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# Non-Performing Loans and Resolving Private Sector Insolvency

Experiences from the EU Periphery  
and the Case of Greece



Edited by Platon Monokroussos, Christos Gortsos



Palgrave Macmillan Studies in Banking  
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Platon Monokroussos • Christos Gortsos  
Editors

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of Greece

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# Foreword

The large stock of non-performing loans in several euro area periphery economies is a legacy of the recent crisis that needs to be addressed in a resolute and coordinated manner in order to establish the conditions for a sustainable recovery. All the more so as the problem of non-serviceable debt has in some cases taken epidemic proportions, undermining financial-system stability, keeping valuable resources trapped in unproductive sectors and activities, and constraining the smooth flow of credit to healthy businesses.

Dealing with the large stock of problem loans constitutes a major challenge for regulatory and supervisory authorities, requiring the establishment of an efficient debt restructuring framework for financially distressed but viable debtors. However, effective policies to facilitate private sector debt restructuring may involve considerable upfront costs, emanating from the required reforms to improve the broader institutional framework and the judicial system. Furthermore, such reforms may encounter strenuous resistance from vested interest groups as well as individual creditors and debtors.

Best international practice is a good starting point for designing appropriate policies to deal with private sector insolvency. Of course, such policies should also take into account the intrinsic characteristics and idiosyncrasies of each particular case. For instance, in some euro area economies the problem of non-performing loans is particularly

pronounced for the household sector. This is a quite a novel aspect of the present crisis, in contrast to the greater importance of sovereign or corporate debt in a number of emerging market crises of the 1980s and 1990s.

At the EU level, there is today a wide divergence of insolvency frameworks that makes it harder for investors to assess credit risk, particularly in cross-border investments, preventing the creation of a true Capital Markets Union. An important step towards attaining a higher degree of harmonisation in insolvency laws within the EU was made in March 2016, when the European Commission launched a relevant public consultation. This was followed a few months later by a proposal issued by the European Commission for a new directive which aims to introduce effective preventive restructuring frameworks across Europe, afford honest entrepreneurs a second chance and make insolvency proceedings more efficient.

Against this background, this book leans on the existing literature and the relevant legislative initiatives taken thus far at the EU level to assess the challenges arising from the sharp increase in non-performing loans in several euro area periphery economies in the aftermath of the recent financial upheaval.

To this end, the editors have made an excellent job in bringing together leading practitioners and academics to contribute to this work and to ensure that the material presented provide a solid base for understanding the multifaceted nature of the problem, its inner causes and intrinsic characteristics as well as the effectiveness of the remedial policies currently applied or being in the process of implementation.

Therefore, the book provides useful lessons and a valuable reference on how to deal with the problem of private sector over-indebtedness in other affected economies and in future crisis episodes, by designing efficient insolvency frameworks that can afford a fresh start for liquidity constrained, yet viable, entities, while minimising market distortions and moral hazard.

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# Acknowledgements

First and foremost we thank all our contributors (all named in the next section where detailed bios are provided), without which this edited book would have not been possible.

A very special thanks must go to Andreas Tsalas, PhD candidate at the Department of Economics, University of Peloponnese in Greece, and Anna Dimitriadou, Economist at Eurobank Ergasias S.A., for their invaluable editorial assistance and support in preparing this volume.

Special thanks to the team from Palgrave Macmillan publishing house—initially Aimee Dibbens and in the latest and most crucial stages Alexandra Morton and Natasha Denby as well as the production team. Also our gratitude to Professor Phil Molyneux (Dean—Bangor University College of Business, Law, Education and Social Sciences), Editor-in-Chief for the Palgrave Macmillan Studies in Banking and Financial Institution Series, for his decision to approve our proposal and his comments and suggestions at all stages of the project.

Last but not least, many thanks to our colleagues at the Hellenic Banking Association, Eurobank Ergasias S.A., and the University of Peloponnese for their ideas shared with us whenever the topic of the book was coming to the discussion; a final thanks to all our students that have been “freshening” up our take, view, ideas, and thinking on the topic throughout the years.



## **Disclaimer**

The Editorial team emphasizes that the contributors' views expressed in their respective chapters are their personal views and do not express the views of any of their previous or current employers.

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# 1

## Introduction

Platon Monokroussos and Christos Gortsos

Dealing with private sector insolvency in the aftermath of the international financial crisis of 2007–2008 has been a major challenge for policymakers, investors, and economic agents affected by the applied remedial policies. In Europe, the private non-financial sector continues to face increased challenges in servicing its debt, with the problem being mainly concentrated in several economies in the euro area periphery and the central and southeast Europe.

With debt levels already significantly higher than in the pre-crisis period, it is increasingly acknowledged that authorities must deal with the problem in a more resolute manner so as to create the conditions for

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a sustained recovery. This is especially true in view of the lessons learned from past crisis episodes and the fact that the empirical literature identifies a number of channels linking private sector over-indebtedness with economic activity. These include, *inter alia*, reduced investment as firms concentrate on deleveraging and repairing their balance sheets, curtailed consumer spending, depressed collateral values, and weak credit creation.

However, effective policies to facilitate private sector debt restructuring may involve significant upfront costs in terms of, for example, time to implement and committed budgetary resources. In addition, they may require important reforms to improve the broader institutional framework and the judicial system. These reforms may encounter resistance from vested interest groups and individual creditors and debtors wishing to prevent a more expeditious restructuring of their debts. Complicating things further, the over-indebtedness problem in some EU countries is particularly pronounced for the household sector.

This is a novel aspect of the present crisis, in contrast to the relatively greater importance of sovereign or corporate debt in a number of emerging market crises of the 1980s and 1990s. Although there appears to be a great volume of accumulated experience on how to deal with corporate insolvency, no established best practice exists for household indebtedness. This is another major challenge for authorities in their effort to offer debtors a fresh start, while minimizing moral hazard and other principal-agent problems.

From the standpoint of financial system stability, several banking-sector variables are potentially able to convey signals about the evolution of banks' riskiness over the business cycle; however, non-performing loans and loan loss provisions are generally considered to be the main transmission channels of macroeconomic shocks to banks' balance sheets (Quagliariello 2007).

Many studies on the causes of bank defaults document that failing institutions usually feature a higher volume of problem loans prior to failure and that asset quality constitutes a statistically significant predictor of insolvency (Berger and DeYoung 1997). In a similar vein, loan loss provisions represent an important quantitative indicator of the credit quality of banks' portfolios as they effectively constitute a tool for adjusting the historical value of loans to reflect their true (current) value.

In the beginning of a typical expansionary phase of the macro economy, corporate profits improve, collateral values rise, and households form optimistic expectations about their future finances. These dynamics eventually lead to an acceleration of banks' lending activities, which are often accompanied by a gradual loosening of credit standards and a reduction of provisions for future losses. The literature identifies a number of causes for such a behaviour on the part of bank managers. These include, *inter alia*, disaster myopia (Guttentag and Herring 1986), herding behaviour (Rajan 1994), lack of institutional memory (Berger and Udell 2003), principal-agent problems (Perez et al. 2006), and signalling (Ahmed et al. 1996). The latter is on the basis that higher provisions are interpreted by stakeholders as a signal of lower-quality portfolios.

International experience suggests that banks' increasingly liberal credit practices during the more advanced stages of an economic upturn may take the form of 'negative NPV' strategies, involving lower interest charges and/or increased lending to low credit-quality borrowers (Rajan 1994). Such strategies usually backfire during recessionary phases, when credit risks actually materialize. In an economic recession, the rise of unemployment and the decline in household and corporate incomes hinder the debt-servicing capacity of borrowers. The incipient rise in problem loans and the decline in collateral values lead to a serious tightening of credit conditions as banks become increasingly unwilling to extend new credit in an environment characterized by acute information asymmetries with respect to the actual credit quality of borrowers.

The whole situation is exacerbated by a notable deterioration of banks' balance sheets due to the incipient rise in non-performing exposures at a time when additional capital is either more costly to acquire or simply non-existent. Banks react by scaling back lending, a course of action that contributes to an acceleration of the economic downturn (procyclicality). The feedback effect from bank credit to the real economy may be particularly pronounced in economies where the biggest share of private sector financing takes place through the domestic banking system and direct access to wholesale credit markets is not an option for many firms.

The procyclical behaviour of bank policies constitutes an important challenge for banks and regulatory authorities alike. From a regulatory standpoint, it is of great importance to design countercyclical

provisioning policies aiming to alleviate the amplifying macroeconomic effects of bank lending practices along the business cycle. From the standpoint of bank stakeholders, it is important for banks to behave in a more forward-looking way by providing for bad years during good years.

In view of the importance of these and other factors for macroeconomic and financial system stability, this book leans on the existing scientific literature and the relevant international experience to assess the challenges arising from the sharp increase in non-performing loans in several euro area periphery economies in the aftermath of the recent global financial upheaval. These include Greece, Cyprus, Ireland, and Spain. The case of Denmark is also examined thoroughly as a rough proxy for the Nordic experience in dealing with household and corporate bad debts.

Although an in-depth analysis of the relevant challenges faced by some other important EU periphery economies (e.g. Italy) is missing from this work, we believe that the material presented provides a solid base for understanding the multifaceted nature of the problem, its inner causes and intrinsic characteristics, as well as the effectiveness of the remedial policies currently applied or being in the process of implementation. Therefore, the book can provide useful lessons on how to deal with the problem of private sector over-indebtedness in other affected economies and in future crisis episodes, by designing efficient insolvency frameworks that can afford a fresh start for liquidity constrained, yet viable, entities while minimizing market distortions and moral hazard.

The book is divided in four main parts: Part I presents a thorough overview of the theoretical and empirical literature on the determinants of non-performing loans as well as the challenges and options arising for banks and corporations in dealing with them. Part II focuses on the experience of several euro area periphery economies with rising private sector insolvency in the years after the outbreak of the global crisis as well as the challenges, the applied remedial policies and the lessons learned from their efforts to address the problem. Part III continues with a number of empirical studies on the macroeconomic and microeconomic characteristics of corporate and household financial distress as well as the strategic default behaviour in Greece in the context of the unprecedented domestic recession that followed the outbreak of the country's fiscal and sovereign debt crisis in late 2009/early 2010. Furthermore, it presents the

modalities of a proposed financial engineering mechanism supported by EU structural funds for the refinancing of past due loans of Greek SMEs as well as some thoughts on the future opportunities and challenges facing the Greek banking system. Finally, Part IV closes with three position papers on the legal aspects and the institutional characteristics of the existing framework as well as the recent reforms introduced for dealing with private sector bad debts in Greece. The focus of the last two parts of the book on Greece's situation is not entirely coincidental, given that its case can be viewed as an ideal laboratory for studying both recession-induced effects and a range of principal-agency aspects of the private sector indebtedness problem.

In Chap. 2 of Part I, 'Non-performing Loans: Challenges and Options for Banks and Corporations', Rodrigo Olivares-Caminal and Andrea Miglionico note that in the build-up, during the course and in the aftermath of a crisis, companies tend to default on their loans from domestic banks as well as from foreign creditors, rendering a large segment of the corporate sector insolvent. Hence, corporate restructuring on a large scale is usually necessary due to their impaired ability to function, having a large and adverse effect on the economy. The masses of non-performing loans (NPLs) have a serious effect on both parties at the end of the deal, that is, borrowers (domestic corporations) and lenders (domestic and international banks). Therefore, the chapter addresses the challenge that NPLs pose to banks as lenders and domestic corporations as debtors. In more detail, it looks into the dynamics of NPLs and how they can deteriorate a bank's portfolio affecting its financial position and forcing its restructuring. Furthermore, it looks into the restructuring options for both banks and corporations drawing similarities and highlighting differences. Furthermore, the chapter discusses the pros and cons of out-of-court private expedited workouts and formal court-supervised procedures.

In Chap. 3 of Part I, 'Non-performing Loans: A Review of the Literature and the International Experience', Konstantinos Nikolopoulos and Andreas Tsalas present a thorough overview of the literature on the drivers of non-performing loans, claiming that deregulation of the banking system over the past few decades has led to both rising competition among financial intermediaries and an increase in credit risk. As to the

determinants of bad loans, they point to two main strands of the literature, with the first accepting the perspective that the macroeconomic environment influences credit risk and the second adopting the viewpoint that credit risk is affected by bank-specific factors. Recent empirical evidence, however, highlights the importance of both macroeconomic and bank-related factors as well as other potential influences related to the broader legal and regulatory environment, in explaining the evolution of credit risk.

In Chap. 4 of Part II, titled ‘The Spanish Experience’, Ana Rubio, Olga Cerqueira, and Jorge Sicilia argue that the Spanish experience reveals that it is of utmost importance to acknowledge the asset quality problems and to understand their origin in the initial phases of the process. Private and public initiatives to deal with the situation should be ambitious and well-coordinated so as to address the problem in a comprehensive way. Assessing the initiatives undertaken to deal with it, the authors argue that Spanish banks have actually been very active in managing problematic exposures, through refinancing and the sale of non-performing loans portfolios. The creation of a centralized bad bank and new legislation on insolvency procedures also constitute important steps. In more detail, a new personal insolvency framework has been adopted to make it more debtor-friendly and offer the possibility of a fresh start to highly indebted, yet viable, individual borrowers. In the case of corporate insolvency, new legislation has been introduced to facilitate restructuring and to lower the number of liquidations.

In Chap. 5 of Part II, ‘Non-performing Loans in Ireland: Property Development Versus Mortgage Lending’, Seamus Coffey notes that the financial crisis that emerged in 2008 exposed the dependence of the Irish economy on an unsustainable expansion of private sector credit. Furthermore, the lending bubble left an overhang of business and household debt. Business sector lending was concentrated in the land and real estate development sector. The government reacted quickly and set up an official agency to which delinquent development loans were transferred. Over the next six years, businesses lending by Irish banks fell by two-thirds and, though huge losses were experienced, the scale of the non-performing loan problem has been reduced. In the household sector, by contrast, the response has been incredibly slow. There has only



been a gradual reduction in mortgage debt and the response has been one of ‘extend and pretend’ rather than enforcement or deep restructuring. However, the approach may succeed as many borrowers are now back on track and less than 4 per cent of non-performing mortgages may result in a court-ordered repossession.

In Chap. 6 of Part II, ‘The Nordic Experience: The Case of Denmark in 2005–2015’, Niels Storm Stenbæk argues that Danish households and firms are among the most leveraged in Europe. The author claims that this can be attributed to a number of institutional and tax-related factors, as well as the significant role played by the rather unique Danish mortgage credit system and the Danish pension system. Even though gross debt is high, the asset side is also substantial. Going into the financial crisis of 2008, the build-up of debt was huge. However, low interest rates have mitigated the impact on insolvency and losses in credit institutions, although some sectors are still challenged. Impairments on households have been negligible, but have had an impact on consumption, especially among the most indebted households. Similar impacts are observed among firms in terms of investments. The main focus of the chapter is on households, but the corporate sector is also addressed briefly.

Chapter 7 of Part II, titled ‘The Cyprus Experience with Non-performing Loans’, looks at Cypriot experience in dealing with NPLs both before and after the Eurogroup decisions of March 2013. In it, Marios Clerides, Michalis Kammas, and George Kyriacou highlight a range of legal, institutional, and behavioural factors that contributed to the sharp rise of bad loans in domestic banks’ balance sheets over the aforementioned period. In this context, the authors investigate how the absence of reliable information on borrowers’ financial situation as well as other institutional weaknesses may have contributed to the widespread practice of lending primarily on the basis of collateral and not on the borrowers’ ability to repay their debts. The chapter also reflects on why the size of the domestic recession, which was milder than originally anticipated, may only partially explain the sharp increase in NPLs experienced in Cyprus. This inevitably leads to suspicion about strategic behaviour on the part of some defaulters. Measures undertaken to address the problem and various perspectives are then presented. The chapter concludes by looking at some factors that may be of primary importance in the

ongoing efforts to resolve the private sector insolvency problem within a reasonable time frame.

In Chap. 8 of Part III, ‘The Road to Recovery: Are Greek Banks Able to Finance Greece’s Economic Recovery?’, Nikolas Karamouzis notes that the question dominating the public dialogue in Greece these days is whether the conditions are in place for the economy to return to a path of strong and sustainable economic growth. A year after the country signed its third Adjustment Programme with European partners, many wonder whether the steady and timely implementation of the reforms and fiscal consolidation measures in the agreement are enough by themselves to ensure this, or additional initiatives are necessary.

For an economy plagued by a multi-year recession, record unemployment, anaemic investment, and high public debt, a return to growth should be the main priority of economic policy, the targeted cure for the economic malaise. Just as importantly, it is a key prerequisite for the programme’s success. However, the road to recovery hinges on several critical preconditions. Perhaps the most important of all is the ability of Greek banks to provide the credit needed to support economic growth. Will Greek banks have the financial strength, liquidity, capital, and risk appetite to finance the recovery cycle of the Greek economy? The answer depends on how Greece—and the Greek banks—navigates four key challenges ahead: namely, restoring normal liquidity conditions, successfully managing a large stock of bad and problem loans, diminishing official sector interference in banking operations, and tackling the sweeping, transformational changes now gripping the European banking sector as a whole. These challenges critically affect the ability of the Greek banks to deliver sustainable profitability and grow their business but also seriously complicate strategic decisions, priorities, operating and business models, and risk management. The chapter offers comprehensive answers to those questions, thereby assessing the current shape of Greek banks and, consequently, their ability to fund growth in the immediate and longer-term future; it concludes with policy suggestions.

In Chap. 9 of Part III, ‘The Determinants of Loan Loss Provisions: An Analysis of the Greek Banking System in Light of the Sovereign Debt Crisis’, Platon Monokroussos, Dimitris Thomakos, Thomas Alexopoulos, and Eleni-Lydia Tsioli discuss bank provisioning practices in Greece in

the context of the recent regulatory, tax, and legal reforms implemented to address challenges stemming from the borrowers' inability to repay their debts. Their study utilizes a novel set of macroeconomic and regulatory data to analyse the evolution of loan loss provisioning practices in the Greek banking system over the period 2005–2015. They explore the determinants of the aggregate loan loss reserves to total loans ratio, which reflects the accumulation of provisions net of write-offs and constitutes an important metric of the credit quality of loan portfolios. Their results suggest that domestic credit institutions respond relatively quickly to macroeconomic shocks, though the latter's effects on the provisioning behaviour of the domestic banking system show significant persistence. Furthermore, they argue that the impact of macroeconomic shocks on the loan loss reserves ratio has become stronger (both in terms of magnitude and statistical significance) following the outbreak of the Greek sovereign debt crisis. From a macro policy perspective, their results indicate that a sustainable stabilization of macroeconomic conditions is a key precondition for safeguarding domestic financial stability. From a regulatory standpoint, they suggest that the possibility of macroeconomic regime-related effects on banks' provisioning policies should be taken into account when macro prudential stress tests of the banking system are designed and implemented.

In Chap. 10 of Part III, 'Micro-behavioral Characteristics in a Recessionary Environment: Moral Hazard and Strategic Default', Ioannis Asimakopoulos, Panagiotis Avramidis, Dimitris Malliaropoulos, and Nickolaos Travlos provide empirical evidence supporting the view that one out of six Greek firms with non-performing loans are strategic defaulters. Their study utilizes a unique dataset of corporate loans of 13,070 Greek firms for the period 2008–2015 and an identification strategy based on the internal credit ratings of domestic banks. The authors provide evidence of a positive relationship of strategic default with outstanding debt and economic uncertainty and a negative relationship with the value of collateral. Furthermore, profitability and collateral can be used to distinguish the strategic defaulters from the financially distressed defaulters. Finally, they document that the relationship of strategic default risk with firm size and age has an inverse U-shape, that is, strategic default is more likely among medium-sized firms compared to

small and large firms, and it is also more likely among middle-aged firms compared to new-founded and established firms.

In Chap. 11 of Part III, titled 'Financial Distress, Moral Hazard Aspects and NPL Formation Under a Long-Lasting Recession: Empirical Evidence from the Greek Crisis', Panayotis Kapopoulos, Efthymios Argyropoulos, and Kalliopi-Maria Zekente argue that after the outburst of the Greek sovereign crisis, the severe contractionary fiscal policy pursued in conjunction with the rapid 'internal devaluation' led to an unprecedented fall in domestic incomes. As a consequence, there has been a dramatic increase in the non-performing loans ratio, while a wave of reforms in the insolvency framework were enacted to address private sector debt overhang. Their empirical study, which is based on aggregate macro data as well as various proxies for the domestic legal and regulatory framework, focuses on exploring the effects of borrowers' inability or unwillingness to pay on the formation of non-performing loans in the Greek banking system. Their results point to evidence that the unprecedented NPL formation was determined by the severe increase in unemployment, the recessionary shocks reflected in the time path of GDP, as well as some micro-behavioural impacts related to strategic and tactical default.

In Chap. 12 of Part III, titled 'Non-performing Loans in the Greek Banking System: Navigating Through the Perfect Storm', Paul Mylonas and Nikos Magginas focus on the determinants of non-performing loans at an economy-wide level. Their empirical analysis documents statistically significant relations between the change in non-performing loans and a range of macroeconomic and financial variables (both single equation and VAR systems are used in investigating the pass-through of shocks to bank portfolio quality). Their analysis confirms the significant role of a traditional set of core variables in determining borrowers' debt-servicing capacity (GDP, unemployment, house prices). Even more importantly, the analysis highlights the significance of certain idiosyncratic aspects of the Greek crisis in driving the evolution of NPLs. These include, *inter alia*, periods of high uncertainty related to Grexit fears, moral hazard behaviour, sizeable fiscal pressure, and the protracted liquidity squeeze in the domestic economy.

