L., Boot, A., ... & Wyplosz, C. (2012). Forbearance, resolution and deposit insurance. *ESRB: Advisory Scientific Committee Reports 2012/1*. European Systemic Risk Board.
- Herring, R. & Wachter, S. (1999). Real Estate Booms and Banking Busts: An International Perspective, *Wharton School working paper 99-27*, University of Pennsylvania.
- Homar, T., & S. J. G. Van Wijnbergen (2014). On Zombie Banks and Recessions after Systemic Banking Crises: 1-52.
- Homar, T., Kick, H., & Salleo, C. (2015). What drives forbearance-Evidence from the ECB Comprehensive Assessment. ECB Working Paper, 1860. European Central Bank.

- Hosono, K. & Sakuragawa, M. (2005). Bad Loans and Accounting Discretion. *Econ. Keio*. 1-46.
- Hou, Y. & Dickinson, D. (2007). The Non-performing Loans: Some Bank-level Evidences. *The 4th Advances in Applied Financial Economics, the Quantitative and Qualitative Analysis in Social Sciences conferences*.
- Hradiský, M., J. Angerer, M. Ciucci, A. Zoppé, B. Mesnard & J. Vega Bordell (2016). Greece's financial assistance programme. In-depth analysis, PE 574.389. European Parliament. 1 February.
- Hüfner, F. (2010). The German Banking System: Lessons from the Financial Crisis. *OECD Economics Department Working Papers*, 788.
- Huizinga, H., & Laeven, L. (2012). Bank valuation and accounting discretion during a financial crisis. *Journal of financial economics*, 106(3), 614-634.
- Hüther, M. (2013). Banking crisis, bank regulation and bad banks. Discussion, Erste Abwicklungsanstalt Annual Report.
- Ilgmann, C. & van Suntum, U. (2009). Bad Banks: The Case of Germany. *CAWM Discussion Paper*, núm. 22, Center of Applied Economic Research Münster.
- Jappelli, T., Pagano, M., & Di Maggio, M. (2013). Households' indebtedness and financial fragility. *Journal of Financial Management, Markets and Institutions*, 1(1), 23-46.
- Jassaud, N., & Kang, K. H. (2015). A Strategy for Developing a Market for Nonperforming Loans in Italy, *IMF Working Paper*, WP/15/24, February.
- Jesswein, K. R. (2009). An examination of the "Texas Ratio" as a bank failure model. *Academy of Banking Studies Journal*, 8(1/2), 63.
- Jiménez G. & Saurina J. (2006). Credit cycles, credit risk and prudential regulation. *International Journal of Central Banking*, 2(2), 65-98.
- Jiménez, G., & Saurina, J. (2002). Loan characteristics and credit risk. *Bank of Spain Working Paper*, 1-34.
- Jiménez, G., Lopez, J.A. & Saurina, J. (2013). How does competition affect bank risk-taking?, *Journal of Financial Stability*, 9(2), 185-195.
- Jódar-Rosell, S. (2013). Sareb: claves estratégicas. *Documento de trabajo 01/13*, Estudios y Análisis Económico, La Caixa.
- Jordà, Ò., Kornejew, M., Schularick, M., & Taylor, A. M. (2022). Zombies at large? Corporate debt overhang and the macroeconomy. *The Review of Financial Studies*, 35(10), 4561-4586.
- Jordà, Ò., Schularick, M., & Taylor, A. M. (2013). When credit bites back. *Journal of money, credit and banking*, 45(s2), 3-28.

- Karadima, M., & Louri, H. (2020). Bank competition and credit risk in euro area banking: fragmentation and convergence dynamics. *Journal of Risk and Financial Management*, 13(3), 57.
- Kasa, K., & Spiegel, M., (2008). The Role of Relative Performance in Bank Closure Decisions. *Economic Review*, Federal Reserve Bank of San Francisco, 19-29.
- Keeton, W. R. (1999). Does faster loan growth lead to higher loan losses?, *Economic review-Federal reserve bank of Kansas City*, 84(2), 57.
- Kjosevski, J., & Petkovski, M. (2017). Non-performing loans in Baltic States: determinants and macroeconomic effects. *Baltic Journal of Economics*, 17(1), 25-44.
- Kjosevski, J., & Petkovski, M. (2021). Macroeconomic and bank-specific determinants of non-performing loans: the case of baltic states. *Empirica*, 48(4), 1009-1028.
- Klein, N. (2013). Non-performing loans in CESEE: Determinants and impact on macroeconomic performance. *IMF working paper*, WP/13/72. International Monetary Fund.
- Klingebiel, D. (2000). The Use of Asset Management Companies in the Resolution of Banking Crises. *WBG Working Paper*, 2294. Washington, D.C.: World Bank.
- Kobayashi, K., Saita, Y., & Sekine, T. (2003). Forbearance Lending: A Case for Japanese Firms. *Monetary and Economic Studies*, 21 (2): 69-92.
- Konstantakis, K., Panayotis, N., Michaelides, G., & Vouldis, A.T. (2016). Non performing loans (npls) in a crisis economy: Long-run equilibrium analysis with a real time vec model for greece (2001-2015). *Physica A: Statistical Mechanics and Its Applications*, 451, 149-61.
- Kütz, F.C. & Ivell, T. (2011). Bad bank strategy: it's harder this time. Financial Services, Oliver Wyman.
- Laeven, L. & Levine, R. (2009). Bank governance, regulation and risk-taking, *Journal of Financial Economics*, 93(2), 259-275.
- Lasswell, H. D. (1968). The future of the comparative method. *Comparative politics*, 1(1), 3-18.
- Lawson, A. (2021). United Kingdom Asset Resolution Limited (UKAR). *Journal of Financial Crises*, 3(2), 641-664.
- Lefevre, E. (2017). Resolving the 2008 Financial Crisis in the European Union with the 'Bad Banks'. *SSRN Working Paper*. ZBW - Leibniz-Informationzentrum Wirtschaft/Leibniz Information Centre for Economics.
- Lehmann, A. (2017). Carving out legacy assets: a successful tool for bank restructuring? *Policy Contribution*, 9, Bruegel, Brussels.
- Lijphart, A. (1971). Comparative politics and the comparative method. *American political science review*, 65(3), 682-693.

- Louzis, P. D., Vouldis, A. T., & Metaxas, V. L. (2012). Macroeconomic and bank-specific, determinants of non-performing loans in Greece: A comparative study of mortgage, business, and consumer loan portfolios. *Journal of Banking and Finance*, 36(4), 1012-1027.
- Maglio, R., Rapone, V., Rey, A., & Agliata, F. (2017). Il caso Banco di Napoli. Riflessioni a vent'anni dal "salvataggio"-(Not so) bad bank: i primi venti anni della società gestione attività del Banco di Napoli. *Innovazione e diritto*, 2, 394-412.
- Makri, V., Tsagkanos, A., & Bellas, A. (2014). Determinants of non-performing loans: The Case of Eurozone. *Panoeconomicus*, 61(2), 193-206.
- Martins, A. M., Serra, A. P., Vitorino Martins, F., & Stevenson, S. (2020). House price dynamics and bank herding: european empirical evidence. *Journal of Real Estate Research*, 42(3), 365-396.
- McGowan, M. A., Andrews, D., & Millot, V. (2017). Insolvency regimes, zombie firms and capital reallocation. *OECD Working Paper*, 1399. OECD.
- McGowan, M.A., D. Andrews, & V. Millot. 2018. The walking dead? Zombie firms and productivity performance in OECD countries. *Economic Policy*, 33(96), 685-736.
- Messai, A. S., & Jouini, F. (2013). Micro and macro determinants of non-performing loan. *International Journal of Economics and Financial Issues, Econ journals*, 3(4), 852-860.
- Monokroussos, P., Thomakos, D., and Alexopoulos, T. (2016). High NPLs Ratio in Greece: Outcome of an unprecedented recession or the lending practices of domestic credit institutions in the pre-crisis era? *Eurobank Economic Research*, May.
- Montalvo, J. G. (2015). Cleaning up the Spanish financial sectors real estate risk exposure: Situation and outlook. *Spanish Economic and Financial Outlook*, 4(5), 53-69.
- Montanaro, E. (2019). Non-Performing Loans and the European Union Legal Framework. *The Palgrave Handbook of European Banking Union Law*, 213-246.
- Mourad, F. A., Schiozer, R. F., & dos Santos, T. R. E. (2020). Bank Loan Forbearance: evidence from a million restructured loans. Banco Central do Brasil.
- Muehlbronner, K., & Lemay, Y. (2015). Bad Banks' in Ireland, Spain and Germany: Diverging Fortunes. Moody's Investor Service.
- Murro, P., Oliviero, T., & Zazzaro, A. (2022). Relationship lending and employment decisions in firms' bad times. *Journal of Financial and Quantitative Analysis*, 1-55.
- Nikolaidou, E. & Vogiazas, S.D. (2012) Credit Risk in the Romanian banking system: Empirical Evidence from an ARDL Model, in Karassavoglou, A. & Polychronidou, P. (eds) *Balkan and Eastern European Countries in the midst of the Global Economic Crisis. Contributions to Economics*, Germany, Springer-Verlag Berlin, .87-101