In Chap. 13 of Part III, 'Characteristics and Possible Solutions to Problems Related to Loans to SMEs in Greece', Nikolaos Vettas, Sophia

Stavraki, and Michalis Vassiliadis note that since the eruption of the Greek sovereign debt crisis in late 2009/early 2010, the ability of the domestic private sector to meet its liabilities towards banks has been impaired. This was especially the case for small and medium-sized enterprises (SMEs), which have fewer alternative financing options relative to larger businesses, and their significance for the Greek economy is higher in comparison to most other EU countries. The chapter presents a financial instrument for the refunding of SMEs' past due loans with EU funds. The proposed tool is structured to provide credit risk protection to banks that refund SME loans. This has the form of a financial guarantee in case of default of a proportion of the refinanced undertakings. Since eligible businesses should be viable (and have a growth potential), the study proposes a set of relevant eligibility criteria.

In Chap. 14 of Part IV, 'Existing Corporate and Household Insolvency Frameworks: Characteristics, Weaknesses and Necessary Reforms', Christina Lolou, Spyros Pagratis, and Nikolaos Vettas analyse the characteristics of the Greek insolvency framework, focusing on its weaknesses and the interaction with prudential requirements for banks. This interaction has possibly contributed to the perpetuation of the NPL problem in Greece, discouraging a viable solution to the problem. That was a result of alignment of borrower incentives to apply for restructurings and creditor incentives to restructure overdue debts, regardless of the future debt-servicing capacity of borrowers. Creditor incentives to restructure were driven by the need to economize on bank capital and reduce the capital bill ahead of the large-scale recapitalization of the Greek banking sector. Recent and forthcoming reforms, such as the Capital Requirements Regulation and Directive (CRR/CRD IV), the Bank of Greece Code of Conduct for the non-performing loans management, and standard IFRS 9 for accounting provisions, could mitigate perverse incentives among borrowers and creditors. That could contribute towards a viable solution to the Greek NPL problem.

In Chap. 15 of Part IV, 'Financial Inclusion: An Overview of Its Various Dimensions and Its Assistance in Reducing Private Sector Insolvency', Christos V. Gortsos and Vasilis Panagiotidis talk about financial inclusion, which is defined as the process of ensuring affordable, prompt, and adequate access to a wide range of financial products and services,

as well as proliferation of their use in all parts of society with a special focus on vulnerable groups, through the implementation of existing and innovative approaches, such as financial literacy programmes. The range of products and services that can be considered within the definition is wide and includes savings, investment products, remittance and payment facilities, credit, and insurance. This chapter presents, on an introductory base, the typical indicators for the measurement of financial inclusion, causes of financial exclusion, the value inherent in financial inclusion and more precisely the interaction with monetary policy and financial stability, the correlation between financial literacy and financial inclusion, the need for coordinated efforts to extend financial inclusion both on a national level and internationally, and the use of technological means as a solution against financial exclusion and implementation of innovative financial literacy programmes.

Lastly, in Chap. 16 of Part IV, 'Post-Crisis Corporate Insolvency and Creditor Rights Law: Towards a Reform Paradigm', Constantinos N. Klissouras notes that the crisis has pushed Greek business insolvency and creditor rights law into a state of flux and almost constant 'reform', without a guiding paradigm; insolvency neither was, nor was perceived to be, an efficient instrument for redressing the microeconomic causes of business failure. The estimated numbers of insolvency proceedings versus the number and amount of NPLs shows that insolvency proceedings have become practically irrelevant as a debt recovery path. The reasons are structural and institutional, deriving both from the low efficiency and effectiveness of the legal framework and from the inadequacy of incentives to use and, thereby, improve it both explicitly, through reform, and implicitly, through the development of jurisprudence. The liberalization of the market for bank credit management and acquisition has the potential to change the dynamics, by introducing a large number of competing agents exercising creditor rights and raising their voice in favour of reforming the law towards more efficiency and effectiveness.

As a final note to this introductory section, we emphasize that it took us a considerable time over the past two years to reach the right mix of leading practitioners and academics to contribute to this work. This has been a period of accelerated efforts by competent authorities to deal

with increased private sector bad debts against a backdrop of lingering economic uncertainties and bouts of rising volatility in global financial markets; a period that left even our contributors wondering whether their chapters would still be relevant while you are reading these lines. We emphatically believe that they are relevant and will remain so for quite some time, as originally hoped. Our aspiration is for useful lessons to be learned from this effort, and for it to be a reference point before and when the next crisis strikes.

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# Part I

## Theoretical Perspectives and Empirical Evidence

# 2

## Non-performing Loans: Challenges and Options for Banks and Corporations

Rodrigo Olivares-Caminal and Andrea Miglionico

### 1 Introduction

In the course of a global crisis, companies default on their loans from domestic banks as well as from foreign creditors, rendering a large segment of the corporate sector insolvent.<sup>1</sup> Progress towards a common international understanding of liabilities has been developed under the European Union Directives 2014/59/EU and 806/2014 that introduced specific provisions on recovery and resolution plans (so-called living wills) and bail-in. This regulation has been necessary to establish a hierarchy of debt instruments.<sup>2</sup>

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According to Goode, a loan of money ‘is a payment of money to the debtor, or to a third party at the debtor’s request, by way of financial accommodation upon terms that the sum advanced, with any stipulated interest to be repaid by the debtor in due course’.<sup>3</sup> The crucial elements of the definition are (1) the monetary character of the financial accommodation—that is, the loan must be a loan of money—and (2) the obligation of the debtor to repay the sum advanced in due course, with or without interest.

Bank loans are contracts between creditors and debtors, that is, between banks who lend money and other legal persons who borrow it, usually with the promise of repayment of the principal plus interest in the future. As in contracts, general contract law governs loans. In English law, a contract is performed if the legal parties complete all obligations stipulated in the agreement. In the case of bank loan, for example, this might mean that the debtor has repaid the principal and interest in the loan on time and in full. By contrast, a loan, understood as a contract, is not legally performed when one or more of the obligations specified in the contract go unfulfilled.

The masses of non-performing loans (NPLs) have a serious effect on both parties at the end of the deal, that is, lenders (banks) and borrowers (domestic corporations).<sup>4</sup> According to the Basel Committee on Banking Supervision, NPL is defined as a loan that is more than 90 days past due, thus making eligible for termination.<sup>5</sup> Within the NPL category are comprised: (1) bad loans, (2) default loans, and (3) distressed debt. The classification depends on several factors and varies across countries. In some countries, non-performing means that the loan is impaired while in others can mean that payments are past due.<sup>6</sup> This is aggravated by the fact that there are significant differences among countries as to how many days a payment should be in arrears before past due status is triggered.<sup>7</sup> Nevertheless, a rather common feature of non-performing loans appears to be that a payment is ‘more than 90 days’ past due, especially for retail loans.

It should be noted that the criteria for designating a loan as ‘non-performing’ are largely discretionary for banks (for instance, individual banks may even change the definition of the term overtime). The early identification of which loans have become NPLs is an important issue for

central banks and regulators and bank equity investors. The time is ripe to develop a common financial language with regard to the way loans are classified according to their credit risk (good, substandard, doubtful, and loss) and, in particular, the definition of NPLs.

Another important element closely related to NPLs is 'forbearance'. Forbearance is defined as 'a concession granted by a bank to a counterparty for reasons of financial difficulties that would not be otherwise considered by the lender'.<sup>8</sup> Specifically, forbearance comprises concessions extended to any exposures in the form of a loan, a debt security or an off-balance-sheet item due to the position of the counterparty. This definition covers exposures of performing and non-performing status before the granting of forbearance measures; the main purpose is to ensure a harmonised approach for the modification or refinancing of loans and debt securities in the case of borrower's financial difficulties.<sup>9</sup>

The quality of the asset portfolio is the key to sound banking. Over the last decades, a common financial language has been developed when it comes to the liability side of banks and other credit institutions. Notwithstanding the limitations of the Basel rules and the adequacy of capital, the definition of capital has been subject to a substantial degree of harmonisation, which permits international comparisons.<sup>10</sup> As well, in the context of recovery and resolution plans and resolvability assessments, a common understanding of the hierarchy of debt instruments, in particular with regard to the concept of 'bail-in', is increasingly being accepted.<sup>11</sup> In contrast, we are still at a very embryonic stage when it comes to the comparability of the asset side, and both loan classification in general and the definition of NPLs in particular vary widely across institutions. The question at stake is the lack of consensus on the meaning of NPLs across countries, firms or even within firms, for example, different data definitions depending on subsidiary and business line. As Tweedie warned, 'global financial stability is at risk because there is no consistency across banks in how they value their assets'.<sup>12</sup>

The lack of commonly agreed standards or norms is hindered by (1) different prudential and accounting agendas, concerns, and terminologies (e.g. delinquent loans, impairments, provisioning, etc.); (2) the associated problems of 'regulatory forbearance' and lack of transparency; and (3) the consideration that risk-taking for private profit-maximising institutions

should be the domain of bank management, not curtailed by regulatory intervention. This international divergence across time, accounting, and regulatory standards complicates meaningful cross-border comparisons when it comes to resolution, stress tests, or consolidated supervision. A high ratio of NPLs to total loans has implications for the stability of the firm and the financial system.<sup>13</sup> Rules on NPLs need to be standardised and properly defined since in extreme circumstances can make the bank insolvent (i.e. when liabilities exceed the value of assets), with potential spill over to other firms, that can trigger systemic instability.

Therefore, this chapter addresses the challenge that NPLs pose to banks as lenders and domestic corporations as debtors. Firstly, the chapter looks into how NPLs can deteriorate a bank's portfolio affecting its financial position and forcing its restructuring. Secondly, the chapter considers the restructuring options for both banks and corporations drawing similarities and highlighting differences. Thirdly, the chapter discusses the main aspects of out-of-court private expedited workouts and formal court-supervised procedures.

## 2 The Regulatory Landscape of NPLs

The national regulatory framework may affect the timely enforcement of the terms of loan contracts. At what point the loan is classified as non-performing by the bank, and when does it become 'bad debt', depends on domestic accounting regulations. Also, there are significant divergences regarding the reported level of NPLs, which may not reflect the full extent of the problem (as some banks restructure or extend distressed loans to conceal problems). Countries or individual banks can overstate or understate the reported level of NPLs: this practice may affect banks' ability to lend and increase funding costs.<sup>14</sup>

The following elements determine different interpretations of NPLs: (1) whether restructured loans must be classified as NPLs or not, (2) whether collateral or guarantees are taken into account,<sup>15</sup> (3) whether NPLs are reported in full outstanding value or for the part overdue only,<sup>16</sup> and (4) whether banks are required to downgrade all loans to a given debtor if any of their loans is impaired.<sup>17</sup> One of the most important legal

issues related to NPLs is foreclosure.<sup>18</sup> Foreclosure processes vary from country to country; hence, criteria divergences across jurisdictions may reduce the ability to remove NPLs from banks' books and reduce the flow of credit to the economy (loans in Saudi Arabia will be considered NPLs less than 90 days, 90–100 days, 180–360 days, and over 360 days while in Canada after 90–180 days and in Europe after 90 days).

It is important from a regulatory point of view to analyse the relationship between loan loss provisioning and NPLs. In fact, the spectrum between loan loss provisions,<sup>19</sup> NPLs, and charge offs<sup>20</sup> is important to assess capital adequacy. At an international level, the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the Basel Committee on Banking Supervision (BCBS) and the International Monetary Fund (IMF) have expressed concerns about the lack of international comparability when it comes to assessing the NPLs held by banks and how they affect their balance sheet. However, an international norm or a standard governing body for NPLs is missing. This is due to: (1) the different prudential and accounting agendas; (2) policy agenda and its priorities; (3) technical terminology; (4) the associated problems of 'regulatory forbearance'; and (5) implications for economic growth. A 'lone star' in this process comes in the form of the 2014 'EBA implementing technical standards on NPLs', which have also been used in the recent stress tests conducted by the European Central Bank (ECB) and European Banking Authority (EBA).<sup>21</sup> The objectives of these standards are to (1) harmonise definitions of NPLs<sup>22</sup> and forbearance and (2) complete the supervisory reporting framework by adding new definitions and a template on asset quality issues.

As noted, a common definition of NPLs is absent in the banking and financial sector.<sup>23</sup> Although the regulatory standards consider NPLs as loans which are either 90-plus days past due or non-accrual and held in domestic offices of the institution, divergences in terms of the classification system, scope, and contents exist across countries.<sup>24</sup> Laurin and Majnoni observed that 'where the criteria for designating a loan as non-performing are largely discretionary for banks, the comparability of NPL over time may be affected by changes that individual banks make to their definition of the term'.<sup>25</sup>

In this context, the determinants of NPL are institutional, structural, and macroeconomic. Nkusu argued that 'disparities in financial

regulation and supervision affect banks' behaviour and risk management practices and are important in explaining cross-country differences in NPL.<sup>26</sup> However, loan loss provisioning is the vehicle for adjusting the value of loans, so as to reflect loan review and classification.<sup>27</sup> Besides certain discrepancies, it can be said that generally, an NPL is defined as a sum of borrowed money upon which the debtor has not made his or her scheduled payments for at least 90 days (an NPL is either in default or close to being in default). Once a loan is non-performing, the odds that it will be repaid in full are considered to be substantially lower. If the debtor starts making payments again on an NPL, it becomes a re-performing loan, even if the debtor has not caught up on all the missed payments.<sup>28</sup>

Krueger suggested that 'impairment and nonperforming status should be determined through a comprehensive examination of the instrument and the debtor's condition, resulting in an informed judgment about the extent of possible impairment, and thus impairment could be recognized more rapidly than 90 days (including instantaneously in the case of fair value instruments), or under exceptional circumstances a period over 90 days could be appropriate'.<sup>29</sup>

In 1999, the BCBS provided the following standard loan classification<sup>30</sup>: (1) 'passed', loans paid back; (2) 'special mention', loans to corporations, which may get some trouble in the repayment due to business cycle losses; (3) 'substandard', loans whose interest or principal payments are longer than three months in arrears of lending conditions are eased; (4) 'doubtful', full liquidation of outstanding debts appears doubtful and the accounts suggest that there will be a loss—the exact amount of which cannot be determined as yet; and (5) 'virtual loss and loss', outstanding debts are regarded as not collectable, usually loans to firms which applied for legal resolution and protection under bankruptcy laws. NPLs comprise the loans in the latter three categories (i.e. substandard, doubtful, and virtual loss and loss) and are further differentiated according to the degree of collection difficulties. However, in 2006 the BCBS revised the classification of loans as follows<sup>31</sup>: (1) 'passed', solvent loans; (2) 'special mention', loans to enterprises which may pose some collection difficulties, for instance, because of continuing business losses; (3) 'substandard', loans whose interest or principal payments are longer than three months in arrears of lending and conditions are eased; (4) 'doubtful',

full liquidation of outstanding debts appears doubtful and the accounts suggest that there will be a loss, the exact amount of which cannot be determined as yet; and (5) ‘virtual loss’ and loss, outstanding debts are regarded as not collectable, usually loans to firms, which applied for legal resolution and protection under bankruptcy laws.

Recently, the BCBS has been looking into the question of asset quality in banks, including the treatment of non-performing loans.<sup>32</sup> To identify non-performing exposures, the BCBS adopts ‘a uniform 90 days past due criterion applied to all types of exposures within the scope, including those secured by real estate and public sector exposures’. This definition applies to all credit exposures from on-balance sheet loans, including debt securities, and off-balance sheet items such as loan commitments and financial guarantees. The BCBS clarifies that collateralisation does not influence the past due status and should not be considered in the categorisation of non-performing exposures.<sup>33</sup>

In the south of the European Continent, the European Bank Coordination ‘Vienna Initiative’—a private-public sector platform which brings together key international financial institutions, international organisations, public authorities, and private banks—has called for an action plan to address NPLs in Central, Eastern, and Southeastern Europe (CESEE) countries.<sup>34</sup> The aim is to establish a central forum for dialogue to create the right conditions for Western banks to remain engaged in emerging Europe. This means enhancing enforcement measures, improving consistency in the definition of NPLs, and removing legal obstacles and execution issues in distressed transactions. In particular, the ‘Vienna Initiative’ is trying to establish an effective coordination mechanism for dealing with distressed assets.<sup>35</sup> Clearly, the ‘Vienna Initiative’ intends to develop an international legal toolkit for NPLs that comprises bank principles on restructuring, preventive pre-insolvency proceeding, and compulsory settlement (e.g. special rules for systemically important companies). In September 2014, the ‘Vienna Initiative’ assessed a range of strategies to foster a legal framework for the restructuring and resolution of NPLs. These strategies include (1) better coordination of out-of-court restructuring of viable enterprises; (2) establishing asset management companies and in particular where comprehensive banking sector restructuring is required; (3) setting up other workout vehicles jointly owned



and funded by multiple parent banks, thereby overcoming coordination problems; (4) fostering the sale of distressed assets; (5) pooling of cross-border assets to achieve critical size; and (6) addressing legal, regulatory, and tax treatment impediments to NPL removal.

The Eurozone crisis has highlighted the risk of disorderly deleveraging of Western parent banks vis-à-vis their affiliates in CESEE and difficulties in cooperation between home and host country authorities. Against this risk, the ‘Vienna Initiative’ issued a comprehensive list of recommendations aiming to ensure a well-functioning distressed assets market, avoid potential cross-border financial stability issues, and achieve proactive policy actions in the supervisory area.<sup>36</sup> In this context, harmonised guidelines based on the ‘INSOL principles’<sup>37</sup> can help devise country-specific restructuring guidelines in CESEE and facilitate early resolutions of NPLs. Further, the systemic importance of subsidiaries of Eurozone-based banks in the region should be an incentive to intensify the dialogue between banks and investors.

Empirical analysis of the cross-countries determinants of NPLs, the potential impact of supervisory devices, and institutional environment on credit risk exposure showed that higher capital adequacy ratio (CAR) and prudent provisioning policy seems to reduce the level of problematic loans.<sup>38</sup> Assessment and valuation of loan impairment should not be based solely on prescriptive rules but should be enhanced with judgement by the appropriate levels of management.<sup>39</sup> Bushman and Williams explored consequences of discretionary loan loss provisioning for the role of accounting information in supporting discipline of bank risk-taking.<sup>40</sup> They investigate the specific decision context involving the accounting information’s role in enhancing outside investors’ and regulators’ ability to monitor and discipline bank risk-taking. On this view, discretion over bank loan loss provisioning can have beneficial or negative real consequences for the discipline of bank risk-taking, depending specifically on how managers exploit available discretion to shape loan loss provisions. While discretionary smoothing via loan loss provisions (implicit forward-lookingness) dampens discipline over bank risk-taking, explicit forward-lookingness that captures the extent to which current provisions anticipate future deteriorations in the loan portfolio enhances discipline.

### 3 The Role of EBA

In 2014 the EBA published technical standards for the reporting of non-performing loans and forbearance.<sup>41</sup> The EBA document provides the definition of ‘exposure’, ‘non-performing exposures’, and ‘forborne exposures’.<sup>42</sup> This is the first time that a hard-law instrument harmonises the definition of NPLs. However, while the EBA document has developed a harmonised definition for NPE for supervisory reporting, it does require further work.<sup>43</sup> These definitions are largely discretionary for domestic laws. In particular, the substantial differences across countries attain the period when unpaid loans become past due, intending to put loans on lenders’ timetable sooner and require them to address these loans before losses start to escalate.<sup>44</sup>

The EBA standard centres the definition of non-performing on the notion of either 90 days past due or where the debtor is assessed as unlikely to pay its credit obligations in full without realisation of collateral. Further disaggregated reporting is required for forborne assets and those defined as performing but nonetheless past due by 30 or 60 days. EBA has established a definition of non-performing exposures in order to increase comparability between non-performing exposures in different banks. In particular, a loan is classified as a non-performing exposure where the loan is 90 days past due or if there is a risk of defaulted payments. A loan that has been classified as impaired in the financial statements or that has been classified as defaulted in capital adequacy shall always be classified as a non-performing exposure. While many scholars and policymakers in recent years have focused in creating a standard classification of sources of banks’ funding (equity and debt), less thought has been given to creating a common classification for items on the other side of the balance sheet.<sup>45</sup>

The EBA document leaves aside accounting issues and definitions of collateral and has no impact on the legal solvency regime. In addition, the EBA document does not change existing loan classification and does not require full transparency. The focus of the EBA document is on exposures (NPEs), which is broader than NPLs. NPEs according to the EBA document also encompass off-balance sheet items and debt securitizations.<sup>46</sup> The work that the Basel Committee is currently undertaking on

the prudential treatment of assets focuses on loans and loan classification generally. After all, loans are typically the largest asset class on bank's balance sheets and NPLs constitute one of the most important factors causing reluctance for the banks to provide credit. What is still missing is international comparability on credit classification schemes and NPLs, as well as increased transparency.

## 4 Assessing the Loan Classification: The CAMELs System

CAMELs is an acronym of the following indicators: (1) capital adequacy, (2) asset quality, (3) management and administration, (4) earnings, (5) liquidity, and (6) sensitivity to market risk. The CAMELs system focuses on the assessment of the banking system by examining its balance sheet, as well as profit and loss statement, thus observing the institution's dynamic aspect. CAMELs ratings mainly indicate the adequacy of the risk-based capital, non-performing loan position, liquidity gap analysis, liquidity ratio, inter-bank dependency, return on assets (ROA), return on equity (ROE), net interest margin (NIM), credit growth, credit concentration, single borrower exposure, foreign exchange exposure, market risk, and management questionnaire.

CAMELs ratings are used to determine decisions such as how high to set insurance premiums on deposit insurance by the Federal Deposit Insurance Corporation (FDIC); whether or not to provide Fed lending to institutions; whether or not to grant licensing, branching, and merger approvals; and whether or not to allow banks to participate in government programmes (such as the Troubled Asset Relief Program).<sup>47</sup> CAMELs indicators are useful in assessing the financial vulnerability of banks. However, there is no clear agreement in the literature on how exactly to combine the various indicators. As noted by Klomp and de Haan, one issue is that some indicators of banking risk are of an *ex ante* nature (loan ratios) while others are *ex post* variables (capital and equity ratios).<sup>48</sup> Whereas *ex ante* variables indicate a possible future risk, *ex post* variables indicate the presence of a risk.