- Nikolaidou, E., & Vogiazas, S.D. (2014). Credit risk determinants for the Bulgarian banking system. *International Advances in Economic Research*, 20, 87-102.
- Nkusu, M. (2011). Non-performing loans and macro-financial vulnerabilities in advanced economies. *IMF Working Paper*, 11/161.
- Nyberg, L. (2014). Bank Assets Management Company - Experiences so far. *The Journal for money and banking*, 63(11), 101-114.
- Nye, A. (2021a). National Asset Management Agency (NAMA). *The Journal of Financial Crises*, 3(2), 546-617.
- Nye, A. (2021b). Bank Assets Management Company (BAMC). *The Journal of Financial Crises*, 3(2), 665-725.
- Ogura, Y., Okui, R., & Saito, Y. U. (2019). Network-motivated Lending Decisions: A Rationale for Forbearance Lending. *Sydney Edu Working Paper*, P 029. University of Sydney.
- Okamura, K. (2011). "Zombie" Banks Make "Zombie" Firms. *SSRN working paper*.
- Ozili, P. K. (2019). Non-performing loans and financial development: new evidence. *The Journal of Risk Finance*, 20(1), 59-81.
- Ozili, P.K. and Outa, E. (2017). Bank loan loss provisions research: a review, *Borsa Istanbul Review*, 17(3), 144-163.
- Passalacqua, A., Angelini, P., Lotti, F., & Soggia, G. (2021). The real effects of bank supervision: evidence from on-site bank inspections. *Bank of Italy Temi di Discussione (Working Paper)*, 1349.
- Peek, J., & Rosengren, E. S. (2005). Unnatural selection: Perverse incentives and the misallocation of credit in Japan. *American Economic Review*, 95(4), 1144-1166.
- Petkovski, M., Kjosevski, J., & Jovanovski, K. (2018). Empirical Panel Analysis of Non-Performing Loans in the Czech Republic. What are their Determinants and How Strong is Their Impact on the Real Economy?. *Finance a Uver*, 68(5), 460-490.
- Plata García, C. T., M. Rocamora, A. Rubio & J. Villar Burke. (2017). Procyclicality of provisions. Spanish banks as an illustration. Bilbao, Spain: BBVA.
- Ptasica, T. (2020). Impact of National Economic Conditions on the Level of Non-Performing Loans in the Commercial Banks of Cyprus. In "New Silk Road: Business Cooperation and Prospective of Economic Development"(NSRBCPED 2019) (pp. 252-257). Atlantis Press.
- Quigley, C. (2010). NAMA, the National Assets Management Agency: an Irish solution to an Irish problem, *ERA Forum*, 351-360.
- Ragin, C. C. (1998). The logic of qualitative comparative analysis. *International review of social history*, 43(S6), 105-124.