The definition of NPLs around 'past due more than 90 days' may lend itself to regulatory forbearance if the authorities allow new lending for the purposes of paying the interest on the existing loans to delay the resolution of the problems. The European Securities and Markets Authority (ESMA) noted that disclosures about forbearance practices in the financial statements diverged significantly and were often limited in the amount of information provided and vague as to content.<sup>49</sup>

A generally accepted system of loan classification would do for loans what the ratings given by credit rating agencies according to their credit risk analysis do for debt instruments (while the former need not be publicly available, the latter by definition are). It is considered that the effects of ratings on the instruments being rated have a direct impact on prices because these assessment changes can affect the pool of investors.<sup>50</sup> In this context, the use of a 'rating trigger'—as a particular contractual clause included in private bond indentures that ensures a required credit rating threshold of the borrower's liquidity risk<sup>51</sup>—may determine the borrower's ability to repay the debt on time and full.

Empirical studies evidence that firms that are downgraded from investment grade to speculative grade move from having only senior unsecured debt and equity in their capital structure before the downgrade to an increasing dependence on both secured bank debt and subordinated and convertible bonds after the downgrade.<sup>52</sup> The consequence is that firms lose access to arm's-length short-term sources of liquidity after the downgrade.

The CAMELs rating system used by US financial supervisory authorities provides an interesting example of how to use loan classification in general and, NPLs in particular, as indicators of bank soundness. As argued by DeYoung et al., 'the CAMELs focuses on the evaluation of performance of the financial institutions by examining its balance sheet, as well as, profit and loss statement on the basis of each component, thus observing the institution's dynamic aspect'.<sup>53</sup>

The CAMELs rating system not only helps assess the safety and soundness of banks but also mitigates the potential risks which may lead to bank failures. Empirical studies have verified that using CAMELs as the measure of the 'true' riskiness of the organisation can demonstrate that

'debt spreads did as well or better at predicting the riskiness of the banking organization than did capital ratios'.<sup>54</sup> CAMELs ratings review different aspects of a bank balance sheet based on a variety of information sources such as financial statements, funding sources, macroeconomic data, budget, and cash flow, which can provide a more holistic approach.

The bank's CAMEL rating is highly confidential and only shared with the bank's senior management for the purpose of projecting business strategies. It is also shared with appropriate supervisory staff. Its rating is never made publicly available, even on a lagged basis.<sup>55</sup>

The Capital Adequacy Ratio is considered the ultimate indicator of the resilience of a financial institution to shocks to its balance sheet, while the ratio of NPLs signals the quality of the financial institutions' portfolio and their solvency.<sup>56</sup> In this regard, an aggregated CAMEL index, as a soundness indicator, can combine quantitative and qualitative elements: NPLs and the provisions for loan losses are important asset quality indicators.

## 5 Insolvency Issues and Bail-in Tool

The broad divergence in the meaning of NPLs across countries and regulatory and private sector agencies creates difficulties to quantify the extent of forbearance and thus to understand the link between NPLs, economic growth, and financial stability but, more importantly, its impact on the balance sheet and its solvency implications.

Any banking crisis has at its root bad lending and investment decisions. As discussed the most important part of a bank's balance sheet is the quality of the asset portfolio. However, such quality remains difficult to assess at any given time. This complicates meaningful cross-border comparisons when it comes to restructuring options, stress tests, or consolidated supervision, which precisely aim at avoiding a banking crisis in the first place.

In the USA, NPLs were originally treated to help eliminate losses from the lenders' balance sheets. The US banking system had significant crises relating to NPLs, a clear example is the collapse of Continental Illinois in 1984.<sup>57</sup> In 2001–2002, the US banking industry suffered a consistent

recession that weakened bank balance sheets and led to an increase in the ratio of non-performing loans to total loans, this is known as the NPL ratio.<sup>58</sup> During the 2007–2009 financial crisis, US banks experienced a rapid rise in loan delinquencies and defaults driven by rising unemployment and falling real estate prices, among other factors.<sup>59</sup> It has been noted that ‘in 2009 NPLs increased sharply and credit stagnated, raising worries that the recovery could be slowed down by credit constraints’.<sup>60</sup> The increase in loan defaults in the banking mortgage sector in the USA underlined the links between macroeconomic and financial shocks and the relationship between the friction in the credit market and the risk of financial instability.<sup>61</sup>

In most credit classification systems, sitting between the bright lines of normally performing credit exposures and those that are delinquent are shades of non-performance. Indeed, in some credit classification schemes, such loans like substandard and doubtful are construed alongside loan losses as non-performing.

Debtors who default often lose collateral and blemish their credit rating for years to come. Credit institutions are also impacted. As NPLs rise, so does the cost of borrowing for banks with bad loans on their books. These costs then may be passed on to other obligors directly in terms of higher borrowing costs, with second round effects on economic growth as credit contracts. Creditor-investors also can be impacted, as asset prices decline on the back of the sale of collateral repossessed from defaulted obligors.<sup>62</sup>

Considering the negative consequences flowing from non-performing loans, there is an argument that loan forbearance could be used at a firm or system-wide level during financial crises as a means to stave off their worst depths. On the one hand, forbearance may be inappropriate if the obligor has no real chance of recovery, as this can hamper the reallocation of resources to other sectors of the economy and weigh down long-term productivity.<sup>63</sup> On the other hand, forbearance may be appropriate if an obligor is suffering from just a temporary problem, and restructuring or strategically reclassifying gives them time to recover. Unhelpfully, perhaps, the best conclusion that can be drawn is it all depends on specific circumstances.

If there is a place for forbearance, possibly even as a macro-prudential tool in certain circumstances to prevent the worst of economic

catastrophes, then this suggests that the search for a single, deterministic definition of non-performing loans is misconstrued. There are also other reasons to believe this is so. In most credit classification systems, sitting between the bright lines of normally performing credit exposures and those that are delinquent are several ‘shades’ of non-performance. Indeed, in some credit classification schemes, such loans like substandard and doubtful are construed alongside loan losses as non-performing.

The issue then may not be about getting a standard definition of NPLs right. Instead it may be about getting the right data to monitor the real-time risks for creditors. *Ex ante*, at origination, lenders collect lots of information about obligors. *Ex post*, in liquidation procedures, courts collect lots of information about defaulted obligors. But in the interval in between, in the absence of market prices for non-traded loans, there is a need for continual monitoring of obligors, the progress of projects the loans are financing, and any other key risks that are evolving that are obligor-specific or macroeconomic.<sup>64</sup> In other words, different firms and regulators have different data and different interpretations of data they use to estimate obligors’ ability to repay and whether it has deteriorated.

Bail-in has contributed to provide a common financial language to the understanding of the different types of debt that are held by banks (the liability side of the balance sheet). As pointed out by Huertas resolvability hinges on the structure of liabilities.<sup>65</sup> The bail-in (or ‘debt write down’) is a tool by which resolution authorities are given powers, exercisable when an institution meets the trigger conditions for entry into resolution, to write off all equity, and either write off subordinated liabilities or convert it into an equity claim. Sufficient instruments (the issue of the sufficiency of bail-inable debt)<sup>66</sup> should be written down or converted to equity to ensure an orderly resolution of the failing institution in all cases.

The purpose of the bail-in regime is to provide a mechanism to return an insufficiently solvent bank to ‘balance sheet stability’ at the expense of some of its creditors without the necessity for external capital injection and at the same time put an end to taxpayer-funded bank bailouts. Bail-in powers are either contractual or statutory. The legal basis on which the holder of a bail-in power is entitled to exercise it has a bearing on a number of factors. These include (1) the existence of the power, as part of a valid contract or a correctly enacted statute; (2) the

extent of a creditor's right to apply setoff, netting, or counterclaim to reduce the amount of a debt write-down; (3) the remedies available for a contractual or statutory bail-in power's unlawful exercise (contractual remedies may be more extensive than statutory remedies); (4) a creditor's entitlement to statutory compensation (contractual bail-in gives no such right); and (5) the recognition and enforcement of the bail-in power by foreign courts (contractual bail-in powers will be more readily recognised and enforced). The contractual approach relies upon prior issuance of debt instruments that contain contractual terms explicitly recognising that the instruments will be converted into equity, or written down, upon occurrence of a pre-specified point of non-viability trigger event. The statutory approach envisages that once a firm has reached the point of non-viability, the relevant resolution authority will select from the range of debt instruments issued by the firm, such as subordinated debt and senior unsecured debt.

The statutory bail-in power is intended to achieve a prompt recapitalisation and restructuring of the distressed institution. The bail-in capital could be seen as a form of insurance (provided by creditors) against bank insolvency and, hence, bank runs, especially runs on repos and other short-term funding.

In other words, bail-in ensures that the failed bank can continue to operate and provide essential services to its customers, by restoring the bank to viability through recapitalising it. This limits disruption to the bank's customers and maintains public confidence in the banking system. In a liquidation scenario, bail-in would be used to wind down the entity. A bail-in is simply a mechanism for allocating an existing loss. It will only be possible to use it to allocate such losses to the banks creditors if the bank's creditors are sufficiently robust to absorb that loss. If the use of a bail-in power is perceived by the market as a sign of the concerned institution's insolvency, it could trigger a run by short-term creditors and aggravate the institution's liquidity problem.<sup>67</sup> Bail-in also aims to avoid the need for formal insolvency proceedings by restructuring the bank's balance sheet and ensuring the continued survival of the institution without immediate dismemberment. The sufficiency of bail-inable debt (in the light of the liability structure of many banks) remains a contentious subject.<sup>68</sup>



Under EU law, bail-in is a key resolution tool in the Bank Recovery and Resolution Directive (BRRD)<sup>69</sup> and in the Single Resolution Mechanism (SRM) Regulation.<sup>70</sup> In terms of international soft law, a number of documents published by the FSB have given greater clarity to the understanding of the bail-in tool, in particular, the ‘Key Attributes of Effective Resolution Regimes for Financial Institutions’ recommends greater specificity with regard to the creditors’ claims which should be exempted from write-downs.<sup>71</sup>

In summary, when dealing with NPLs, there are ad hoc tools like soft-law principles to deal with debt in distress facilitating a restructuring (e.g. Central Bank principles, INSOL International principles, etc.) which are mainly of a pre-emptive nature and hard-law solutions like bail-ins which can be preventive or resolutive but their main characteristic element is that they are of a statutory nature. However, banks would usually delay facing the problem due to reputational effects which in most occasions has exacerbated the problem.

## 6 Concluding Remarks

The consequences of NPLs are harmful all around for debtors, creditors, and the wider economy. A ‘holistic approach’ to balance sheet regulation is needed, one that considers the two sides of the balance sheet in developing common standards that make comparisons across jurisdictions and firms meaningful. The lack of a common financial language when it comes to the classification of bank assets contrasts with the efforts undertaken by policymakers, regulators, and scholars with regard to the sources of bank funding. The most important part of a bank’s balance sheet is the quality of the asset portfolio. However, such quality remains difficult to assess at any given time.

As noted, existing empirical literature on NPLs is insensitive to several potentially important explanatory variables. Firstly, the legal definition and treatment of NPLs within a given jurisdiction may change over time. There may also be material differences between the legal definition and treatment of NPLs for prudential regulatory and accounting purposes. Secondly, there may exist important differences in the legal definition

and treatment of NPLs across jurisdictions. Thirdly, the intensity of prudential supervision in relation to NPLs can also change over time and vary across jurisdictions.

Intuitively, undetected changes or differences in these ‘legal’ variables over time and across jurisdictions could significantly distort the assessment of NPLs. For example, observed changes in the percentage of NPLs may be wholly or partially attributable to changes in the legal definition of a non-performing exposure, the deemed amount for reporting purposes, or the circumstances in which an exposure will be deemed no longer non-performing. Similarly, observed differences in NPLs across jurisdictions may be attributable to differences in the legal definition or treatment of NPLs and the intensity of prudential supervision. In this perspective, the objective of standardising a definition of NPLs and bemoaning its absence misses the mark. Judgement does and arguably should always play a role in deciding whether or not a loan is non-performing, both for creditors and regulators.

Therefore, when trying to apply a remedy to cure the problem (i.e. a restructuring tool to avoid reaching a point of no return), it proves quite difficult because it is not clear whether there is a problem in the first place and when it is evident, usually it is too late.

## Notes

1. Lex Rieffel, *Restructuring Sovereign Debt: The Case for Ad-Hoc Machinery* (Washington: Brookings Institution Press, 2003) 43–44.
2. According to the ‘IAS 39—Financial Instruments: Recognition and Measurement’ (replaced by ‘IFRS 9 Financial Instruments’ effective after January 2018), a financial asset 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 (i.e. loss events) that occurred after the initial recognition of the assets, and that loss event (or events) has an impact on the future cash flows of the financial asset that can be reliably estimated. This approach to provisioning—known as ‘incurred loss’-based approach—waits for certain events to happen such as default, delinquency in interest or principal payments,

significant financial difficulty of the borrower, and so on, before losses can be recognised. Provision for losses can only be made after the loss event has been identified, or loss has been incurred, and not in a proactive manner *ex ante* before the event, based on ‘expected losses’. However, the ‘incurred loss’ model came under severe criticism after the 2007–2009 financial crisis for delaying loss recognition.

3. Ewan McKendrick, *Goode on Commercial Law* (4th edn., Penguin Book 2010) 621.
4. Shekhar Aiyar et al., ‘A Strategy for Resolving Europe’s Problem Loans’, International Monetary Fund, Staff Discussion Note SDN/15/19, September 2015, 5.
5. Basel Committee on Banking Supervision, ‘Sound Practices for Loan Accounting and Disclosure’, Basel Committee on Banking Supervision Paper, July 1999, 35, para 91.
6. Alain Laurin and Giovanni Majnoni, ‘Bank Loan Classification and Provisioning Practices in Selected Developed and Emerging Countries’, World Bank Working Paper No 01, March 2003, 10.
7. *Ibid.*
8. Basel Committee on Banking Supervision, ‘Guidelines for Prudential treatment of problem assets—definitions of non-performing exposures and forbearance’, Consultative Document, 14 April 2016, available at: <http://www.bis.org/bcbs/publ/d367.htm>, 7.
9. The Basel Committee on Banking Supervision recommends banks not to use forbearance practices to avoid classifying loans as non-performing.
10. The definition of capital and its sufficiency were first harmonised via the so-called Basel I Accord of 1988 (a soft-law instrument: the report by the Basel Committee on ‘International Convergence of Capital Measurement and Capital Standards’).
11. Progress towards a common international understanding of liabilities has been developed under the European Union Directives 2014/59/EU and 806/2014 that introduced specific provisions on recovery and resolution plans (so-called ‘living wills’) and bail-in. This regulation has been necessary to establish a hierarchy of debt instruments.

12. David Tweedie, Speech delivered at the International Valuation Standards Council, 4 December 2014.
13. European Central Bank, 'Financial Stability Review', November 2013, 9. It is observed that 'NPLs and the associated provisioning have grown to such an extent that they have been the major contributor to the low return on assets of euro area significant banking groups since 2009'.
14. For example, Russia's NPL definition differs with the international practices as it accounts only for due instalments and interest rather than the total amount of the troubled loan. See Roland Beck, Petr Jakubik, and Anamaria PiloIU, 'Non-performing loans. What matters in addition to the economic cycle?', in European Central Bank Working Paper Series No 1515, February 2013, 11, fn 7.
15. Not all regulatory frameworks recognise the same forms of collateral, and there is no consensus on the evaluation criteria of pledged assets (e.g. according to their marketability).
16. The interpretation of loan quality (in particular, qualitative and quantitative factors related to each loan) differs across countries.
17. European Commission, 'European Financial Stability and Integration Report 2013', Commission Staff Working Document SWD (2014) 170, April 2014, 38.
18. Foreclosure involves the credit risk, the risk that a loan will not be repaid as agreed.
19. The term 'loan loss provision' identifies the amount of money a bank provides to cover potential losses on loans. Loan loss provision may reduce the net income of banks and thereby may affect their capital positions. See Ellen Gaston and In Won Song, 'Supervisory Roles in Loan Loss Provisioning in Countries Implementing IFRS', International Monetary Fund Working Paper WP/14/170, September 2014, 3.
20. Charge off is an accounting term that identifies 'the value of loans removed from the books and deducted from the allowance for loan losses'. See Fred Furlong and Zena Knight, 'Loss Provisions and Bank Charge-offs in the Financial Crisis: Lesson Learned' FRBSF Economic Letter 2010–2016, 24 May 2010, 2. Charge offs reflect capital management and are considered a method to cover realised

- losses. See Anne Beatty, Sandra L. Chamberlain and Joseph Magliolo, 'Managing Financial Reports of Commercial Banks: The Influence of Taxes, Regulatory Capital, and Earnings' (1995) 33(2) *Journal of Accounting Research*, 243.
21. EBA FINAL draft Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013, EBA/ITS/2013/03/rev1, 24 July 2014.
  22. Referred in the text as NPEs or non-performing exposures. The concept of NPEs is broader than that of NPLs since the latter only relates to loan exposures while the former includes other types of exposure.
  23. Sarawan Angklomkiew, Jason George, and Frank Packer, 'Issues and developments in loan loss provisioning: the case of Asia', *BIS Quarterly Review*, December 2009, 70. The authors argue that in some countries, any loan that is delinquent more than 30 days would be considered an NPL, while in other systems the designation may only apply to loans that are 90 days past due. Other jurisdictions, for example, Hong Kong SAR, the adoption of IAS 39 and its use of an 'impairment' test has led to the NPL designation being abandoned.
  24. Ana-Cristina Grohnert, René Hallenberger, and Daniel Mair, 'Performing and non-performing loan market overview' in Simon Gottlieb Grieser and Jörg Wulfken (eds), *Performing and Non-Performing Loan Transactions Across the World* (Euromoney Institutional Investor PLC, 2009) 4.
  25. Alain Laurin and Giovanni Majnoni, 'Bank Loan Classification and Provisioning Practices in Selected Developed and Emerging Countries', *World Bank Working Paper No 01*, March 2003, 10.
  26. Mwanza Nkusu, 'Nonperforming Loans and Macrofinancial Vulnerabilities in Advanced Economies', *IMF Working Paper*, July 2011, 4. It is argued that 'cross-country differences in regulation and supervisory practices and differences in accounting procedures pose serious constraints to comparability of NPL across countries. For instance, NPL levels may not reflect the extent of impaired loans as some banks may pre-emptively restructure or roll over bad loans while others may write off their bad loans relatively quickly. In addition, peak levels of impaired loans are generally much higher in

developing countries compared with advanced ones. Accordingly, the same NPL ratio can have different implications in different countries’.

27. Luis Cortavarria, Claudia Dziobek, Akihiro Kanaya, and Inwon Song, ‘Loan Review, Provisioning, and Macroeconomic Linkages’ (2000) IMF Working Paper No 00/195, 14.
28. Irum Saba, Rehana Kouser, and Muhammad Azeem, ‘Determinants of Non Performing Loans: Case of US Banking Sector’ (2012) 15(44) *The Romanian Economic Journal*, 143. The author attempted to ascertain the determinants of NPLs in the US banking sector. The empirical results support the view that macro-factors, such as, interest rate and real GDP per capita have association with the NPLs rate.
29. Russell Krueger, ‘International Standards for Impairment and Provisions and their Implications for Financial Soundness Indicators (FSIs)’, IMF Working Paper, July 2002, 18.
30. Basel Committee on Banking Supervision, ‘Sound Practices for Loan Accounting and Disclosure’ (note 5) 19–21.
31. Basel Committee on Banking Supervision, ‘Sound credit risk assessment and valuation for loans’ (June 2006).
32. See supra 8.
33. Ibid., 6. The BCBS notes that non-performing status should be applied at the level of the counterparty in the case of exposures to a non-retail counterparty; and, at the level of each exposure in the case of exposures to a retail counterparty.
34. The Vienna Initiative was set up in 2009, successfully working initially to maintain the presence of Western banks in the region and subsequently to oversee an orderly process of deleveraging and a balanced restructuring of the region’s banking sectors.
35. James Roaf, ‘Non-Performing Loans in CESEE’, paper presented at the Workshop convened under the Vienna Initiative 2.0, Vienna, 23 September 2014.
36. European Banking Coordination ‘Vienna’ Initiative, Working Group on NPLs in Central, Eastern and Southeastern Europe, March 2012.
37. INSOL International is an *international association of restructuring, insolvency & bankruptcy professionals*. INSOL International published a *Statement of Principles for a Global Approach to Multi-Creditor*

- Workouts*, London in October 2000. The principles are available at <https://www.insol.org>.
38. Abdelkader Boudriga, Neila Boulila Taktak, and Sana Jellouli, 'Banking supervision and nonperforming loans: a cross-country analysis' (2009) 1(4) *Journal of Financial Economic Policy*, 286. The authors show that the effective way to reduce bad loans is through strengthening the legal system and increasing transparency and democracy, rather than focusing on regulatory and supervisory issues.
  39. Basel Committee on Banking Supervision 'Sound credit risk assessment and valuation for loans' (June 2006) 8.
  40. Robert M. Bushman and Christopher D. Williams, 'Accounting discretion, loan loss provisioning, and discipline of Banks' risk-taking' (2012) 54 *Journal of Accounting and Economics*, 2.
  41. See EBA supra 25.
  42. The focus of the EBA document is on non-performing exposures (NPEs) broader than NPLs.
  43. Piers Haben, 'Standardizing the definition of non-performing loans', Speech at the conference 'Setting Global Standards for Granular Data Bank of England, European Central Bank and US Office of Financial Research Agenda', Bank of England, London, 16 January 2015.
  44. The prompt identification of impairment or non-performance is crucial for the identification of vulnerabilities.
  45. Yet the opposite is true in finance, where valuation tends to focus on assets, less so on liabilities.
  46. Paragraph 149 of the EBA document states that for the purpose of template 18, 'exposures' include all debt instruments (loans, advances, and debt securities) and off-balance sheet exposures (loan commitments, financial guarantees, and other revocable and irrevocable commitments) excluding trading exposures and off-balance sheet exposures except held for trading exposures.
  47. Sumit Agarwal, David Lucca, Amit Seru, and Francesco Trebbi, 'Inconsistent Regulators: Evidence from Banking' (2012) NBER Working Paper Series No 17736, 8. The authors discuss on US practice and US law, in particular the difference between federal regulators and state regulators of commercial banks. It is concluded that

federal regulators are significantly less lenient than state regulators, downgrading supervisory ratings (CAMELs) twice as frequently as state supervisors, and that under federal regulators banks report higher NPLs, more delinquent loans, higher regulatory capital ratios and lower ROA. The lessons are instructive for banking union where independent ECB supervisors are expected to be tougher than national supervisors were.

48. Jeroen Klomp and Jacob de Haan, 'Banking risk and regulation: Does one size fit all?' (2012) 36 *Journal of Banking and Finance*, 3197.
49. ESMA, 'Treatment of Forbearance Practices in IFRS Financial Statements of Financial Institutions', Public Statement ESMA/2012/853, 20 December 2012, 2. ESMA observes that forbearance measures occur in situations in which the borrower is considered to be unable to meet the terms and conditions of the contract due to financial difficulties.
50. Graciela Kaminsky and Sergio L. Schmukler, 'Emerging Market Instability: Do Sovereign Ratings Affect Country Risk and Stock Returns?' (2002) 16 *The World Bank Economic Review* 2, 172.
51. SEC, 'Report on the Role and Function of Credit Rating Agencies in the Operation of the Securities Market' (January 2003) 30. See also Federico Parmeggiani, 'Rating Triggers, Market Risk and the Need for More Regulation' (2013) 14 *European Business Organization Law Review* 3, 428. The author provides an analysis of rating triggers by identifying some basic types of clauses: (1) 'rating-based collateral and bonding provisions', (2) 'rating step-up triggers' (or 'rating-based pricing grids'), (3) 'acceleration trigger', (4) 'rating-based put provision', and (5) 'rating-based default trigger'.
52. Joshua D. Rauh and Amir Sufi, 'Capital Structure and Debt Structure' (2010) 23(12) *The Review of Financial Studies*, 4245.
53. Robert DeYoung, Mark Flannery, William Lang, and Sorin Sorescu, 'Could Publication of CAMELS Ratings Improve Market Discipline?' in 'Proceedings of the Federal Reserve Bank of Chicago 34th Annual Conference on Bank Structure and Competition', May 1998.
54. Douglas D. Evanoff and Larry D. Wall, 'Measures of the riskiness of banking organizations: Subordinated debt yields, risk-based capital,



- and examination ratings' (2002) 26 *Journal of Banking and Finance*, 989. See also Douglas D. Evanoff and Larry D. Wall, 'Sub-debt yield spreads as bank risk measures' (2001) 20 *Journal of Financial Services Research*, 121.
55. On this discussion Sandhya Ch. V.L, 'Camel Framework in Banks—Indian Scenario' (2014) 4(6) *Indian Journal of Applied Research*, 1.
  56. Udaibir Das, Marc Quintyn, and Kina Chenard, 'Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis' IMF Working Paper, May 2004, 10.
  57. Andrew Campbell, 'Bank insolvency and the problem of nonperforming loans' (2007) 9(1) *Journal of Banking Regulation*, 28. The author noted that 'the problems associated with NPLs in the 1980s were the result of mismanagement in relation to lending policies, which led to an excessively high-risk profile developing'. Basically, he underlines the importance of building an effective system to reduce the problem of NPLs through a prudent internal control system combined with enforcement power.
  58. Kevin J. Stiroh and Christopher Metli, 'Now and Then: The Evolution of Loan Quality for U.S. Banks' (2003) 9(4) *Federal Reserve Bank of New York Current Issues in Economics and Finance*, 1. The NPL ratio is defined as non-performing loans—non-accrual loans plus loans 90 days or more past due—as percentage of total loans.
  59. Tara Sullivan and James Vickery, 'A Look at Bank Loan Performance', Federal Reserve Bank of New York, 16 October 2013. According to the authors, 'at the start of 2007, only about 1% of bank loan balances were "nonperforming", meaning that the loan was at least ninety days past due or in nonaccrual status. By late 2009, however, the fraction of nonperforming loans had increased to more than 5%'.
  60. Raphael Espinoza and Ananthakrishnan Prasad, 'Nonperforming Loans in the GCC Banking System and their Macroeconomic Effects', IMF Working Paper, October 2010, 4.
  61. Ahlem Selma Messai and Fathi Jouini, 'Micro and Macro Determinants of Non-performing Loans' (2013) 3(4) *International Journal of Economics and Financial Issues*, 852.

62. USAID, 'High Levels of Problem Loans in Southeast Europe and Eurasia: The Silent Killer of Economic Growth', Technical Brief, September 2011.
63. Martin Arrowsmith, Martin Griffiths, Jeremy Franklin, Evan Wohlmann, Garry Young, and David Gregory, 'SME forbearance and its implications for monetary and financial stability' (2013) 53(4) *Bank of England Quarterly Bulletin*, 296–303.
64. David Bholat et al., 'Non-performing loans: regulatory and accounting treatment of assets', Bank of England Staff Working Paper No. 594, April 2016, 24.
65. Thomas F. Huertas, *Safe to Fail: How Resolution Will Revolutionise Banking* (London: Palgrave Macmillan 2014) 113–114.
66. Charles Goodhart, 'Ratio controls need reconsideration' (2013) 9 *Journal of Financial Stability*, 449, where it is provided a definition of bail-inable bond as 'one which specifies in the contract how, and under what conditions, the holder shall be required to bear the costs of bank failure and/or to put up additional money to recapitalise the bank'. In essence, bail-inable debt is a form of pre-paid insurance for bank failure. See also Emilios Avgouleas and Charles A Goodhart, 'A Critical Evaluation of Bail-in as a Bank Recapitalisation Mechanism', Centre for Economic Policy Research, Discussion Paper No. 10065, July 2014, 7.
67. Bail-in usually needs to be accompanied by changes in the firm's senior management and the adoption of a new business plan that addresses the causes of the firm's failure.
68. As has been pointed out by the IMF, holders of claims targeted for bail-in must be able to absorb potential losses without generating systemic risk themselves as a consequence of their financial losses IMF, 'Cross-Border Bank Resolution: Recent Developments', IMF Policy Papers, 2 June 2014, 12.
69. See Directive 2014/59/EU establishing a framework for the recovery and resolution of credit institutions and investment firms.
70. Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain

investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund.

71. FSB, 'Key Attributes of Effective Resolution Regimes for Financial Institutions', 15 October 2014, 9.

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# 3

## Non-performing Loans: A Review of the Literature and the International Experience

Konstantinos I. Nikolopoulos and Andreas I. Tsalas

### 1 Introduction

The two decades leading to the global financial crisis were characterized by a considerable expansion of credit by financial institutions (see, e.g. Cingolani 2013). This was the result of the significant deregulation of financial markets on the one hand and, on the other hand, the evolution of information technologies in the banking sector that led to increased financial intermediation (Panopoulou 2005; Rinaldi and Sanchis-Arellano 2006a, b). The deregulation process enhanced competition among banks, both in Europe and across the world (Salas and Saurina 2002). A vast amount of the literature claims that enhanced competition

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P. Monokroussos, C. Gortsos (eds.), *Non-Performing  
Loans and Resolving Private Sector Insolvency*, Palgrave  
Macmillan Studies in Banking and Financial Institutions,  
DOI 10.1007/978-3-319-50313-4\_3

may lead to increased credit risk undertaken by credit institutions. That is, especially if their quest for market share instigates an undue relaxation of lending standards (Manove et al. 2001; Jeong and Jung 2013).

The most common indicator that is being used to determine credit risk is the ratio of non-performing loans (NPLs) to total bank loans. This ratio is related to the quality of bank assets and reflects the risk that the underlying cash flows from loans and securities held by financial institutions may not be paid in full (Saunders and Cornet 2008). A number of earlier empirical studies document that a high level of problem loans is usually responsible for bank collapses (e.g. Gup and Kolari 2005; Samad 2012) as well as increased vulnerability in the banking system and the overall financial sector (Desmet 2000; Calomiris et al. 2004; Ninimaki 2012).

Since the outbreak of the global financial crisis, the levels of NPLs have risen significantly, negatively affecting the liquidity and profitability of credit institutions and, by implication, undermining banking system stability. Although great efforts have been made to control and reduce NPLs, the problem remains in the spotlight for both regulators and banks.

Understanding the determinants of NPLs is a matter of crucial importance for both macroeconomic and financial system stability. A large number of studies have investigated the drivers of credit risk, particularly in the period after the outbreak of the global economic crisis. Some studies have used a single category of potential determinants, while others have concentrated on the interaction between systemic factors (e.g. general macroeconomic conditions) and idiosyncratic influences (e.g. bank-specific variables or company-level information). Reinhart and Rogoff (2010) indicate that NPLs can be used to mark the beginning of a banking crisis.

The deterioration of banks' asset quality is not only destabilizing for the banking system, but it can also diminish economic efficiency and prosperity. Barseghyan (2010) has measured the effects of reduced economic activity in Japan, during the so-called "lost decade" of the 1990s. His analysis demonstrates that, in a general equilibrium framework featuring a delay in the provision of a government-led bailout, NPLs cause a decline in economic activity by crowding out funds that could otherwise be used for productive investments. Other authors refer to NPLs as "financial pollution" because of their negative economic impact (Barseghyan 2010; Gonzales-Hermosillo 1999; Zeng 2012).



In this chapter we provide a review of the existing literature on the factors that determine and explain NPLs at both macro and micro levels. The rest of the chapter is organized as follows. Section 2 provides a literature review of the macroeconomic and bank-specific determinants of NPLs. Section 3 summarizes the findings of a number of relevant empirical studies. Section 4 presents some concluding remarks and possible topics for further research concerning problem loans.

## 2 Determinants of NPLs: Theoretical Perspectives

Studies aiming to explain bank failures indicate that failing credit institutions usually record high amounts of problem loans and that asset quality constitutes a statistical meaningful predictor of insolvency (Berger and De Young 1997). The literature examining the drivers of credit risk outlines several significant categories of potential determinants, ranging from macroeconomic and institutional factors to bank-specific variables and firm-level information.

Models examining the influence of macroeconomic factors on credit risk focus primarily on the relationship between the business cycle and the capacity of borrowers to service their loans. The central idea underlying these studies is that credit standards undergo a gradual deterioration during economic expansions, when credit institutions apply increasingly liberal lending policies in their quest for market share (see, e.g. Keeton 1999 and Fernandez De Lis et al. 2000). These may take the form of “negative NPV” strategies, involving lower interest charges and/or increased lending to low-credit quality borrowers (Rajan 1994). Such strategies usually backfire during recessionary phases, when credit risks actually materialize. Recent studies examining the role of the business cycle in the evolution of credit risk include, for example, Borio et al. (2001), Quagliariello (2007), Beck et al. (2013a, b) and Climent-Serrano and Pavia (2014).

Studies examining the effect of borrowing strategies use bank-specific information as descriptive variables in models that analyze the progress of bad loans and other measures of ex-post credit risk. Such information

relates to, *inter alia*, quality of loans as well as banks' cost efficiency and capitalization, with a series of relevant hypotheses having been examined in the literature, starting with the influential work of Berger and De Young (1997).

Part of the literature considers firm-specific information for the idiosyncratic component of credit risk. Related studies concentrate on a number of accounting data as likely determinants of bad loans and other proxies for corporate credit risk. These factors consist of, for example, firm sales growth, profitability, funding cost, leverage, asset growth, size and age. See, for example, Bunn and Redwood (2003).

Another stream of studies deals with the possible effect of the business and regulatory environment on the amount of problem loans in banks' balance sheets. Such studies examine the significance of various indicators of the quality and the stability of a country's legal, regulatory, institutional and political environment. Among others, relevant measures may include the degree of information sharing among creditor and borrowers, the legal rights of borrowers and lenders (as reflected in e.g. the presence or not of a sound bankruptcy framework) as well as the degree of corruption control. Studies examining the impact of such regulatory and institutional factors include, for example, La Porta et al. (1998), Jappelli and Pagano (2002), Godlewski (2004) and Djankov et al. (2007).

More recently, an increasing number of studies estimate models that combine the aforementioned categories of variables in explaining the evolution of credit risk. For instance, Quagliariello (2007) combines macroeconomic and bank-specific determinants to investigate the riskiness (as proxied by the evolution of loan loss provisions and the flow of new bad loans ratio) of a large database of Italian intermediaries over the period 1985–2002. In a similar vein, Louzis et al. (2012) use a balanced panel consisting of supervisory data for the nine largest Greek commercial banks to test a number of hypotheses and explain the intertemporal evolution of the non-performing loans in Greece over the period from Q1 2003 to Q3 2009. Separately, Belaid (2014a) combines macroeconomic and bank-specific variables with a data set containing information for more than 9000 domestic firms to explain the loan quality determinants in the Tunisian banking sector over the period 2001–2010.

Finally, Boudriga et al. (2009a) analyze empirically the determinants of non-performing loans and the potential impact of both the business and the institutional environment on credit risk exposure of banks in the MENA region. By looking at a sample of 46 banks in 12 countries over the period 2002–2006, they find that credit quality of banks is positively affected by the relevance and the quality of credit information published by public and private bureaus. Their findings also highlight the importance of a sound institutional environment in enhancing bank credit quality. According to their analysis, a better control of corruption, sound regulatory quality, a better enforcement of the rule of law and free voice and accountability play an important role in reducing NPLs in the MENA countries.

## 2.1 Macroeconomic Determinants

The investigation of the relationship between credit risk and the macroeconomic factors dates back to the studies of King and Plosser (1984), Bernanke and Gertler (1989) and Bernanke, Gertler and Gilchrist (1998). These studies together with recent papers provide evidence of a negative association between macroeconomic conditions and non-performing loans (NPLs). These findings suggest that in periods of positive economic growth, borrowers' income increases and therefore their ability to pay back their loans. On the contrary, when the economy decelerates, NPLs raise as unemployment increases and available income falls, and as a result borrowers experience problems in paying back their debts (Salas and Saurina 2002; Rajan and Dahl 2003; Jimenez and Saurina 2005; Pesaran et al. 2006; Quagliariello 2007; Beck et al. 2013a, b; Klein 2013). Macroeconomic factors that can affect NPLs, other than those mentioned already, may involve inflation, real estate prices, the interest rate of the loan and exchange rate.

The life cycle strand of models provides the theoretical framework for the selection of GDP, unemployment and interest rate as key determinants of NPLs. Lawrence (1995) studies such a model, which explains the probability of default. The model claims that borrowers with a low revenue stream may feature excessive rates of non-payment. This is

explained by the increased risk of them facing unemployment and thus being unable to service their debt obligations. Moreover, credit institutions may charge higher interest rates on such riskier clients.

Lawrence's model was expanded by Rinaldi and Sanchis-Arellano (2006a, b). The latter study allows for the possibility of agents who can borrow money to invest in real or financial assets. Solving the agent optimization problem, they document that the probability of default is conditional on, among others, current income and employment conditions.<sup>1</sup>

Recent studies provide evidence of an inverse relationship between the exchange rate and NPLs, particularly for countries featuring a floating exchange rate. For countries featuring a relatively high portion of private sector borrowing in foreign currency, a significant depreciation of the local currency may lead to a considerable increase in NPLs through the *balance sheet channel* (see, e.g. Espinoza and Prasad 2010). Still, other studies suggest a positive relation between the exchange rate and NPLs, arguably thanks to higher exports as a result of improved export competitiveness. The rationale behind the so-called *competitiveness channel* is that a notable depreciation of the local currency leads to increased export income in the domestic economy, thus raising the ability of the domestic firms and households to service their debts (see, e.g. Klein 2013). In an economy that has a relatively high rate of private sector borrowing in foreign currency, the competitiveness channel may outweigh the balance sheet channel, especially in the presence of a large number of hedged borrowers, for example, enterprises which generate foreign exchange earnings from exports.

Regarding other possible macroeconomic factors, many studies document a positive relationship between interest rates and non-performing loans, particularly in the case of variable rate loans (see Louzis et al. 2012; Beck et al. 2013a, b; Klein 2013). Yet, the impact of inflation on the quality of bank assets is ambiguous. Higher inflation erodes the real value of outstanding debt, thereby making debt servicing easier. On the other hand, inflation can reduce real incomes (when prices are sticky) and/or trigger a tightening of interest rates by the monetary authority (Nkusu 2011).

Finally, several studies find a negative relation between share prices and non-performing loans, as a sharp drop in the stock market may reflect an expected decline in general macroeconomic conditions along with an increased number of corporate defaults and an erosion of collateral values (Beck et al. 2013a, b).

In the aftermath of the 2007–2008 global financial upheaval, links between sovereign debt crises and banking crises have been identified. Reinhart and Rogoff (2010) suggest that there is sufficient empirical evidence that more often than not banking crises forego or occur simultaneously with sovereign debt crises. They note that “A causal chain from the sovereign debt crisis in the banking crisis [...] cannot be dismissed lightly” (Reinhart and Rogoff 2010, p. 26).

Two channels of transmission of sovereign fiscal problems to the banking system have been identified. The first holds that the deterioration of public finances puts a “ceiling” in the assessment of the creditworthiness of national banks and thus banks are facing increased problems in raising market financing (Reinhart and Rogoff 2010). In line with this argument, banks are then forced to reduce lending and borrowers, in turn, are facing increased difficulties in refinancing their debts. Moreover, the increase in public debt may lead to higher taxation and/or reduced public spending on, for example, social transfers and wages (Perotti 1996). This, in turn, can lead to a rise in non-performing loans in banks’ balance sheets as household income declines and the decrease in domestic demand hits the corporate sector. It goes without saying that banks’ lending policies also play a fundamental role in the development of future problem loans. According to the stylized fact of credit procyclicality,<sup>2</sup> the “win market share” campaigns undertaken by credit institutions, together with the income smoothing activities by borrowers in booming periods, can lead to poor credit scoring activities or even worse to “gambling resurrection” practices by bank managers.<sup>3</sup> Such policies usually lead to an acceleration of banks’ lending activities and a progressive relaxation of credit standards, especially in the more mature stages of an economic upturn. The consequences of the deterioration of credit standards for the stability of the macroeconomy and the financial system may not be fully evident before a cyclical downturn materializes. In an economic downturn, rising unemployment and reduced household and business incomes inhibits

the ability of borrowers to service their debts. To further aggravate matters, the ensuing increase of the number of problem loans and the reduction in the value of collateral can lead to a concurrent tightening of credit conditions, as banks become more reluctant to prolong new credit in an environment characterized by acute information asymmetries regarding the actual credit quality of borrowers. This event sequence can then lead to credit boom and bust cycles that move in sync with the economic up and down phases and, at times, to full-blown banking sector crises, as explained in Pesola (2005).

## 2.2 Bank-Specific Factors

In their influential paper, Berger and De Young (1997) investigate the causal link between loan quality, cost efficiency and bank capital, using a sample of US commercial banks for the period 1985–1994, coding and testing four hypotheses concerning the direction of causality between variables. These include bad luck, bad management, skimping and moral hazard.

### **Bad Luck**

This hypothesis postulates that external circumstances (say, a deep economic contraction) accelerate the accumulation of problem loans in banks' balance sheets. As a result, bank cost efficiency decreases as a result of increased operating costs to deal with higher NPLs. The important distinctive effect of the bad luck hypothesis is the negative relation between problem loans and calculated cost efficiency. After such problematic loans go into arrears, banks begin to incur extra operating costs to deal with them. These additional costs may include, *inter alia*: (1) supplementary monitoring of defaulting borrowers and their collateral; (2) cost analysis and negotiation of possible solutions; (3) cost of seizure, maintenance and eventual disposal of collateral in case of default; (4) further costs of defending the bank's credit record during future reviews; and (5) redirection of management attention away from core business.

## Bad Management

The “bad management” hypothesis postulates that low cost efficiency may signify poor management skills in credit scoring as well as in loan underwriting, monitoring and control, which, in turn, can lead to higher NPLs. Thus, the “bad management” hypothesis implies a negative relationship between problem loans and cost efficiency. That is, “bad” managers (1) may exhibit poor capability in credit scoring and thus provide a disproportionately high number of loans with negative NPV, (2) are inadequately qualified to estimate the value of loan collateral guarantees or (3) have difficulties in controlling borrowers after granting the loan.

## Skimming

An alternative hypothesis (dubbed as “skimming”), advanced by Berger and De Young (1997), proposes a positive association between cost efficiency and NPLs. This is on the basis that high cost efficiency may reflect limited resources allocated to monitor credit risk, a situation that could lead to higher problem loans in the future. The skimming hypothesis is derived from an idea initially proposed in Berg et al. (1992) and further developed by Hughes and Mester (1993). Namely, that the amount of funds allocated to loan underwriting and monitoring can have implications for both the quality of the loan portfolio and the estimated cost efficiency.

## Moral Hazard

Berger and De Young (1997) as well as a number of later studies examine the so-called “moral hazard” hypothesis, initially proposed by Keeton and Morris (1987). The latter hypothesis claims that low capitalization of banks leads to higher NPLs as banks’ managers may have an incentive to carry riskier loan portfolios. That is on the basis that they have comparatively less capital to lose in a potential crash and much to gain if increased income is realized.

## Too Big to Fail

Stern and Feldman (2004) in their “too big to fail” (TBTF) report discussed this issue in the context of government policy towards bankruptcy. They analyze the problem of moral hazard plaguing large financial institutions which policymakers consider to be “too big to fail”. In more detail, if a bank has many customers and plays a significant role in the financial system, its collapse can threaten the solvency of other institutions that are financially associated with the collapsed bank, creating a domino effect; the failure of a TBTF bank then may threaten to paralyze the whole economy.