- Rajan, R. (1994). Why Bank Credit Policies Fluctuate: A Theory and Some Evidence. *Quarterly Journal of Economics*, 109 (2): 399-441.
- Ramanauskas, T. (2011). What caused the recent boom-and-bust cycle in Lithuania? Evidence from a macromodel with the financial sector. *Bank of Lithuania Working Paper*, No. 10. Bank of Lithuania.
- Ramos Muñoz, D., & Lamandini, M. (2021). Non-performing loans (NPLs) and asset management companies (AMCs). The need for a mature debate on banking sector restructuring in Europe. *Revista General de Insolvencias & Reestructuraciones: Journal of Insolvency & Restructuring (I&R)*, (2), 167-214.
- Rekkas, T. (2021, September 28). Debt instruments in Greece during the pandemic in SME Envoys Finance: Exchange of good practices on national solvency measures for SMEs during and after the Covid19 crisis [Conference]. https://single-market-economy.ec.europa.eu/system/files/2021-11/Greece_0.pdf
- Rinaldi, L., & Sanchis-Arellano, A. (2006). Household debt sustainability: What explains household non-performing loans? An empirical analysis. *ECB Working Paper*, 570. European Central Bank.
- Saita, Y., and T. Sekine (2001). Sectoral Credit Shifts in Japan: Causes and Consequences of Their Decline in the 1990s. *Bank of Japan Research and Statistics Department Working Paper*, 01-16.
- Salas, V., & Saurina, J. (2002). Credit risk in two institutional regimes: Spanish commercial and savings banks. *Journal of Financial Services Research*, 22(3), 203-224.
- Sanchidrián, J. P., & García, C. J. R. (2019). Unveiling the Expected Loss Model in IFRS 9 and Circular 4/2017. *Estabilidad Financiera*, 6, 147-164.
- Schäfer, D. & Zimmermann, K, F. (2009). German Bad Bank Plan: Government Should Take Over Toxic Assets at Zero Cost. *DIW Berlin Weekly Report*, 13/2009.
- Schivardi, F., Sette, E., & Tabellini, G. (2022). Credit misallocation during the European financial crisis. *The Economic Journal*, 132(641), 391-423.
- Segall, R., Dias, C., Grigaite, K., & Magnus, M. (2021). The EU's regulatory and supervisory response to addressing non-performing loans. In-depth analysis. European Parliament.
- Seitz, B., Dinh, T., & Rathgeber, A. (2018). Understanding loan loss reserves under IFRS 9: A simulation-based approach. *Advances in Quantitative Analysis of Finance and Accounting*, (16), 311-357.
- Siakoulis, V. (2017). Fiscal policy effects on non-performing loan formation. *Bank of Greece Working Papers*, 224. Bank of Greece.
- Sila, U (2015). Restoring the financial sector and corporate deleveraging in Slovenia. OECD Economics department working papers, 1243.
- Škarica, B. (2014). Determinants of non-performing loans in Central and Eastern European countries. *Financial theory and practice*, 38(1), 37-59.

- Staehr, K., & Uusküla, L. (2017). Forecasting models for non-performing loans in the EU countries. *Bank of Estonia Working Papers*, wp2017-10. Bank of Estonia.
- Storz, M., Koetter, M., Setzer, R. & Westphal, A. (2017). Do we want these two to tango? On zombie firms and stressed banks in Europe, *ECB Working Paper*, 2104.
- Šulganová, A. (2016). The lag length structure of banking determinants of non-performing loans in the Czech Republic, *Proceedings of the 15th International Conference on Finance and Banking*, Silesian University, Karviná, 400-410.
- Szarowska, I. (2018). Effect of macroeconomic determinants on non-performing loans in Central and Eastern European countries. *International Journal of Monetary Economics and Finance*, 11(1), 20-35.
- Tam, D. & Fulmer, S. (2021). Spain: Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria (SAREB). *The Journal of Financial Crises*, 3(2), 726-756.
- Tanaskovic, S. & Jandric, M. (2015). Macroeconomic and institutional determinants of nonperforming loans, *Journal of Central Banking Theory and Practice*, 4(1), 47-62.
- Tracey, B. (2021). The real effects of zombie lending in Europe. *Bank of England Working Paper*, 783, Bank of England.
- Uchida, H. & Nakagawa, R. (2007). Herd Behavior in the Japanese Loan Market: Evidence from Bank Panel Data, *Journal of Financial Intermediation*, 16 (4), 555-583.
- Vogiazas, S. & Nikolaidou, E. (2011). Investigating the Determinants of Nonperforming Loans in the Romanian Banking System: An Empirical Study with Reference to the Greek Crisis. *Economics Research International*.
- Watanabe, W. (2010). Does a large loss of bank capital cause Evergreening? Evidence from Japan. *Journal of the Japanese and International Economies*, 24(1), 116-136.
- Weil, R. L., Schipper, K., & Francis, J. (2013). *Financial accounting: an introduction to concepts, methods and uses*. Cengage Learning.
- Williamson, O. E. (1963). Managerial discretion and business behavior. *The American Economic Review*, 53(5), 1032-1057.
- Yunzhi, H. & Varas, F. (2021). A Theory of Zombie Lending. *The Journal of Finance*, 76, 1813-1867.
- Zakulis, E. (2018). Practical lessons from the NPL resolution in Latvia, Financial stability department, Latvijas Banka, May.
- Žiković, T., Žiković, S., & Arbula Blecich, A. (2015). The drivers behind household and corporate non-performing loans ratio: The Case of Croatia. *Privredna kretanja i ekonomska politika*, 24(2 (137)), 7-35.
- Zimmermann, K. F., & Schaefer, D. (2009). Bad Bank(s) and the recapitalisation of the banking sector. *Intereconomics*, 44(4), 215-225.

Annual reports, results presentations and other disclosures from banks and asset management companies

AMCO (2019). 2019 Consolidated Financial statements.

AMCO (2021). 2020 Consolidated Financial statements.

AMCO (2022). 2021 Consolidated Financial statements.

AMCO (2023). 2022 Consolidated Financial statements.

Banco Santander (2023). Earnings Presentation, 2 February.

Banco Santander (2023). For a brighter tomorrow: 2022 Annual report, 27 February.

Banco Santander (2023). Pillar 3 - Disclosure Report 2022: Towards profitable capital generation, 28 February.

BNP Paribas (2023). 2022 Full year results, 23 February.

BNP Paribas (2023). Consolidated financial statements: Year ended 31 December 2022, 13 March.

BNP Paribas (2023). Universal registration document and annual financial report 2022, 23 March.

Crédit Agricole Group (2023). Amendment A01 to the universal registration document Crédit Agricole Group Financial Statements, 4 April.

Crédit Agricole Group (2023). Annual financial report universal registration document, 27 March.

Crédit Agricole Group (2023). Results fourth quarter & full year 2022, 9 February.

Crédit Mutuel Group (2023). 2022 Full-Year Results, 27 June.

Crédit Mutuel Group (2023). 2022 Universal Registration Document, including the Annual financial report of BFCM, 13 April.

Deutsche Bank AG (2023). Annual Report 2022, 17 March.

Deutsche Bank AG (2023). Pillar 3 Report 2022, 17 March.

Deutsche Bank AG (2023). Q4/FY 2022 results, 2 February.

DUTB (2015). BAMC Annual report for 2014, July.

DUTB (2015). BAMC Business strategy 2016-2022, December.

DUTB (2019). BAMC Business strategy 2019-2022, April.

Erste Abwicklungsanstalt (EAA) (2011) Annual Report 2010.

Erste Abwicklungsanstalt (EAA) (2013) Annual Report 2012.

Erste Abwicklungsanstalt (EAA) (2015) Annual Report 2014.

Erste Abwicklungsanstalt (EAA) (2018) Annual Report 2016.

Erste Abwicklungsanstalt (EAA) (2019) Annual Report 2018.

Erste Abwicklungsanstalt (EAA) (2020) Annual Report 2019.

Erste Abwicklungsanstalt (EAA) (2021) Annual Report 2020.

Erste Abwicklungsanstalt (EAA) (2022) Annual Report 2021.

Erste Abwicklungsanstalt (EAA) (2023) Annual Report 2022.

FMS Wertmanagement AöR (FWS-WP) (2011). Annual report 2010.

FMS Wertmanagement AöR (FWS-WP) (2012, July 3). Large loss caused by Greece write-downs [Press release].
<https://www.fms-wm.de/en/press/261-large-loss-caused-by-greece-write-downs>

FMS Wertmanagement AöR (FWS-WP) (2013). Annual report 2012.

FMS Wertmanagement AöR (FWS-WP) (2015). Annual report 2014.

FMS Wertmanagement AöR (FWS-WP) (2017). Annual report 2016.

FMS Wertmanagement AöR (FWS-WP) (2019). Annual report 2018.

FMS Wertmanagement AöR (FWS-WP) (2020). Annual report 2019.

FMS Wertmanagement AöR (FWS-WP) (2021). Annual report 2020.

FMS Wertmanagement AöR (FWS-WP) (2022). Annual report 2021.

FMS Wertmanagement AöR (FWS-WP) (2023). Annual report 2022.

Groupe BPCE (2023). États financiers consolidés du Groupe BPCE au 31 décembre 2022

Groupe BPCE (2023). Q4/12M results, 9 February.

Groupe BPCE (2023). Risk report Pillar III, 31 March.