To avoid such a scenario, governments explicitly or implicitly establish what Stern and Feldman (2004) describe as “protection TBTF”. Under this policy, the government supports uninsured creditors in big banks from losses that can be incurred if bankruptcy occurs. A well-known expression of this policy is the governmental deposit insurance, which guarantees deposits of bank creditors up to a specific amount in the event of a bank collapse.

Protection of unsecured creditors is considered to diminish the probability of disastrous consequences stemming from the collapse of a systemically important credit institution by preventing the spread of failure before it begins. A potential by-product of TBTF protection is moral hazard. On the one hand, customers of major banks expect the government to secure their loans and thus, they may have little motivation to change their behavior. On the other hand, banks may be tempted to undertake undue risk as they realize that their borrowers face reduced control and that the government will bail them out if they crash. As a result, resources are misallocated and behavior leading to bank failures in the first place is actually enhanced. The more extensive the protection that the government provides to uninsured creditors, the larger the potential moral hazard problem is.

## Size Effect

Salas and Saurina (2002) introduce the “size effect” hypothesis which implies that bank size (proxied, e.g. by the total value of assets) is negatively related to non-performing loans.



## Bad Management II

The “bad management II” hypothesis supports that inferior performance (e.g. low bank profitability) is positively associated with increases in future non-performing loans. This may be justified in a way similar to the “bad management” hypothesis, by viewing past performance as a reliable proxy for the quality of management.

## Procyclical credit policy

The “procyclical credit policy” hypothesis postulates that during economic expansions, banks are tempted to adopt more liberal lending policies and even extend credit to lower credit quality customers (Rajan (1994) defines this process as “negative expansion FMC credit”), while, on the other hand, in economic downturns banks are forced to tighten credit abruptly.

## 3 A Brief Look at the Empirical Literature on Credit Risk

In general, the empirical evaluation of credit risk is characterized by dynamic relationships (Castro 2013; Louzis et al. 2012), all of which are driven by the existence of a lagged dependent variable as one of the explanatory variables (Baltagi 2001). Due to the nature of these models, ordinary least squares estimation methods (simple OLS models and fixed OLS effects) are in general not applicable, and therefore, more advanced econometric models are required (Baltagi 2001 and Quagliariello 2007). The Generalized Method of Moments (GMM) is a suitable technique to address many methodological problems involved in the estimation of such models (Quagliariello 2007).

### 3.1 Across the World

Keeton and Morris (1987) use NPLs to identify and assess loan losses. They examined a sample of 2470 insured commercial banks in the USA for the period 1978–1985. They find that the interplay of broader mac-

roeconomic conditions and the relative performance of various sectors of the economy are responsible for differences in loan losses recorded by banks.

Analyzing the loan losses in commercial banks in the USA over the period 1984–1987, Sinkey and Greenawalt (1991) conclude that both bank- and non-bank-specific factors play a crucial role in the loan loss rate.

Berger and De Young (1997) find that both “bad management” and “bad luck” may be responsible for the existence of a bi-directional causality between cost efficiency and non-performing loans (negative correlation). They also provided evidence supporting the “moral hazard” hypothesis.

In a separate study, Keeton (1999) analyzes reference bank data for the period 1982–1996 in 50 US states and the District of Columbia, claiming that high rates of loan growth may be linked to low credit standards applied by banks.

Fernandez de Lis et al. (2000) use data on Spanish commercial and savings banks for the period 1985–1997. Their results show that GDP growth has a negative effect on problem loans. They also argue that bank size is negatively correlated with problem loans. On the other hand, they report a positive correlation between NPLs and each of the following determinants: growth of loans, value of collateral, net interest margin and market power.

Cavallo and Majnoni (2001) study the relationship between loan loss provisions (LLPs) and various macroeconomic, banking-specific and institutional factors. Their findings argue, among others, that the loans to total assets ratio and the profitability index interact positively with provisions. Conversely, a negative correlation with loans growth and public debt is reported.

In their empirical study of Spanish commercial and savings banks, Salas and Saurina (2002) document a negative correlation between GDP growth and NPLs. Hasan and Wall (2004) examine bank-specific determinants of banks’ loan loss allowance (LLA) in the USA, Canada and Japan for the period 1993–2000. The LLA index shows a positive correlation with non-performing loans in all of the models estimated in the aforementioned paper.

Bikker and Metzmarkes (2005), which is based primarily on Cavallo and Manjoni (2001), examine the determinants of loan loss provisions (LLPs) and loan loss reserves (LLRs) in 29 OECD countries for the period 1991–2001. Their results point to credit procyclicality and a positive correlation between loan portfolio quality and banks' capital adequacy.

The impact of micro and macro variables on loans provisions and new bad debts was the main subject of Quagliariello (2007) in a study based on data from 207 Italian banks between 1985 and 2002. He finds that LLPs and new bad debts move cyclically. In addition, the study reports a decisive contribution by macroeconomic factors including, *inter alia*, the difference between lending and deposit rates and the interest rate of ten-year Italian government bond. With regard to micro factors, credit expansion, cost to income ratio, interest margin to total assets and equity capital to total assets are found to exert significant influence on credit risk.

In his study of the Polish banking system, Glogowski (2008) investigates the association between macroeconomic factors on the one hand and non-performing loans and loan loss provisions on the other. His results suggest that loan loss provisions exhibit a positive correlation with unemployment and real interest rates and a negative correlation with employment and GDP growth.

Boudriga et al. (2009a) examine the effect of diversified macro- and microeconomic factors on NPLs in a sample of 46 banks from 12 countries ("The Middle East and North Africa—MENA Countries") for the period 2002–2006. They argue that foreign investor participation in the domestic banking sectors of the economies under investigation appears to have an effect on the level of non-performing loans accumulated in banks' balance sheets. In addition, they document the significance of a range of institutional factors. Boudriga et al. (2009b) utilize aggregate data for the banking system as well as the institutional and legal environment of 59 countries for the period 2002–2006 in a study attempting to decipher the determinants of NPLs. Their results show that the evolution of bad loans is primarily determined by bank-specific factors, including, *inter alia*, capital adequacy, provisions and level of foreign investor participation in the domestic banking system. Furthermore, they document a negative association between NPLs and the quality of the domes-

tic legal and institutional environment. Yet, they find no evidence that state-owned banks experience more NPLs than privately owned banks. They also find a negative relationship between the depth of credit information and NPLs. Finally, their findings support the importance of the institutional environment in enhancing banks' credit quality. Specifically, a better control of corruption, a sound regulatory environment, better enforcement of the rule of law and free voice and accountability play an important role in reducing NPLs in the sample of MENA countries under examination.

Angklomkiew et al. (2009) explore the effect of various micro and macro indices on loan loss provisions in the banking systems of eight Asian countries. Their results demonstrate a negative interaction between LLPs and banks' profitability, capital adequacy and the growth of loans to GDP ratio, confirming the existence of procyclicality.

Espinoza and Prasad (2010) study the impact of different macroeconomic and banking-related factors on the NPL ratio in the countries that form the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates). They examine bank-level data from 80 banks for the period 1998–2008, using numerous econometric specifications. They incorporate macroeconomic factors such as non-oil real GDP growth, stock market returns, interest rates, the growth of world trade and the volatility of the stock market. They also calculate a number of bank-specific determinants such as capital adequacy ratio, various measures of effectiveness (e.g. costs to assets ratio), bank size, net interest margin and lagged credit growth. Their analysis finds that both macroeconomic and bank-specific factors affect the level of non-performing loans in the Gulf countries. Furthermore, they provide strong evidence of a negative relationship between real (non-oil) GDP and non-performing loans. Their study also shows that global financial market conditions have an effect on banks' NPLs.

Nkusu (2011) surveys the relationship between non-performing loans and macroeconomic performance in 26 developed economies from 1998 to 2009. He examines GDP growth, unemployment, housing prices, the change in the stock price index, inflation, the nominal effective exchange rate, interest rates and credit to the private sector as potential factors

influencing NPLs. His findings show that weak macroeconomic performance (slower GDP growth, rising unemployment and the decrease in asset prices) is usually associated with increases of non-performing loans in the developed economies.

Macit (2012) examines the determinants of non-performing loans in the 15 largest commercial banks in Turkey using quarterly data for the period 2005–2010. He concludes that both bank-specific and macroeconomic factors affect considerably the level of NPLs.

De Bock and Demyanets (2012) examine the drivers of bank asset quality in 25 emerging countries over the period 1996–2010 taking into account global macroeconomic and credit measures. Their findings suggest that the contraction of real GDP, currency devaluation against the US dollar, deteriorated terms of trade and accelerated capital outflows lead to higher NPLs in the domestic banking system.

Jakubik and Reininger (2013) investigate the factors affecting NPLs in nine Central, Eastern and Southeastern Europe countries (including Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia and Ukraine) using GMM estimates with quarterly data for 2004–2012. They find that higher real GDP growth and stock prices reduce non-performing loans, whereas the country's exchange rate, private credit to GDP ratio and past non-performing loans increase this year's non-performing loans.

Messai and Jouini (2013) examine 85 banks in Italy, Greece and Spain for the period 2004–2008 and find that bank profitability decreases non-performing loans, while the unemployment rates, real interest rates and weak credit quality positively affect the level of NPLs. Using bank-level data, Klein (2013) explores NPLs in 16 countries of Central, Eastern and Southeastern Europe, and his findings suggest that both bank-specific and macroeconomic factors affect NPLs. Skarica (2014) utilized quarterly data from 2007 to 2012 for seven Central and Eastern European countries to investigate the macroeconomic factors of non-performing loans. His findings suggest that both unemployment and inflation rates increase the growth of non-performing loans, while real GDP growth exerts a negative effect.

### 3.2 Euro Area

Rinaldi and Sanchis-Arellano's (2006a, b) study is among the first to analyze the evolution and the determinants of NPLs in the Eurozone. The study examines the influence of various macroeconomic indicators on the evolution of non-performing household loans over the period 1989Q3 to 2004Q2. Their results suggest that disposable income, financial wealth of households and nominal interest rates have statistical power in explaining the evolution of household NPLs. Makri et al. (2014) investigate the role of both macroeconomic and bank-specific determinants on the evolution of non-performing loans in 14 euro area countries and report a statistically significant impact. Their results document a substantial association between non-performing loans and different macroeconomic (public debt, unemployment, the annual growth rate of gross domestic product) and bank-specific (capital adequacy ratio, lagged percentage of non-performing loans and return on equity) factors. Furthermore, they document a negative (and significant) relationship between the NPL ratio and banks' return on equity (ROE). They also find a positive correlation between non-performing loans on the one hand and public debt and unemployment on the other.

## 4 Concluding Remarks

The scope of this chapter is to provide a brief review of the literature on the determinants of NPLs. A vast volume of empirical evidence implies that both macroeconomic and bank-specific factors may influence loan portfolio quality. Additionally, a common finding of related studies is that problem loans evolve countercyclically in relation to the broader macroeconomic environment. The results of these studies should be taken into serious consideration by regulators and policymakers. Bank performance and inefficiency indicators should be thought as crucial determinants of future problem loans. Therefore, regulators trying to determine which banks may face increased problems with future NPLs need to concen-

trate on managerial performance and procedures so as to prevent future financial vulnerability.

## Notes

1. The model also suggests that the probability of default is associated with the quantity of loans, the size of the investment and the time preference rate.
2. Athanasoglou and Daniilidis (2011) indicate that credit procyclicality form an essential component of both the real and the financial sector of an economy.
3. The underlying assumption is that “gambling resurrection” policy can be thought as extremely risky lending strategy undertaken by bank managers to maximize short-term earnings.

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# **Part II**

**International Experience in Dealing  
with Private Sector Insolvency:  
Challenges, Remedial Strategies  
and Lessons Learned**

# 4

## The Spanish Experience

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and José María Álvarez

### 1 Introduction: The Build-Up of Problematic Assets

The Spanish financial system has been completely restructured following the outbreak of the global financial crisis of 2007–2008. During the first phase, in 2008–2011, measures implemented by authorities were intended to address a liquidity crisis, for example, by introducing a public guarantee programme on debt issued by banks in the wholesale markets. It was not until 2012 that the real nature of the problem was identified: a highly indebted private sector and a significant amount of problematic assets, concentrated in certain portfolios (real estate) and entities (savings banks).

At end-2008, bank credit to the private sector amounted to 166% of GDP, way above the levels of the European Monetary Union (101% of

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GDP), only behind Ireland (178% of GDP) and Luxembourg (250% of GDP). Leverage was high in all sectors: in the corporate sector, outstanding credit was 87% of GDP (vs. 50% in the EMU), while credit to households was around 82% of GDP (vs. 51% in the EMU).

Behind these extremely high levels of indebtedness, there are both supply and demand factors. On the demand side, the entry of Spain in the European Monetary Union triggered a structural reduction of interest rates that led *real* interest rates (discounting for inflation) reaching negative territory. This is particularly important for a country where the vast majority of mortgages are on variable rates and linked to the Euribor. Therefore, clients had incentives to borrow money today and repay it in the future at a lower price. Besides, the Spanish economy grew at an average rate of 3.8% during the period 2000–2007 (compared to –0.4% in 2008–2015), with the implied high levels of consumption and investment requiring increased bank financing.

One particular feature of the Spanish demand for credit was its concentration in the real estate sector. In 2008, around 24% of total credit to the private sector had been given to construction and real estate firms, while 37% represented housing credit to households. The boom of the real estate sector was fuelled by several factors. These included, *inter alia*, the need to accommodate a growing population (with a significant inflow of immigrants) as well as a high number of foreign tourists and retirees, the important tax advantages offered for the purchase of primary residence and the benefits stemming from the transformation of rural soils into building land. Regarding the latter, regional politicians were in charge of giving building permits, and in some cases the financial institutions of the region facilitated loans for house purchases and reconstruction purposes (which constituted a significant part of their balance sheets).

From the supply side, one of the factors that contributed to the increase of private sector leverage was the high level of banking competition. After the regulation of savings banks, which allowed them to compete in all sectors and regions, competition increased further. Price wars were relatively frequent in a banking model whose growth was based on volumes, as outstanding credit increased in a sustained way at low prices.

In order to explain the high level of problematic assets that constituted a major burden for the banking system at the beginning of the crisis, two factors have to be taken into account: elevated leverage and a

high proportion of non-performing loans (NPLs). After the outbreak of the global financial crisis, the Spanish NPLs ratio increased considerably, reaching almost 13% by the end of 2013 from levels around 1% of GDP at the beginning of 2008.

It has to be stressed that the Spanish definition of default is stricter than in other EU countries, as all loans over 90 days past due are included in this category by the full amount of outstanding credit, and not just by the defaulted payments. Besides, assets can be considered defaulted due to “subjective” reasons, like knowing that the client has lost his job. On top of that, if a significant proportion of the exposure of a client is defaulted, then all his loans are considered defaulted. In the Spanish legal system, there is another category, called “substandard” loans, for those that have not fallen into default but are close to that, which is not included in the NPL rate. As a result of these criteria, Spanish banks experienced the smallest revisions in their NPLs figures compared to their EU peers in the Asset Quality Review that was part of European authorities’ comprehensive assessment in 2014.

Across sectors, differences have been remarkable. Credit to construction and real estate firms reached a 37% NPL rate by end-2013, compared to just 12% for the rest of the Spanish corporate sector. Regarding households, the NPLs rate of housing loans reached a maximum of just 6%, while that of consumption loans recorded a rate of 12%. In particular, credit to construction and real estate firms accounted for 60% of all defaulted exposures by mid-2012, a figure that has been reduced to 39% nowadays (while the weight of this credit on outstanding stock is just 13%).

The evolution of the NPL rate has improved lately. NPLs started to fall in 2014 for the first time since 2006 (excluding the transfer of assets to the bad bank Sareb in 2012–2013), despite the concurrent reduction of the denominator. The economic recovery and the active management of non-performing loans are supporting this trend.

In conclusion, Spain experienced an asset boom concentrated in the real estate sector, where several factors contributed to increased private sector leverage and a high NPL rate. By the end of 2008, Spanish banks had around €63 billion of NPLs (a 3.4% rate). This increased sharply in the following years, reaching €197 billion on 14 January (a rate of 13.5%). Of the total NPLs in December 2008, 44% were concentrated in real estate and construction firms, but this proportion increased to 60% in 2012 (Fig. 4.1).



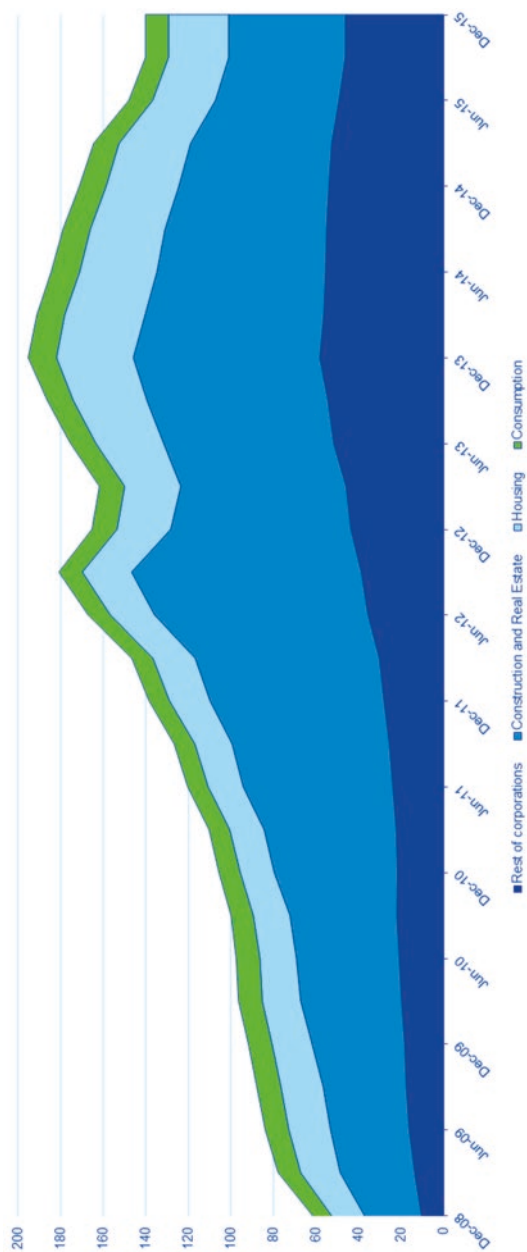


Fig. 4.1 Non-performing loans stock (€ billion). Source: BBVA research based on Bank of Spain

## 2 Strategy to Deal with Debt Insolvency and NPLs

### 2.1 Restructured/Refinanced Loans and Foreclosed Assets

Since the beginning of the crisis, Spanish financial institutions were very active in the refinancing and restructuring of problematic exposures in order to find a solution for highly indebted borrowers, arrest the rising trend in the NPL ratio and ensure some potential income from those loans and delay foreclosure (in the case of collateralized loans). The difference between refinancing and restructuring is that, under Spain's loan classification rules, a restructuring implies a situation of financial difficulty of the debtor, a case which is not applicable to refinancing. Related schemes offered to debtors include, inter alia, a moratorium on payments, a reduced interest rate or a cancellation of pending amounts.

To ensure consistent classification of forborne loans (refinanced or restructured) across institutions, the Bank of Spain issued the Circular 6/2012 (which came into force in September 2012) and a letter on 1 May 2013, to further clarify the criteria for determining whether refinanced loans should be classified as performing, substandard or non-performing. The importance of this regulation is that performing loans require no specific provisions. However, banks are required to maintain generic provisions equal to 30% of their loans to real estate developers (due to two Royal Decree-Laws from 2012), in addition to a limited amount of generic provisions under Spain's dynamic provisioning framework.

As part of the financial sector reform agreement of 2012 (the Memorandum of Understanding), Spanish entities started the publication of detailed data on refinanced loans. The IMF described this as "a level of transparency on this issue that is higher than almost anywhere else in Europe".

At the beginning of 2013, the amount of forborne exposures was around €183 billion, equivalent to 12% of total credit. What changed after the Bank of Spain letter of May 2013 was the split of this portfolio by credit risk category, but not the total amount. As of September 2013, the

respective amount was still €181 billion or 13% of total credit, but forborne loans classified as normal had gone down from 40% to 27%, substandard loans increased modestly from 20% to 23% and NPLs went up from 39% to 51%.

Similarly to the stock of NPLs, refinanced or restructured credit to the domestic private sector has also been on a declining trend since early 2014. By mid-2015, resident private sector refinanced exposures have fallen by 4.5%, reaching €163.8 billion or 13% of total credit (slightly down from 14.2% a year earlier), a proportion still highly influenced by forborne exposures to real estate development and construction companies (with almost a 30% forborne rate). Just 15% of credit to other firms has been forborne, while the proportion of mortgages forborne is around 7% and the rest of households' credit has a 20% forbearance ratio.

Regarding credit risk categories, substandard loans whose payments are attended become normal over time. The performing category has increased to 33% of total refinanced loans, the substandard one has fallen to 18% of the total, while the non-performing one remains broadly constant at 49%.

In summary, Spanish financial institutions have been very active regarding the forbearance of their loans, and the proportion of refinanced or restructured loans decreases gradually since 2013 (from €180 billion to around €160 billion nowadays). Of those loans, the more significant portfolio is that of construction and real estate firms (32% of forborne exposures and almost 30% of credit to the sector) and loans are gradually progressing towards performing from the substandard exposures.

In the case of foreclosed assets, even after the transfer of part of them to the bad bank (see next section for further details), these exposures amounted to €81 billion as of June 2015, having fallen by a modest 0.9% in the previous year. The decreasing pattern is accelerating, as during the last six months these assets have been reduced by 2%. Repossessed assets have not fallen at a more significant rate as new assets are coming from court proceedings that started 2–3 years ago, so the inflow will continue in the near future.

By type of asset, around 35% of the total is land and the 25% is completed buildings. These two portfolios are gradually losing importance. However, other types of assets are gaining weight: assets from house

purchases (22% of the total, 0.5% higher than a year earlier) and buildings under construction (7% of the total, with a 1.6% y-o-y growth rate). The foreclosure of assets from house purchases by individuals has damaged the reputation of financial institutions during the crisis, although most of these cases were the result of voluntary foreclosure agreements. In Spain, a typical judicial foreclosure lasts for 2–3 years, although several regulatory initiatives were taken to accelerate the process.

## 2.2 Sales of NPLs/Problematic Assets

Another alternative to deal with debt overhang and to reduce the level of problematic assets in banks' balance sheets is the sale of loan portfolios or real estate assets. According to several consultancy firms (KPMG, EY and Deloitte<sup>1</sup>), Spain is one of the most active markets in Europe (behind UK and Ireland) for loan sale activity with around €20 billion in closed transactions in 2014. In 2015, the volume of transactions was lower, totalling around €14 billion according to KPMG. The fact that Spain is a buoyant market is not surprising given that banks have been active in cleaning their balance sheets, while continuing with their deleveraging process. The most active sellers are major banks (that could not transfer assets to Sareb) and the asset management company Sareb, although the contribution of the latter is less significant than in prior years.

In 2015, there was an increase in the sale of real estate-backed portfolios, particularly in the residential mortgage and commercial real estate sectors, which together accounted for approximately 65% of the total market by volume. Many of the largest portfolios that successfully closed were residential mortgage portfolios, which made up approximately 21% of the portfolios transacted by number and 43% by face value. Nevertheless, in 2015 there was an increase in the number of portfolios where sales were delayed or withdrawn from the market due to high bid-ask spreads. However, given the gradual improvement in the macroeconomic environment and the increase in real estate prices, it is likely that investors will remain interested in purchasing loan portfolios and real estate assets in the Spanish market. According to KPMG, there has recently been a narrowing of the bid-ask spread, notably for real estate-backed loans.

Up to date, the largest transactions materialized in 2014 with deal values of €6.4 billion (Project Hércules) and €4.5 billion (Project Octopus). The former was done by Catalunya Banc (at the time controlled by FROB) just prior to its privatization and involved the sale of a portfolio of loans and real estate assets to Blackstone in July 2014. The latter was performed by Eurohypo (Commerzbank), which sold real estate assets and loans to Lone Star and JPMorgan in June 2014. In mid-2015, Bankia put for sale a portfolio of €4.8 billion (Big Bang Project) but the transaction was postponed for 2016. Overall, these were rather extraordinary transactions as usual deal sizes are lower than €1 billion. Despite the past clean-up of banks' balance sheets, the level of NPLs and real estate assets remains elevated and therefore it is likely that loan portfolio sales will remain buoyant in the coming years.

### 2.3 Asset Management Companies: Sareb

The Memorandum of Understanding (MoU) signed in July 2012 envisaged the creation of a Management Company for Assets Arising from the Banking Sector Reorganisation (Sareb, in Spanish). Banks that were in financial difficulty had to transfer their real estate assets to Sareb in order to mitigate the associated risks via an orderly divestment of those distressed assets.

Sareb is a private company (55% of its equity is owned by private institutions) and thus it does not have to consolidate in the public accounts. The remaining 45% of equity is owned by the Fund for Orderly Bank Restructuring (FROB), the public entity created to manage the restructuring process. Sareb private shareholders include 14 national banks, 2 foreign banks, a utility company and 10 insurance companies. Its capital represents 8% of its assets, and is composed of 25% equity and 75% subordinated debt.

Sareb received assets worth €50.8 billion, of which 80% loans and 20% property. There were two transfers: one in December 2012 by the four nationalized banks (Bankia, Catalunya Banc, Banco de Valencia and NCG-Banco Gallego) worth €36.6 billion and another one in February 2013 by the other four banks that received State capital injection (Liberbank,

BMN, Caja3 and Banco CEISS) worth €14.1 billion. Assets eligible for transfer included: foreclosed real estate assets (> €100,000 in value), loans to real estate businesses (> €250,000) as well as other impaired assets.

According to Sareb's business plan, the entity has up to 15 years to sell these assets to both retail investors (mainly via the branches of the contributing banks) and institutional investors. A positive aspect of the transfer scheme was the low value of the transfer price, which infringed losses on transferring entities but improved Sareb's prospects and the probability of finding investors and buyers: the original haircut was 63% for foreclosed assets and 45.6% for loans. These low prices allowed the company to announce high expected profitability (ROE of 14–15%).

During its three years in operation, Sareb reduced its overall portfolio by approximately 15% (implying that, at the current pace, it would need 20 years to dispose all of its assets). Furthermore, it has generated total revenue of €12.1 billion and has repaid €7.3 billion of the issued debt (€2.1 billion in 2015).

The new assets valuation accounting standards approved by the Bank of Spain in October 2015 triggered a re-valuation of all acquired assets that revealed capital losses of €3.0 billion. Once provisions were discounted, €2.0 billion had to be written down so a conversion of €2.2 billion of subordinated debt into equity had to be approved. After retroactively applying the provisions, the company ended 2015 with gross losses of €472.3 million, 53% less than in 2014. Therefore, the target of reaching a 14% ROE remains a distant prospect.

It is important to emphasize that this scheme focused on the most damaged entities and portfolios (i.e., in the real estate sector). That means that transfer prices were pretty low and transfers were concentrated in time, without an overly severe impact on public finances. Yet, as already explained, the profitability target seems hard to reach. Furthermore, Sareb has been criticized by its long answer times to buying offers. In retrospect, it appears that a bad bank should have been created in the initial stages of the crisis. In any case, it is a long-term project that helped to regain market confidence on the prospects of the Spanish banking system post restructuring. This experience reinforces the importance of facing the banking problems as soon as possible and in the most comprehensive way, absorbing all the losses in an initial phase so as for them not

to continue growing. Partial solutions may end up being more costly and market confidence may be more difficult to regain.

## 2.4 Code of Good Practice

A significant part of Spanish households have faced severe economic difficulties during the global financial crisis. Similarly to other recessions, evictions and inequalities have intensified. One of the measures implemented in 2012 by the Spanish government is the Code of Good Practice for mortgage debtors. At present, 95 Spanish financial institutions (the majority of them) have voluntarily joined the initiative.

The Code only applies to mortgages granted to acquire a primary residence and contains three stages:

1. A viable mortgage restructuring plan, with an outstanding five-year period of grace, lower interest rates—paying EURIBOR + 0.25%—elimination of minimum instalment clauses if appropriate, and extension of the repayment period for up to 40 years since the signing of the contract;
2. A voluntary write-off of outstanding debts by the financial entity can be solicited by the debtor if viability—or a mortgage payment below 50% of the monthly household income—is not reached. Nevertheless, in practice this option is rarely used; and
3. If the above schemes do not apply, the debtor can ask for the surrender of the residential property in lieu of payment within 12 months after having requested the restructuring plan. The financial institution must accept it compulsorily and the mortgage must be extinguished. Optionally, the debtor can remain as a tenant with favourable rental terms for two years.

At present, the Code can be applied to debtors (or their guarantors if it is the case) whose annual family income is lower than €22,365.42, and are included in one of the following two categories: (i) debtors whose family suffered a severe worsening of its financial situation in the previous four years and (ii) those considered to be in vulnerable circumstances.

The latter class comprises large families, single-parent families with two dependent children, households with a disabled member and debtors over 60 years old. According to BBVA Research calculations based on the 2011 Survey of Households finances, around 975,000 Spanish households fulfil the aforementioned requirements.

Moreover, the Code is only applicable to mortgages granted to houses with a maximum purchase price which is 20% above the index reported by the Spanish Ministry of Public Works and Transport. That is up to a ceiling of €300,000 (€250,000 for the surrender of the property in lieu of payment). In case of write-offs and lieu of payment, more restrictive conditions must be fulfilled. For instance, households must not own other assets with which to cancel the debt.

Until the end of 2015, more than 60,000 applications have been submitted, of which only 25% were up to date with mortgage payments. About 30,000 proceedings have already been authorized, resulting in a viable restructuring plan in the majority of cases ( $\approx 80\%$  of the approved cases) versus other options such as the lieu of payment ( $\approx 20\%$ ). These constitute a very limited proportion of outstanding mortgages. Although there are no official statistics on the number of existing mortgages, only in February 2016, 24,887 new housing mortgages were granted. Dividing the outstanding stock of housing credit in Spain (€560 billion) by the average amount of new mortgages granted in February 2016 (€108,466) yields an estimated number of 5 million outstanding mortgages in Spain. The authorized proceedings of the Code of Good Practice represent just 0.6% of the above figure. The requirements that have to be fulfilled to apply to the Code are so strict that debtors tend to negotiate directly with the bank. In fact, the proportion of outstanding forborne mortgages is around 7%.

## 2.5 Personal and Corporate Insolvency Law

Well-designed insolvency frameworks are key to promote efficient debt restructuring and deleveraging, both by providing out-of-court mechanisms in which debtors and creditors mutually benefit (internalizing externalities such as the costs of foreclosure and insolvency procedures)



and by providing efficient last-resort solutions (fresh start or discharge). As already explained, facilitating private sector debt restructuring has been very important for Spain given (i) the high levels of indebtedness when compared with the European average and (ii) the fragile situation particularly of the corporate real estate sector, with high levels of non-performing loans.

## Personal Insolvency Law

### Overview of law prior to reform

In 2015, the Spanish government passed legislative changes to the legal regulation of personal insolvency. Prior to the introduction of the Royal Decree-Law 1/2015 of 27 February 2015, the general rule laid down that individuals in debt were liable for their entire assets and earnings, both present and future (unlimited liability principle), which impeded Spanish obligors—both consumers and entrepreneurs—to invoke a second chance. After bankruptcy, the debtor remained liable for debts which had not been satisfied in the procedure and therefore the use of personal insolvency procedures was very limited. There were four exceptions to this general rule:

1. In the case of mortgage foreclosures of first residence, certain protection was offered to debtor's income after five or ten years of the foreclosure date. The debtor would see a full discharge of its debt if after five years (ten years) it had paid 65% (80%) of its outstanding debt at the time of foreclosure. This exception was implemented in 2013 but still seemed quite demanding for debtors.
2. The possibility of being fully discharged of debts (excluding those owed to the fiscal authority and the social security system) after the liquidation of all of the debtor's assets, provided that: (i) all credits against the estate and privileged creditors had been paid in full and (ii) at least 25% of ordinary claims had been paid. For very indebted borrowers, these conditions would still be very difficult to achieve.
3. Limitations on protected income/assets (*ingresos y bienes inembargables*) such as furniture and house utensils, clothing, books and tools necessary to the profession, sacred goods as well as amounts explicitly

declared by law, such as non-seizable and wages, salaries or pensions up to the amount of the minimum wage.

4. Within the Code of Good Practices, which applies to debtors close to social exclusion, a moratorium was introduced for foreclosures and in the case of *datio in solutum* (transfer in lieu of payment) the debtor could stay in the house paying rent for a period of two years, without being discharged from his unpaid debt.

Given the very exceptional cases in which debtors could get full discharge of their debts, it was not surprising that the number of personal bankruptcies has been very limited in Spain (around 1000 per year) which compares with more than 100,000 in Germany or England and more than 200,000 in France.

In this context, international organizations such as the IMF and the European Commission advised the Spanish authorities to reform the personal insolvency framework with a view to make it more debtor-friendly and allow for the possibility of a fresh start. Initially, there had been concerns that such reform might undermine the strong payment culture that existed in Spain, particularly considering the high ratio of non-performing loans and its impact on the cost of credit. On the other hand, it was understood that allowing a fresh start to indebted (yet viable) borrowers could increase entrepreneurship, allow a gradual reduction of the non-official economy and contribute to a mitigation of unforeseen shocks affecting families' income such as unemployment, diseases and death.

### **Reform of the Personal Insolvency Law—main changes**

The changes introduced by the Spanish government intended to facilitate families' deleverage, improve resource allocation and boost entrepreneurial activity, while making the legal framework more akin to that of other European countries. The introduction of Royal Decree-Law 1/2015, of 27 February 2015 established a second chance mechanism in bankruptcy procedure for individuals; widened the scope defining the collective that was protected under the Code of Good Practice, and extended the moratorium on evictions, which was due to expire in May 2015, for a further two years until 2017. Later in July, Law 25/2015, of 28 July 2015 made some changes to the Royal Decree-Law (RDL).

As regards the second chance mechanism, a framework has been developed for personal bankruptcy, modelled on the experience in other EU countries (it was essentially an adaptation of the German and Italian regulations). Specifically, the system of personal bankruptcy proceedings developed in the law comprises two phases.

The first is an extra-judicial payments settlement, and applies when obligors try to reach a settlement with their creditors before the case is brought to Court. The concept of the extra-judicial payment settlement had earlier been brought in under Law 14/2013, of 27 September 2013, but this had solely been reserved for entrepreneurs and self-employed workers. The most notable changes introduced were the following:

1. Broader and more flexible extra-judicial payment settlements, which can affect debtors ranging from those in business, the self-employed and the non-business-owning individuals. The legal effects of such a settlement can extend to dissenting creditors (i.e., those who are not in agreement with the majority, whenever pre-defined majorities are satisfied).
2. Enhancement of the legal concept of the mediator, who is to be appointed by a Notary or Registrar. For non-business-owning individuals the mediator can be a Notary, while for legal entities this can be the Official Chamber of Commerce.
3. The establishment of simplified procedural rules for individuals (shorter time frames for appointing persons, creditors' meetings and rulings—if there is no settlement within two months, bankruptcy proceedings must be instigated within ten days) and a substantial lowering of notarial and registry fees.
4. The time during which an extra-judicial settlement cannot be requested in the future is extended from three to five years.

The second phase, which involves the actual bankruptcy proceedings, makes it possible to reach a situation of full debt discharge if two conditions are satisfied: (i) the obligor acts in good faith and (ii) his assets have previously been liquidated. Specifically, a new system of discharge from debts is provided for (provisional for a five-year period), which applies

after the conclusion of bankruptcy proceedings and is subject to the following conditions:

1. Submitting and committing to a payment plan for non-exempt debt for privileged creditors (i.e., debts to the public sector, wages or court costs), which the judge shall approve and may amend if he deems appropriate.
2. Not having benefited from a debt relief in the previous ten years.
3. Not having turned down a suitable job offer in the previous four years (prior to the declaration of provisional exoneration and only enters into effect one after the law is approved) accepting that the exoneration of the debt be available for inspection in the Public Bankruptcy Records for a period of five years.

### **Assessment of current framework**

The introduction of a personal insolvency framework was a very positive move, in particular extending the extra-judicial payment settlement to individuals and giving a second chance to those over-indebted who have acted in good faith. Suitable regulation should encourage entrepreneurial initiative, soften the negative impact of a fall in income for ordinary individuals and facilitate private sector deleveraging.

Further improvements could be the introduction of a screening filter by income or wealth level (only the €5 million threshold in liabilities applies for access to individual bankruptcy proceedings, which already existed), to weed out opportunistic behaviour patterns or bad faith acts.

In our view, it would be preferable to include public creditors in the restructuring process and making at least those public claims considered ordinary (i.e., 50 % of tax and social security claims) subject to discharge after liquidation. This would likely increase the effectiveness of the system and avoid creating incentives for debtors to strategically prioritize payments to public creditors at the expense of private ones, with a negative effect on the payment culture.

It would also be desirable to include mechanisms to discourage the informal economy. If the payment plan is dependent on a percentage of the debtor's income (and not a lump sum), it encourages people to work unofficially to minimize their payments.

Although straightforward cases involving individuals will go through Civil Courts of First Instance, and those of corporates will be left to Commercial Courts, it would be important to set aside funds in case the number of bankruptcy proceedings rises. Setting up a mechanism to monitor and evaluate second chance legislation would be advisable to correct inefficiencies and make further improvements.

The number of bankruptcy proceedings has not increased (in fact the number was slightly lower in the second half of 2015) although it might be too early to assess this legislation's effectiveness. The number of personal insolvency procedures in 2015 was negligible: 594 individuals without business activity and 175 with it.

## Corporate Insolvency

The Spanish insolvency framework is primarily regulated by the Law 22/2003, of 9 July 2003, of Insolvency (*Ley Concursal*). There are two kinds of insolvency proceedings depending on its initiative. First, the voluntary insolvency proceeding, which is requested by the debtor when it is (or foresees it will be) unable to meet its debt payments as they fall due. And, the necessary one, applied by one creditor, as long as certain requirements are fulfilled. Prior to the reforms introduced in 2013, 2014 and 2015, the framework comprised the following phases:

1. *Pre-insolvency* (Pre-concurso), in which a debtor seeks protection for a maximum period of three months while negotiating a refinancing agreement. During this period, it is protected from compulsory bankruptcy demands.
2. *Common phase*, in which the debtor files a request for bankruptcy and the Court appoints an insolvency manager.
3. *Creditor's agreement plan*, which must include a detailed payment plan, haircuts and stays, asset sales and a viability plan.
4. *Liquidation*, which can start automatically if no agreement is reached or if the debtor files for liquidation or the insolvency manager deems so appropriate.

One of the most important objectives of the recent Corporate Insolvency Reform was to avoid firms' liquidation. In fact, in Spain around 90% of the companies which file for insolvency proceedings end up in liquidation. Therefore it was important to amplify the range of mechanisms available for debtors and creditors before reaching the point of non-viability and consequently the first efforts in the legislative reforms focused on pre-insolvency and out-of-court procedures.

In 2013 and 2014, the government introduced changes with the goal of driving solutions that would help companies avoid formal insolvency proceedings and have well-functioning out-of-court debt restructurings or refinancing with less court involvement. In a second phase, the focus extended to in-court procedures to address inefficiencies in the whole process and to facilitate the sale of assets or viable portions of the business of companies under bankruptcy proceedings.

One of the instruments of these amendments was Law 14/2013, of 27 September 2013. It introduced a special bankruptcy regime for self-employed individuals and entrepreneurs and contemplated the possibility of a full debt discharge, although excluding privileged creditors. It created an out-of-court restructuring procedure to reach an agreement on a new payment schedule facilitated by a professional mediator. The debtor could continue developing its normal activity during the process and enforcement actions conducted by creditors were suspended for a period of up to three months. The payment plan, which cannot include privileged creditors (secured and public ones), must be approved by creditors representing at least 60% of all liabilities. Any haircuts in the plan cannot exceed 25% and there is the option of a full debt discharge if (i) all claims against the estate (*créditos contra la masa*) and all privileged claims are fully paid and (ii) 25% of all ordinary claims are paid.

A second key instrument was Royal Decree-Law 4/2014, of 7 March 2014, then passed as Law 17/2014, of 30 September 2014, *which included urgent measures on corporate debt refinancing and restructuring*. This legislation modified the regime governing refinancing agreements with the ultimate aim of avoiding insolvency proceedings. The changes were in line with the requests made by the Troika and the banking sector, which demanded a more flexible approach to unlock negotiation processes. Briefly, the new legislation:

1. simplified the procedures eliminating formalities that made refinancing agreements costlier;
2. allowed companies to reach pre-insolvency agreements with only one or more creditors without the consent of the rest as long as the financial position of the debtor was not weakened;
3. strengthened collective refinancing agreements against avoidance actions. The Spanish Scheme of Arrangement for financial claims (“Homologación judicial de créditos”) is the figure by which the competent Court can extend certain effects of a refinancing agreement to those financial creditors that have not joined the proposition or have been against it, as long as there is approval from a minimum 51% of the financial liabilities considered;
4. broadened the range of commitments (haircuts, conversion of debt into equity, among others) that may be laid down in refinancing agreements and their effects may extend to dissident creditors. Cram-down terms for secured and unsecured creditors differ depending on the majorities required to validate the refinancing agreement (for which the level of required majorities was reduced). There are two regimes: 1) a majority of at least 60% of financial claims allows deferrals up to five years and/or debt-for-equity swaps within the same period and 2) a majority of at least 75% which enables write-offs, deferrals between five and ten years and/or debt-for-equity swaps within the same period. In case of secured creditors, the Spanish Scheme of Arrangement for financial claims effects applies when a 65% or 80% majority is reached for the cases 1) and 2) above mentioned;
5. established preferential treatment for fresh money and non-subordination of loans extended by financial creditors who become shareholders. This is a very important measure because very frequently to restructure a company, it is necessary to inject fresh money and there was a clear disincentive for creditors to do so if they had not a preferential treatment if, ultimately, the restructuring plan failed. The same applied to the subordination of creditors who had just become shareholders because of the restructuring process;
6. changed the public tender offers regime, relaxed provisions for the viable part of the debt and introduced tax incentives in the case of debt

write-offs/stays and in debt-to-equity swaps, as well as in public deeds documentation;

With this reform, creditors had more incentives to find solutions (or at least were not precluded from reaching them) in case of debtors with a very weak credit profile and to negotiate and make viable restructurings. After these changes, it was easier to eliminate debt overhang in viable companies and to provide funding to viable business plans.

Finally, the Royal Decree-Law 11/2014, of 5 September 2014, and Law 9/2015, of 25 May 2015 culminated the reform in the Corporate Insolvency framework. Some of the reforms included for out-of-court procedures in 2014, like the possibility of cramming down dissented creditors, were extended to the in-court phase.

Changes affected, among others, the classification of claims in three groups (secured, ordinary and subordinated), the terms of Creditors Agreements, the majorities needed for approval and the transfer of production units in an insolvency proceeding. More specifically, there are different regimes depending on the majorities achieved by the Creditors Agreement: 1) a majority of at least 50% of the ordinary claims enables write-offs until 50% of the liability amount, deferrals up to five years and/or debt-for-equity swaps within the same period and 2) a majority of at least 65% of the ordinary claims allows write-offs above 50%, deferrals between five and ten years and/or debt-for-equity swaps within the same period.