ING Groep NV (2023). Annual Report 2022,

ING Groep NV (2023). ING posts FY2022 net result of €3,674 mln 4Q2022 net result of €1,089 mln, 2 February.

ING Groep NV (2023). Pillar III Report 2022, 9 March.

Intesa Sanpaolo SpA (2023). 2022 Results, 3 February.

Intesa Sanpaolo SpA (2023). Annual Report 2022, 28 April.

Intesa Sanpaolo SpA (2023). Basel 3 Pillar 3 Disclosure as at 31 December 2022

National Asset Management Agency (NAMA) (2011). NAMA Annual Report and Financial Statements 2010.

National Asset Management Agency (NAMA) (2013). NAMA Annual Report and Financial Statements 2012.

National Asset Management Agency (NAMA) (2015). NAMA Annual Report and Financial Statements 2014.

National Asset Management Agency (NAMA) (2017). NAMA Annual Report and Financial Statements 2016.

National Asset Management Agency (NAMA) (2019). NAMA Annual Report and Financial Statements 2018.

National Asset Management Agency (NAMA) (2020). NAMA Annual Report and Financial Statements 2019.

National Asset Management Agency (NAMA) (2021). NAMA Annual Report and Financial Statements 2020.

National Asset Management Agency (NAMA) (2022). NAMA Annual Report and Financial Statements 2021.

National Asset Management Agency (NAMA) (2023). NAMA Annual Report and Financial Statements 2022.

Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria, S.A. (SAREB) (2013). Informe de actividad 2012.

Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria, S.A. (SAREB) (2015, December 4). Sareb adjudica a Haya, Servihabitats y Altamira la administración y venta de 126.000 activos [Press release]. <https://www.sareb.es/sareb-adjudica-a-haya-servihabitats-y-altamira-la-administracion-y-venta-de-126-000-activos/>

Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria, S.A. (SAREB) (2023). Informe de actividad 2022.

Società per la Gestione di Attività - SGA S.p.A (2017). Relazione sulla Gestione e Bilancio d'esercizio al 31 dicembre 2016.

Società per la Gestione di Attività - SGA S.p.A (2018). 2017 Bilancio d'esercizio e Relazioni.

Société Générale (2023), Risk report Pillar 3, 17 March.

Société Générale (2023). 4th quarter and full year 2022 results, 8 February.

Société Générale (2023). Consolidated Financial Statements, 27 February.

Tattersall, J. (2022). Chair's statement, Annual Report & Accounts 2022, UKAR.

UK Asset Resolution Ltd (UKAR) (2011). Annual Report & Accounts 2010.

UK Asset Resolution Ltd (UKAR) (2012). Annual Report & Accounts 2011.

UK Asset Resolution Ltd (UKAR) (2013). Annual Report & Accounts 2012.

UK Asset Resolution Ltd (UKAR) (2014). Annual Report & Accounts 2013.

UK Asset Resolution Ltd (UKAR) (2016). Annual Report & Accounts 2015.

UK Asset Resolution Ltd (UKAR) (2018). Annual Report & Accounts 2017.

UK Asset Resolution Ltd (UKAR) (2022). Annual Report & Accounts 2021.

UK Asset Resolution Ltd (UKAR) (2023). Annual Report & Accounts 2022.

UniCredit SpA (2023). 2022 Annual Reports and Accounts.

UniCredit SpA (2023). UniCredit Group Disclosure (Pillar III).

UniCredit SpA (2023). UniCredit Unlocked, Record 4Q and best year in over a decade: Transformed and positioned to win, 4Q22 & FY22 Group Results, 31 January.

Other sources: Media, blog

Beck, T. (2017, April 24). An asset management company for the Eurozone: Time to revive an old idea. *VoxEU*. <https://cepr.org/voxeu/columns/asset-management-company-eurozone-time-revive-old-idea>

Beck, T., and Trebesch, C. (2013, November 18). A bank restructuring agency for the Eurozone: cleaning up the legacy losses. *VoxEU*. <https://cepr.org/voxeu/columns/eurozone-bank-restructuring-agency>

Beynet, P. (2017, May 23). Solving Non-Performing Loans in Europe to speed up the recovery. *OECD Blog: Ecoscope*. <https://oecdoscope.blog/tag/european-central-bank/?print=print-search>