The Creditors' Agreement approval implies the automatic extension of the effects to those subordinated creditors and the ordinary ones that have shown their disagreement. Effects apply to secured claims if certain majorities are reached: a 60% and a 75%, respectively, for the first and second group previously shown. If majorities are not obtained, the Creditors' Agreement is rejected and liquidation is initiated. Additionally, some creditors that had acquired their claims after the start of the insolvency procedure were given voting rights and the majorities to vote for capital increases were also changed.

Although it is too early to make a thorough assessment of the Reforms, different objectives have been achieved. First, there has been an improve-



ment in pre-insolvency restructuring mechanisms that could explain the decline in in-court proceedings in 2014 and 2015 (−28% and −26%, respectively). And second, and probably more important, the pick-up in sales of operating business units of firms under insolvency proceedings to industrial investors and foreign private equity firms. In addition, several companies have successfully refinanced their debts.

### **3 Conclusion: Assessment and Lessons Learned**

The Spanish experience can constitute a good example of a complete restructuring of a financial system comprising both private and public initiatives to deal with a significant private sector insolvency problem.

1. Spain experienced an asset boom concentrated in the real estate sector, where several factors pushed towards a high leverage of the private sector and a high NPL rate. Problems were concentrated in real estate credit and construction firms, with around 60% of NPLs in 2012.
2. Since the start of the crisis, banks were very active in managing problematic exposures. The proportion of refinanced or restructured loans is around 13% of the total and is gradually decreasing.
3. The sale of NPLs or problematic assets is another way to facilitate deleveraging. Spain is one of the most active markets in Europe.
4. Public initiatives, such as the creation of the bad bank Sareb, were successful. The scheme focused on the weakest entities and portfolios (the real estate), it did not entail a severe impact on public finances, transfer prices were relatively low (as it is important to be as close as possible to market prices) and transfers were concentrated in time. This experience reinforces the importance of facing the banking problems as soon as possible and in the most comprehensive way.
5. Another public initiative that was not so successful was the Code of Good Practice for housing debtors. The idea is to offer special financial conditions to distressed households, but prerequisites are so strict that the number of accepted applications has been very low.

6. Regulation on insolvency procedures was also addressed. The personal insolvency framework was adapted to make it more debtor-friendly and include the possibility of a fresh start. However, it is still too early to assess the consequences of this reform. In the case of corporate insolvency, the law was adapted to facilitate the process and to lower the proportion of cases that ended up in liquidation. This reform can be considered effective as (1) the improvement in pre-insolvency restructuring mechanisms resulted in a decline in in-court proceedings and (2) the pick-up in sales of operating business units of firms under insolvency proceedings could be signalling a lower proportion of liquidations.
7. The Spanish case can be considered a success. However, there are still pending issues (such as reducing the time needed for foreclosure) and it is too soon to analyse the full effects of some of the amendments.
8. In summary, the Spanish experience reveals that it is of utmost importance to acknowledge the asset quality problems and to understand their origin in an initial phase of the process. Both private and public initiatives should be coordinated and ambitious, such as to face the problems in a comprehensive way.

## Note

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# 5

## Non-performing Loans in Ireland: Property Development Versus Mortgage Lending

Seamus Coffey

### 1 Introduction

The case of Ireland is one of a pretty standard banking bust: Irish banks lent out more money than their borrowers could repay. When the economy turned and new lending did not enter the system to sustain repayments on previous lending, there was a huge increase in non-performing loans. For business lending, around one-half of loans became non-performing with lending for land and real estate development dominating this. On the household side, nearly one-fifth of mortgage borrowers were exhibiting some form of repayment distress at one stage.

This chapter briefly sets out the context of the lending bubble in Ireland that accelerated in 2003 and lasted until 2008. It then contrasts the response to how non-performing loans to businesses and households

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were dealt with. The response to the massive lending for land and property was relatively rapid with the establishment of a government agency to which the delinquent development loans were quickly transferred. This removed these non-performing loans from the balance sheet of the banks.

The response for non-performing mortgages has been very slow by comparison. The approach has been one of “extend and pretend” with very low levels of legal enforcement. Although around 20 per cent of mortgage borrowers fell into mortgage arrears, it is possible that when the non-performing loans are eventually worked through less than one per cent of borrowers will have suffered a court-ordered repossession of the property. The remaining borrowers will either get back on track as a result of the improved economy or will have been helped by the dominant response of lenders to the non-performing mortgage problem which has been to restructure the loans rather than seek enforcement.

Even though it is almost a decade since the bursting of the lending bubble, Ireland still has one-eighth of mortgage borrowers showing some form of repayment distress. This represents 75,000 borrowers and of these around 12,000 are before the courts facing enforcement and repossessions actions from their lenders.

## 2 Size of the Irish Banking System

At the end of 2014, the Irish banking system was roughly the same size as it was in 2003. The entire Irish banking system had assets equivalent to nearly 400 per cent of GDP at both points in time. However, such an end-point comparison ignores the massive growth and contraction occurred in the interim.

The assets of the entire banking system in Ireland were below 400 per cent of GDP in 2003 but rose rapidly to reach almost 800 per cent of GDP in 2008. There was little change for a few years, but there was a rapid decline from the middle of 2010, and by 2014 the assets of the banking sector were once again below 400 per cent of GDP.

This level somewhat overstates the relative size of the Irish banking sector as it is in part related to the activities of banks in the designated Irish Financial Services Centre (IFSC) sector which have little links to

the Irish economy. If we just look at domestic banks, that is, institutions which have a retail presence in Ireland and the banks which lent to the Irish private sector, we see that these had assets equivalent to around 200 per cent of GDP in 2003 and 2014, which would be in line with international norms. The trouble for Ireland though was that by the end of 2008, domestic banks had assets equivalent to nearly 500 per cent of GDP, which is far in excess of international norms.

Of the domestic banks with retail operations in Ireland, around 80 per cent of the assets originated from Irish-headquartered banks,<sup>1</sup> while 20 per cent were from non-Irish-headquartered banks (Irish subsidiaries of foreign-headquartered banks). The most rapid growth was within the Irish-headquartered group of domestic banks with many of the policy initiatives for tackling non-performing loans focussed solely on this group.

Before considering the loan assets of the Irish banks, it is worth briefly considering the sources of funding used to finance those assets. The largest source of funding for the Irish banking system has always been domestic deposits but what was noticeable during the massive increase in lending up to 2008 was how much of this came from Irish banks themselves. In 2003 around 14 per cent of the deposits of the Irish-headquartered domestic banks came from other Irish-resident banks. By 2008 this had risen to over 40 per cent.

Thus, much of the credit issued by the Irish banking system was created by the Irish banking system itself. At the start of 2003, the Irish-headquartered banks have €10 billion of deposits from other Irish-resident banks. By the end of 2008, this source of financing was contributing almost €100 billion to the funding of the Irish-headquartered banks. Essentially the banks were getting deposits from themselves via their lending to customers that was deposited across the banking system.

The foreign funding of the Irish-headquartered banks was also important but was not a significant driver of the expansion on credit. The net foreign asset position of the Irish-headquartered banks deteriorated from -17 per cent of GDP in 2003 to -52 per cent of GDP in 2008, but this inflow of funding was largely in line with the increase in funding from domestic sources. In fact the net foreign asset position of the Irish-headquartered banks relative to total assets of the banks only moved from -11 per cent in early 2003 to -15 per cent in mid-2008.

The net foreign liabilities of the Irish-headquartered banks increased from €20 billion in 2003 to €90 billion in mid-2008. However, given that the balance sheets of these banks increased from €175 billion to €575 billion, it can be seen that the increase in net foreign liabilities accounted for less than 20 per cent of the increase. The €70 billion increase in total net foreign liabilities is around two-thirds of the increase in deposits that the banks took from Irish-resident monetary financial institutions, that is, credit created within the domestic financial sector. From 2003 to 2008, deposits from Irish-resident banks in the Irish-headquartered banks increased from €10 billion to almost €100 billion. Over the same period, deposits from the private sector increased from €70 billion to €130 billion. This €150 billion increase in domestic deposits is nearly twice as large as the increase in the net foreign liability position of the banks.

The Irish banks did access foreign deposits and of these around 75 per cent were from other banks. Up to 2006, around 40 per cent of these foreign inter-bank deposits were what could be classed “inter-office lending”, one part of a bank lending to another, but in this instance, it is the foreign offices of the Irish-headquartered banks. These offices are concentrated in London and New York. After 2006 the share of inter-office lending rose sharply, and by the end of 2008, it accounted for almost 80 per cent of the foreign inter-bank deposits of the Irish banks. It is also worth noting that the majority of this funding was non-euro-denominated. Throughout most of the period, less than 20 per cent of this inter-office lending was euro-denominated with the remainder split between euro and US dollar which is not surprising given the location of these foreign offices. For all foreign liabilities of the Irish-headquartered banks, only around 40 per cent was euro-denominated with sterling and the US dollar always having a larger combined share.

In addition to deposits, the Irish banks also financed their lending by issuing debt securities. For all euro-area banks, around 20 per cent of funding comes from bonds. At the start of 2003, bond financing of the Irish banks was less than 10 per cent and rose to almost 25 per cent by early 2007. However, from this point onwards, the funding conditions for the Irish-headquartered banks changed, and the level of funding from bonds declined and fell by about one-fifth over the next 12 months. The balance sheet of the banks continued to expand and bond funding was

back to 15 per cent of total liabilities by mid-2008. The replacement of this funding and the further increase in total liabilities was largely covered by foreign deposits—most of which came from the inter-office lending discussed above.

The Irish lending bubble of 2003–2008 was largely domestically financed and of foreign funding that was accessed less than half was euro-denominated. We now turn to the increase in lending that generated most of this domestic funding.

### 3 The Lending

Speaking at the World Economic Forum in Davos in January 2012, Irish Taoiseach<sup>2</sup> Enda Kenny said the following: “What happened in our country was that people simply went mad borrowing. The extent of personal credit, personal wealth created on credit was done between people and banks—a system that spawned greed to a point where it just went out of control completely with a spectacular crash”.

Lending by banks in Ireland to Irish residents increased from €110 billion in January 2003 to €350 billion by December 2008. This is a rise of 220 per cent in just six years. Total loans to Irish residents went from being around 90 per cent of GDP in 2003 to nearly 200 per cent of GDP in 2008. This would seem to satisfy any criteria for going “mad borrowing”, but it is important to look at the sector and purpose of this increased lending.

If loans to businesses in the construction sector and for real estate, land and development activities and loans to households for residential investment buy-to-let mortgages are excluded, loans to Irish residents rose from €83 billion in January 2003 to €195 billion by the end of 2008. This is still a rapid rise but is an increase of 135 per cent rather than the 220 per cent increase seen for all loans. By excluding loans for investment and speculation in the property sector lending to Irish residents rose from 66 per cent of GDP in 2003 to 108 per cent of GDP in 2008. This is a large increase but not catastrophic.

Loans for investment and speculation in the property sector rose from €27 billion at the start of 2003 to €150 billion at the end of 2008. There



was an increase from 25 per cent of GDP in 2003 to 83 per cent of GDP in 2008. There is no doubt that borrowings by Irish people increased dramatically from 2003 to 2008 but a lot of the increase was concentrated in the construction, property and development sectors.

Loans to Irish businesses outside of the property-related sectors were €29 billion at the start of 2003 and reached €60 billion by the end of 2008. This rise from 20 per cent of GDP in 2003 to 33 per cent of GDP in 2008 has not put us in the position we are in now.

Excluding buy-to-let investment mortgages loans to households rose from €52 billion to €140 billion. Residential mortgages for primary dwelling houses (PDHs) increased from €40 billion to €110 billion and other consumer borrowings rose from €13 billion to €30 billion.

With property-related loans perceived as being the source of our ills, it is worth noting that household residential mortgages rose by €70 billion, while investment and speculative loans in the property sector rose by more than €130 million. Both increases are excessive, but it must be realised that one is almost twice as large as the other and also that the increase in mortgage debt was spread over hundreds of thousands of households rather than being concentrated like the property loans.

When the National Asset Management Agency took over the property development loans of the Irish-headquartered banks in 2010, they found that the largest 180 debtors with individual exposures in excess of €75 million had aggregate loan liabilities of €62 billion. This €62 billion of lending to 180 billion can be considered “mad” relative to the €70 billion increases in PDH mortgage lending to the entire household sector.

Looking at how Ireland dealt with the problem of non-performing loans in the €350 billion of lending to Irish residents in December 2008, we will focus on the largest purpose category for the household and business sectors.

For the household sector, this is the €110 billion of mortgages for primary dwelling houses, and for the business sector, this is the €112 billion of loans for development and property. The growth in these mortgages was 175 per cent in the six years to the end of 2008 while loans for property development grew by 490 per cent.

## 4 Non-performing Loans in the Business Sector

As outlined above, most of the increases lending to the business sector during the credit bubble in Ireland was for loans to development and property sector. It was also the case that lending to other sectors was linked to commercial real estate as many small- and medium-sized enterprises (SMEs) developed their existing premises or purchased new premises, with many including residential units as part of the development.

When the lending bubble ended in 2008, the first loans to get into major difficulty were the loans of property developers who could not find borrowers to buy the properties they were completing and could not get the loans on existing developments rolled over. As mortgage lending began to fall, property prices fell away from their peaks, but it falls in the price of land that had the biggest impact on the collateral behind the property development loans issued by the banks.

In early 2009, the Irish government announced plans to set up a body to take responsibility for the property and development loans in the six Irish-headquartered banks. This led to the establishment of the National Asset Management Agency (Nama). This agency acquired €74 billion of loans from the Irish-headquartered banks. This €74 billion included about half of the €112 billion of loans given to the Irish property sector in total (with the other half coming from non-Irish-headquartered banks) and over €20 billion of property loans that the Irish-headquartered banks had issued outside of Ireland.

In total Nama paid a consideration of around €32 billion for these loans, which included €6 billion of state aid to the participating institutions as the price reflected a notional “long-term economic value” rather than the current market price. This sum represented an average write-down of 57 per cent on the nominal value of the loans. Nama was tasked with maximising the value that could be recovered from the loans while it was hoped that by removing these bad loans from the balance sheets of the banks, they would return to normal lending. This did not happen as the banks carried other bad loans on their balance sheets that were not resolved.

Up to the end of 2015, Nama had recovered €8.5 billion through the onward sale of loans and €15.7 billion through the sale of the underlying assets behind the loans it acquired. Nama has also generated around €8.5 billion from loan redemptions, rental income and the acquisition of unencumbered and non-real-estate assets of its creditors. At the end of 2015, Nama expected to generate a surplus of €2.5 billion over the price it paid for the loans it acquired, including the state aid granted to the participating banks.

The banks were still left with many smaller property-related loans. Borrowers who had property-related loans of less than €20 million did not have their loans transferred to Nama while the banks were also left with business lending to non-property sectors.

At the end of 2008, banks in Ireland had lent about €175 billion to Irish-resident businesses. By the end of 2015, this had fallen to just under €50 billion—fall of more than 70 per cent. More than half of the fall can be attributed to the loans transferred to Nama, but the remainder is due to the banks working through the loans themselves.

In some cases, the banks themselves will have rescheduled or restructured the loans with the borrowers while the banks will have taken possession of and sold the underlying assets in other cases. There were also instances where the banks sold the loans to investment groups.

For example, lending to the hotels and restaurants sector fell from €12 billion in 2008 to €4 billion in 2015. Even with this substantial reduction, the Central Bank of Ireland reports that 20 per cent of loans to hotels and restaurants by outstanding balance were classified as non-performing. For all business lending by Irish banks, 12 per cent of their loans by outstanding balance were classified as non-performing. This compares to peak of over 30 per cent which was seen in early 2013.

While not as concentrated as lending to the property and development sector—where a couple of hundred of borrowers accounted for tens of billions of lending—lending to other business sectors was also concentrated. Excluding property and development, 80 per cent of business lending was accounted for by just 20 per cent of businesses. Most businesses did not have large amounts of debt and many of those that did, did so in relation to their premises and related development.

## 5 Non-performing Loans in the Household Sector

As we have already discussed, mortgage debt for primary dwelling houses (PDHs) rose from €40 billion in 2003 to €110 billion in 2008. One of the most prolonged features of the private debt crisis in Ireland has been the extent of the delinquency for PDH mortgages.

Ireland comprises around 1.7 million households. Of these, 600,000 are outright owners and 500,000 are renters with two-thirds of these renting from the state. The remaining 600,000 are owner-occupiers with a loan or a mortgage. At the peak, around one-fifth of these were showing some signs of mortgage distress.

Unlike the response to non-performing loans in the business sector where the response was a combination of rescheduling, write-downs, asset repossessions and loan sales, the response to the mortgage debt crisis was one of “extend and pretend”. Write-downs and repossessions have been very lightly used in response to the massive mortgage arrears problem that arose in Ireland.

Irish lenders have attempted to resolve their non-performing mortgages by restructuring the loans. Enforcement through the courts to take possession of the property has been little used relative to the scale of the problem in Ireland.

Although almost 120,000 households were in some form of mortgage arrears at one stage in the six years from 2010 to 2015, there were just 1783 court-ordered repossessions of PDHs due to mortgage delinquency. This is around 1.5 per cent of households who fell into mortgage arrears. Data from the Central Bank of Ireland show that there are around 30,000 households who fell into mortgage arrears of more than two years, that is, behind on their mortgage by the equivalent of 24 monthly payments or more. Court reports show that there are cases before the courts where no payments have been received on the mortgages for periods of up to six years. The Irish banks and legal system have been very slow in dealing with the problem of non-performing mortgages.

The most common response of the banks has been to try and restructure non-performing mortgages so as to make them performing, but

almost none of these restructures has involved a direct write-down of the balance outstanding. Most of the restructures have attempted to reschedule the repayments so that the full amount is repaid by borrowers.

The initial response of the banks was to place borrowers on “interest-only” terms. This involves suspending capital payments by the borrower and requiring that the borrower only pay the interest accruing on the account each month. By the middle of 2012, around 30,000 borrowers had been moved to interest-only terms by their lenders. Another 15,000 borrowers were making a reduced payment but one which was above the level of an interest-only payment, while 10,000 borrowers had a term extension applied to their loan. This reduces the monthly payments as the repayments are spread over a longer term. If the reduced payment offered by restructure is successful, then the temporary relief offered is helpful but these approaches do mean that the borrower will repay more to their lender over the lifetime of the loan.

There were few restructures that offered debt relief to the borrowers. There were no cases reported where the outstanding balance on the mortgage was reduced while there were only 150 borrowers who were offered a permanent interest rate reduction which reduces their monthly repayments over the lifetime of the loan.

In fact, most non-performing mortgages did not have a restructure applied to them at all. In the middle of 2012, there were 70,000 borrowers who were repaying their mortgages on restructured terms. This represents one-eighth of all borrowers. However, half of these accounts were not in arrears either because the restructure was applied before the account fell into arrears or because the restructure allowed the borrower to make repayments to move out of arrears. These 35,000 borrowers in arrears had restructured accounts which represents little more than one-quarter of the total of 120,000 borrowers who are in some form of arrears at that time. The response in the case of most non-performing mortgages was to do nothing.

In light of this, the Central Bank of Ireland moved to introduce Mortgage Arrears Resolution Targets (MART) requiring lenders to have proposed long-term solutions to their borrowers in arrears. Moving a borrower to an interest-only payment was not considered a long-term solution as the borrower's payments would have to increase in the future

when the interest-only period ended. By the end of 2015, only 4000 PDH borrowers were on restructured interest-only terms compared to 30,000 three years earlier. By the end of 2015, the bulk of mortgage restructures were comprised of two types: arrears capitalisation and a split mortgage.

A split mortgage is relatively straightforward. A borrower's mortgage is divided into two and the borrower makes interest and capital payments on an amount that their repayment capacity can sustain. The remaining part of the loan is not written off but is warehoused and set aside. In some cases, if the repayment capacity of the borrower improves, the warehoused amount may be returned and added back to the principal outstanding, while in other instances, the warehoused amount may remain there for a significant period. For most lenders, interest does not accrue on the warehoused balance so the amount owing does not increase. Although a split mortgage does offer some debt relief to a borrower in difficulty (through reduced interest payments), there is no nominal reduction in the balance outstanding which is something that lenders in Ireland have been unwilling to do. By the end of 2015, around 20,000 mortgage borrowers had been granted a split mortgage of some description.

However, the largest restructure was something that is known as "arrears capitalisation" and nearly 30,000 borrowers had this applied to their accounts by the end of 2015. When the Central Bank of Ireland introduced the long-term targets for lenders, arrears capitalisation became the most commonly used restructure. In 2012, arrears capitalisations were around 12 per cent of all account restructures. By the end of 2015, 40 per cent of restructured mortgages had this applied to them. The popularity of this restructure and the vagueness of the title means it is something that we should look at in more detail.

One question that arises is what exactly does arrears capitalisation mean and what has happened to the 30,000 borrowers who have had this applied to their mortgage accounts? The Central Bank of Ireland use the following definition: "Arrears capitalisation is an arrangement whereby some or all of the outstanding arrears are added to the remaining principal balance, to be repaid over the life of the mortgage".

However, this does not reflect what happens. Arrears capitalisation does not add any of the arrears to the balance; it sets the arrears to zero

and recalibrates the payment based on the principal outstanding and the term remaining on the loan at the time of the restructure.

This new payment will actually be higher than the payment set out under the original mortgage agreement but this is not because arrears are added to the balance. The new payment will be higher because a greater principal amount and more interest needs to be repaid over the remaining term of the loan than was originally expected. This is undoubtedly because the borrower missed payments and went into arrears, but the higher payment can be calculated automatically and is not the result of any arrears being “added on”.

Consider a 20-year, €200,000 mortgage at 4 per cent fixed interest which is five years into its term. The monthly repayment is €1212, and after five years, the balance should be reduced to €163,800.

Assume that in the fourth year, the borrower missed 12 full payments in a row and then resumed making the “full” payments of €1212 in the fifth year. The borrower is  $12 \times €1212 = €14,544$  in arrears, and the balance owing at the end of the fifth year will be approximately €179,250.