Carrascosa, A. (2021, April 11). Sareb y la crisis financiera de 2012. *Expansion*. <https://www.expansion.com/opinion/2021/04/11/607039ac468aebb46f8b4618.html>

Carrascosa, A. (2021, June 3): Asset Management Companies: the Spanish example. *The SRB Blog*. <https://www.srb.europa.eu/en/content/asset-management-companies-spanish-example>

Carrascosa (2020a, July 7). Why a European bad bank may not be the right answer. *Risk.net*. <https://www.risk.net/comment/7650876/why-a-european-bad-bank-may-not-be-the-right-answer>

Carrascosa, A. (2020b, December 28): A European Bad Bank - a necessary tool for financial stability?, *The SRB Blog*. Available at: <https://www.srb.europa.eu/en/content/european-bad-bank-necessary-tool-financial-stability>

Dash, E. (2009, June 20). If It's Too Big to Fail, Is It Too Big to Exist? *The New York Times*. <https://www.nytimes.com/2009/06/21/weekinreview/21dash.html#:~:text=Nearly%20a%20century%20ago%2C%20the,nation's%20economic%20and%20political%20life>.

European Banking Federation (2020). Covid-19: What happened?, Facts and figures - Banking in Europe. Brussels.

Hogan Lovells (2021). COVID-19: Summary of National Payment Moratoria Measures in Europe. LIB02/1088108/9919103.4

Reuters Staff (2011, May 29). Greece mulls setting up Spanish-style "bad bank": paper. Reuters. <https://www.reuters.com/article/us-greece-badbank-idUSTRE74S0T820110529>

Kontogiannis, D. (2013, October 7). Bad bank model gains ground in Greece. Neos Kosmos. <https://neoskosmos.com/en/2013/10/07/news/greece/bad-bank-model-gains-in-greece/>

The Economist (2013, October 26). Europe's other debt crisis. Available at: <https://www.economist.com/leaders/2013/10/24/europes-other-debt-crisis>

Thomas, L. JR. (2014, August 21). Europe Fears Banks Lack Cash Cushion to Cover Bad Loans. The New York Times. <https://dealbook.nytimes.com/2014/08/21/europe-fears-banks-lack-cash-cushion-to-cover-all-their-bad-loans/>

Thomas L. Jr. (2014, August 21). Europe Fears Banks Lack Cash Cushion to Cover Bad Loans. <https://archive.nytimes.com/dealbook.nytimes.com/2014/08/21/europe-fears-banks-lack-cash-cushion-to-cover-all-their-bad-loans/>

Martin Arnold, M. & J. Espinoza (2020, April 19). ECB pushes for eurozone bad bank to clean up soured loans. Financial Times. <https://www.ft.com/content/15d17d1d-8e1b-4f84-97b4-b62e6ae8f962>

Kourtali (2020, August 3). Support grows for a 'bad bank' in Greece. Ekathimerini. <https://www.ekathimerini.com/economy/255389/support-grows-for-a-bad-bank-in-greece/>

Za, V. (2020, October 26), Mission creep? Italy's bad loan manager irks rivals. Business News, Reuters. <https://www.reuters.com/article/us-italy-banks-amco-idUSKBN27B1US>

Datasets

European Central Bank (2022). Consolidated banking data. <https://sdw.ecb.europa.eu/browse.do?node=9691144>

International Monetary Fund (2022). Financial Stability Indicators (FSIs). IMF Data. <https://data.imf.org/?sk=51b096fa-2cd2-40c2-8d09-0699cc1764da>

World Bank Group (2023). NPLs, World Development Indicators: World Bank Databank. <https://databank.worldbank.org/source/world-development-indicators>

Cases

European Court of Justice (2003). Judgment of 24 July 2003 in the case C-280/00, Altmark Trans GmbH and Regierungspräsidium Magdeburg v Nahverkehrsgesellschaft Altmark GmbH, and Oberbundesanwalt beim Bundesverwaltungsgericht, 24 July. Judgment of 24. 7. 2003 – Case C 280/00.

Irish Supreme Court (2011). Dellway Investments Ltd & Ors v National Asset Management Agency (NAMA) & Ors, 12 April. [2011] IESC 14, [2011] IESC 4.

Irish Supreme Court (2012). Citywide Leisure Ltd v Irish Bank Resolution Corporation Ltd, 24 May. [2012] IEHC 220.