At the end of the third year, the balance would have reduced to €179,180. During the fourth year of no payments, the interest will be added as per usual, and with no offsetting payments, this will bring the balance up to around €186,400 at the end of the fourth year. The resumption of the monthly payments of €1212 for a year will reduce the balance to €179,250 at the end of the fifth year instead of the expected €163,800.

The borrower owes €179,250 and has arrears of €14,544. It should be noted that the quantum of arrears has nothing to do with the amount owed. They are calculated separately. The amount owed is the principal plus daily interest (added monthly) less any repayments made. The arrears are the amounts of missed repayments relative to those set out in the original contract.

So what to do with the €14,544 of arrears? The borrower has failed on a necessary contractual obligation so they need to make good the shortfall. One option is for the borrower to pay €14,544 in a lump sum and have that amount offset against the balance immediately clearing their arrears. The amount owing would drop to €164,706 (close to where it should be under the original contract) and the borrower could continue

making the monthly €1212 payments to repay the loan over the original 20-year term.

A second option is to repay the arrears, or catch up on their contractual obligation, in instalments. If the borrower paid an additional €500 per month on top of the €1212 payment, they would have the arrears of €14,544 cleared in 29 months and would be roughly back on track and could again continue with the original €1212 payment for the remaining 12.5 years or so.

The concept of arrears capitalisation is similar to this, but it has the borrower catch up with the repayments right at the end of the original term so it is based on time rather than some monthly overpayment amount on the arrears.

In our case, the borrower owes €179,250 after five years of the original 20-year term. At the 4 per cent interest rate, this cannot be repaid with monthly repayments of €1212 over the remaining 15 years. In fact, if the borrower continues to make these monthly repayments, there will still be around €41,000 owing at the end of original 20-year term.

An alternative is to recalibrate the repayment so that the €179,250 owing at the end of the fifth year is repaid over the remaining 15 years of the mortgage. To do this at the 4 per cent interest rate would require a monthly repayment of €1326. If the borrower makes this monthly repayment to this level, the full amount owing will be repaid over the original 20-year term of the loan set out in the original contract.

The monthly payment has increased, but it is not because any “arrears are added to the remaining principal balance”. The arrears figure was not used to calculate the new repayment. The arrears figure is a memo item that reflects the level of missed repayments and, by itself, does not feed into the principal, interest and repayment calculations on the loan.

The new repayment figure is higher because the borrower has borrowed more money for longer than originally intended. The borrower owes more interest. Instead of having the balance down to €163,800 by the end of the fifth year, the balance was only reduced to €179,250. Obviously the difference is because of missed payments (and a small amount of interest on interest) but regardless of the level of arrears the amount owing will be automatically calculated—interest is usually calculated on the closing balance each day and added monthly or quarterly.



Arrears capitalisation is simply recalibrating the monthly repayment so that the balance owing is repaid over the remaining term of the loan. It also involves setting the arrears to zero as the contractual obligations have changed rather than having them cleared by a once-off or temporary overpayment.

It is also possible to combine the arrears capitalisation with other restructures, primarily term extensions. In the above example, it would be possible to keep the repayment at €1212 and instead repay the loan over 17 years instead of the remaining 15.

The borrower loses nothing from the arrangement. It is a win-win for the borrower. There is nothing added to their loan balance, and their credit record will be restored faster with the arrears cleared.

If the borrower in the example here had stuck to the original repayment schedule, the full amount repaid over 20 years (240 months) would have been €290,880. As a result of the missed payments and the recalibration at the end of the fifth year, the amount to be repaid over the 240 months will actually be €296,856. And if the arrears capitalisation is combined with a two-year term extension, the total repayments are €305,424.

In the latter two cases, the borrower has to repay more, but it is not because any arrears were ever added to their balance; it was because they had borrowed money for longer and additional interest is added in the standard way that interest is calculated.

The description of “arrears capitalisation” is a bit of a misnomer. It is possible that “arrears amortisation” might be a better description as the borrower has agreed to catch up on their repayments over the remaining term of the loan.

So why did this restructure become so popular when the long-term targets were introduced by the Central Bank? If the borrower can stick to the recalibrated payment, it has the advantage of returning the loan to the performing category and removes the loan from the arrears statistics. Are the borrowers meeting the new repayments? Some are, but many aren't.

The Central Bank of Ireland also provides figures for the “success” of each type of restructure. At the end of 2015, there were 100,000 borrowers with restructured accounts. Of these, 86 per cent were meeting the revised terms of the restructured loans suggesting that many of the restructures can work to return the loans to performing status. However,

the success rate for the most popular restructure is also one of the lowest. For accounts that had the arrears capitalised as described above, 75 per cent were meeting the terms of the restructure. Thus, there is 25 who are not meeting the new terms. There is some underlying reason why they fell into arrears in the first place. Unless that was temporary in nature and the borrower's repayment capacity has been restored, they will not be able to meet the new repayment, which will probably be higher than the original contract unless combined with a term extension as well. If these borrowers cannot meet these new higher payments, then the arrears capitalisation will not have cured the non-performing loan.

While up to one quarter of mortgage borrowers have exhibited some form of repayment distress at some stage, many other borrowers have continued to make full repayments with some likely making payments ahead of their contractual obligations. This means that the total stock of mortgage debt has declined since peaking in 2009 but by nothing close to the rates seen for business lending.

Mortgage lending to Irish-residents for PDHs was €118.7 billion in the third quarter of 2009. By the first quarter of 2016, this has reduced to €100.9 billion. While new lending has been muted for the past few years, this suggests that capital repayments on the stock of mortgage debt at the peak have been around €30 billion in the past seven years. This represents just over a quarter of the total debt drawn down at the peak. As the interest component of the repayment falls, it is likely to be another 15 years or so until this mortgage debt is close to being repaid.

Outside of borrowers who have been making full repayments and those who can meet revised terms, there are also a substantial number of borrowers who are making no repayments on their loans. At the start of 2016, there were around 30,000 borrowers who were two years or more in arrears. Additional figures from the lenders indicate that around half of these are making zero repayments on their loans and that many have made no repayment for a number of years.

In Ireland around five per cent of mortgage borrowers are two years or more in arrears. We cannot compare this figure to other countries as accounts being two years or more in arrears is not something that would usually happen in other jurisdictions. There are two reasons why this level of arrears is tolerated in Ireland. The first is the preference of lenders to

attempt to restructure the loan rather than seek to enforce their security in the courts. The second is a legal problem that arose when land and conveyancing legislation was updated in 2009. This lacuna in the legislation was identified in 2011 and meant that the security on some mortgages could not be enforced. Further legislation to remedy the situation was enacted in 2013.

Since this was done, there has been an increase in enforcement activity by lenders, and while there has been an increase, the level of court-ordered repossessions in Ireland is very low relative to the scale of the non-performing mortgages problem. There have been 1782 court-ordered repossessions in the past six years, and there are around 12,000 enforcement cases currently before the courts.

In rough terms, the aggregate data to date indicate that of these, around 45 per cent will conclude with the granting of a court order for possession and, of which again, around 40 per cent will lead to a court-ordered repossession. That suggests there are around 5500 orders for possession to come out of the courts with around 2500 court-ordered repossessions following from those.

If this is the case, then of 100,000 borrowers who have exhibited mortgage distress then around 4 per cent will end up losing the property through a court-ordered repossession. This is around two-thirds of a per cent of all borrowers. There will also be borrowers who may voluntarily surrender the property to the lender or borrowers who sell the property in order to discharge their mortgage liabilities, but in the scale of the problem in Ireland of non-performing mortgages with up to one-fifth of borrowers showing some form of repayment distress at one time, this would be a remarkable outcome.

## 6 Conclusion

During the 2000s, Ireland experienced a huge build-up of private sector debt. When the crisis of 2008 emerged, this left a legacy of non-performing loans for both businesses and households. The responses to these were largely in contradiction to each other. For delinquent business lending, particularly for land and real estate development, the government

moved quickly to transfer these loans off the balance sheets of lenders. The lenders themselves engaged in enforcement action to take possession of property and assets used as collateral for business lending while there was significant restructuring of loans including principal write-downs.

On the household side, the reaction was pedestrian by comparison. Very little was done in the early stages of the crisis and the most common response to mortgage distress was to offer “interest-only” terms to the borrower. In time more permanent solutions were offered to borrowers including “split mortgages” and “arrear capitalisation” though the efficacy of some of these in resolving the matter remains questionable.

One of the most notable features of the mortgage arrears crisis in Ireland has been the lack of enforcement. In the six years to 2015, there were just 1783 court-ordered repossessions when almost 100,000 borrowers were in repayment difficulty. A legal lacuna prevented the security on some mortgages being enforced but this was rectified in 2013. By 2016 there were around 12,000 enforcement actions before the courts. If trends up to that point are maintained, these cases will result in a further 2500 court-ordered repossessions. The response to the mortgage arrears crisis may have been slow, but it is possible that only 4 per cent of borrowers in distress will experience a court-ordered repossession with other borrowers getting back on track or discharging their loan liabilities. The level of mortgage distress suggested that repossessions on a grand scale were possible, but this is not going to be the case now.

## Notes

1. This was originally a group of six banks and comprised Allied Irish Bank (AIB), Anglo Irish Bank, Bank of Ireland, the Educational Building Society (EBS), the Irish Nationwide Building Society (INBS) and Permanent TSB. The crisis saw this number reduced to three with EBS folded into AIB and Anglo Irish Bank and INBS merged into a single entity, the Irish Bank Resolution Corporation which did not engage in new lending and whose remaining assets were put into liquidation in early 2013.

2. The Irish head of government is the Taoiseach, which would be equivalent to Prime Minister in other countries. The word is from the Irish language and means “chieftain” or “leader”.

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# 6

## The Nordic Experience: The Case of Denmark in 2005–2015

Niels Storm Stenbaek

### 1 Introduction

Compared to countries that are similar to Denmark in terms of structures, institutional setup, culture and so on, the 2008 financial crisis hit the Danish economy relatively hard. The GDP level in 2015 was around 98.9 percent of the level in 2007. An economy that was overheated prior to 2008 plays a significant role due to an expansionary and procyclical fiscal policy, a strong belief in the future and underestimation of risks among other things, cf. Rangvid (2014). As a result of increasing real estate prices and easy access to cheap finance, gross debt soared among Danish households and firms.

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## 2 Reasons Behind the Buildup of Debt

### 2.1 Households

The structural setup in Denmark differs from most other European countries. Households in Denmark have one of the largest gross debts in an international perspective. But a large stock of debt is more than matched by an even larger stock of assets.

The net wealth of Danish households has grown considerably over the last two decades. In an international perspective, household net wealth is at an average level, see Isaksen et al. (2012). This is driven by increases in both gross wealth and gross debt.

As Isaksen et al. (2012) also points out, the level of debt among households should not be seen in isolation from other sectors in the economy. For example, if the public sector increases their debt, (rational) households could interpret this as a sign of higher taxes in the future, and hence increase net wealth by an increase in savings. As the public finances are decent and we have net external assets, Denmark's overall financial balance-sheet position is good.

The reasons behind the large assets and liabilities are primarily due to mortgage credit and pensions saving systems that function well. Another reason could be that Scandinavian countries are characterized by their well-established welfare states. This institutional structure implies that citizens receive basic pensions after retirement, as well as paid health care. This reduces the necessity for private savings. All in all, this structure allows Danish households to make relatively sophisticated decisions regarding the buildup and composition of their balance sheet. These structures are described in turn and in more detail below.

## 3 High Debt Due to the Mortgage Credit System

Since the late seventeenth century, the mortgage system has allowed Danes to acquire homes with a relatively small amount of equity (for a comprehensive description, see Møller and Nielsen (1997)). Around 76

percent of household loans are financed by the issuance of bonds from mortgage credit institutions. Loans provided by the mortgage system are collateralized by property. Hence, household debt is very much linked to buying property. If the LTV leaves space, mortgage debt can also be used for financing consumption, such as travelling, and non-real estate investments, such as cars and interior design.

The balance principle has always been a core element in Danish mortgage finance. There is a 1:1 relationship between a loan's conditions in terms of maturity, interest rate and repayment schedule and any bonds that are sold to raise money for the loan. A borrower's payment of interest and repayments on the loan are fully transferred to investors (bondholders) by mortgage credit institutions.

During the financial crisis, many international mortgage credit bond markets didn't function well, but the Danish bond market fared quite well. Seen from a broader perspective, the Danish mortgage credit funding model worked at times, when the Danish economy was a net debtor to the rest of the world, as well as at times when the economy was a net creditor to the rest of the world. The certainty of a properly functioning mortgage credit system also inspires the Danes to use it.

Stability in the bond market is vital for funding stability. And funding is, of course, susceptible to domestic investors' confidence in the system. The investor base is quite strong, with a large domestic pension sector that entails a large and steady inflow into pension schemes. Their appetite is large as they need to invest in highly rated instruments in domestic currency. This secures a steady demand for bonds denominated in Danish kroner.

The system has been capable of withstanding financial stress during crisis periods. Investors have not faced losses, regardless of the high level of gross debt. This has led to very low borrowing costs in an international perspective. Hence, the construction of the system has benefitted both borrowers and investors.

Furthermore, there has been, and still is, tax incentives for taking a loan. Unlike equity, costs servicing the debt can, to a certain degree, be deducted from the tax income statement. Almost all interest expenditure is tax deductible at a value that effectively reduces the cost by one-third. The value of the deduction is lower (falling to 25.5 percent by 2019) for



interest expenditure beyond DKK 50,000, or DKK 100,000 for a married couple. However, the DKK 50,000/100,000 limit is not indexed, so eventually inflation will slowly cause the tax deductibility to be lowered.

It is not only the construction behind the mortgage credit system that has implied a large gross debt among domestic households. Since 1992, prices of houses and apartments have risen by approximately 200 and 325 percent, respectively. In other words, the market has been a significant driver behind the accumulation of debt.

## 4 High Debt Due to the Pension System

The Danish pension system plays an important part in the Danish financial markets. The Danish pension system is comprised of three pillars: public pensions, occupational pensions and private pensions.

Over the last three decades, Danes have built substantial pension assets. The pension system was a 100 percent pay-as-you-go system financed by tax revenue, but is now a combination of pay-as-you-go and a privately funded pension system. The private pension contributes to sustainable public finances over time despite the demographic challenge that gives greater economic room to households—even if the generous public benefits in the future are under pressure.

This structural development began in the late 1980s, when heavy pressure on the balance of payments forced Denmark to carry out economic reforms aimed at stronger economic stability through higher savings among other things.

The workforce typically pays around 15 percent of current gross income into a personal retirement account. This is obligatory and regardless of age, hence you pay significant amounts up until you retire from the labor force.

Due to favorable tax treatments of pension payments, many Danes have chosen to supplement their obligatory labor market pension savings with additional voluntary private pension savings. The voluntary pension contributions were typically made by households that are close to retirement, but are now more evenly distributed among the entire population.

As mentioned, there is a tax incentive to save on pensions through lower taxation on amounts paid out compared with amounts paid in, although the significance of the incentive has now been diminished. The tax incentive today is primarily through lower taxation on returns. The pension system furthermore contains an element of deferred tax, which helps to ensure financing the system in the future. By reducing the current income tax, this brings opportunities for optimizing the total lifetime tax payment. This stimulates increased pension savings.

All in all this implies that you do not need to be debt free upon exiting the labor market. Household pension reserves are today around 121 percent of nominal GDP. The occupational pension funds amount to approximately 140 percent of GDP, and are expected to increase to around 180 percent of GDP in 2040.

These considerable amounts of ongoing pension savings have resulted in a surge in the assets held by the household sector but have simultaneously led to higher gross debt. This is to be expected, as young families, who are trying to establish themselves, are compensating for the high level of savings by creating more debt, for example, through the mortgage credit system, see above.

## 5 High Debt Due to a Welfare System

A large part of the explanation behind the high degree of mortgage lending is, without a doubt, that there is a certain level of security for the borrower's income, despite the risk of unemployment. Labor market, for example, the flexicurity system, plays an important role. The system consists of three elements: a flexible labor market, income security and an active employment policy.

The model manifests itself by, for example, a high employee turnover, where approximately one-third of all employees change job every year. Together with individual unemployment benefits with a relatively high compensation rate and long duration, wage earners have a high level of security for their income. This supports the Danish mortgage credit system.

Denmark is known for its big public sector which provides Danes with a large number of social benefits as well as tax-funded medical care and education. This kind of universal welfare model has a high degree of social redistribution, securing persons with low or no income and persons with an unstable labor market connection. Generally, the Danish welfare system relies on the confidence that welfare policy goals are actually reached in accordance with intentions and that the government uses taxes to increase the common welfare.

Transfer payments provide a basic security for the household and guaranty a minimum level of welfare. In combination with the “flexicurity” in the Danish labor market, households have a high tendency to bind profits in pension. When binding money in pension, one often loses the option of being able to withdraw the money again and thus the investment is secured from any future desire to withdraw the money in times of need. The Danish people have one of the largest pension funds bound in the three pension systems described above. This outweighs the great debt which Danes also incur.

In Denmark, the government is responsible for financing and providing welfare services. But on the labor market in particular, there are supplementary social security systems that are not publicly organized. Core services, such as unemployment insurance and workers’ compensation, are also privately organized.

## 6 Consequences of Large Debt

A highly indebted household sector is not a novelty in Denmark. Gross financial liabilities are today around 160 percent of gross value added, which is more than 50 percentage points higher than in 2000.

But at the same time, financial assets have soared from a little above 200 percent in 2000 to close to 350 percent today. Households’ financial assets are thus currently more than twice as large as their financial liabilities.

This balance-sheet inflation in Danish households has often attracted a negative focus from international institutions, such as the IMF and credit

rating agencies that claim that this balance-sheet inflation could have significant negative implications for financial stability.

In this section, we discuss some of potential problems with a large gross debt and present some relevant empirical findings.

Overall, the buildup of gross debt is not on account of spending too much money.

From a macro perspective, the economy has held a consistent and substantial current account surplus since the beginning of the 1990s. Since 2005, Denmark has run a surplus over 5.3 percent of nominal GDP. This means that the economy is more likely to have too much rather than too little savings. And currently, the net foreign assets are around 165 percent of nominal GDP, rising from 3 percent of nominal GDP in 2009. Hence, households' gross debt is financed by other domestic sectors.

Andersen et al. (2012a) presents a literature survey, which indicates greater fluctuations in consumption in countries, where households hold large gross debt. Hence, fluctuations in consumption amplify cyclical fluctuations.

Balance-sheet inflation has the potential to make the economy more vulnerable in terms of interest rate sensitiveness. Danes have become more interest sensitive over the last decades. The balance-sheet inflation in itself is an explanation behind this. Another reason is the widespread use of loans with variable rates.

Before the mid-1990s, loans with 30 years fixed rates were the standard, but liberalization of product portfolios has had the implication, that more than 65.8 percent of the mortgage loans given to households in 2015 are at a variable rate.

The low level of interest rates with longer maturities implied a trend toward loans with longer maturities that intensified in early 2015. A significant number of mortgage customers used the fall in interest rates to remortgage loans with fixed interest rates. Along with this, Danish mortgage banks changed their price structures in favor of loans with longer fixed interest periods, see Danmarks Nationalbank (2016).

After the share of fixed rate loans increased during the 2013–2015, the increasing gap between fixed and variable rates entailed a newfound interest for loans with a variable rate. Independent of the type of loan

the customer decides upon, regulation dictates that the applicant has to be able to service the debt on a 30-year fixed rate loan with installments.

Interest rates changes could thus affect the economy very directly. Due to the fact that we have a fixed exchange rate policy toward the euro area, short-term rates are often aligned with euro area rates.

The negative effects of high interest rate sensitivity would primarily be a problem if interest rates were out of line with changes in the business environment. However, this is typically not the case. As the business cycle in Denmark over three decades has, to a large degree, been aligned with the business cycle in the euro area, the significant assets and liabilities to some extent ensure that the monetary policy instruments work as intended.

However, pressure against the Danish krone could force the Danish central bank to raise interest rates sharply. But as demonstrated in 2015 after the pressure on the Swiss franc, where investors turned their attention to Danish Kroner, the central bank has a large arsenal of instruments that it can apply, and did so with a very successful outcome.

The balance-sheet inflation could also be inopportune, if large shares of the assets are illiquid. An example is households in areas of Denmark, where the supply of real estate for sale largely dominates the demand. Most households with affiliation with the labor market will have assets compromised of pension savings, as mentioned above. But pension reserves are also up to a point characterized by being illiquid (however, some schemes allow for an early repayment). But economic turmoil could hamper these households' ability to adapt to a new situation.

But the overall assessment is that it doesn't pose a significant financial threat, as many households have incorporated a certain degree of flexibility in domestic budgets, as microeconomic evidence shows, and which we will now turn to.

A robust macroeconomic environment could disguise weak links seen from a micro perspective. But empirical findings suggest that the gross debt is distributed in such a way so that the possibility of threats to financial stability is manageable.

Danish households have high gross debt as well as a high-income level, but all in all, debt-to-income ratios are above ratios in most similar countries. One reason could be, that the savings-based pension system (which

to some extent take up savings and drive households to finance, e.g. with debt) is still under expansion, entailing considerably stronger growth in pension wealth than in incomes since the 1980s.

But as Andersen et al. (2012a) demonstrates with detailed data on a micro level, the higher the gross debt in a family, the higher the income. Hence this could hint that debt is incurred in order to finance large houses and cars, as well as a level of consumption beyond the basic needs of an ordinary family.

When talking about the high degree of indebtedness relative to income in Denmark, it also has to be taken into account that the tax burden in Denmark is 44.8 percent in 2016, which reduces the net disposable income of Danes more than comparable countries with smaller public sectors. Hence, debt as a part of disposable income is by definition higher in Denmark. But Danes also have to reserve less of their income to other welfare services, such as health insurance.

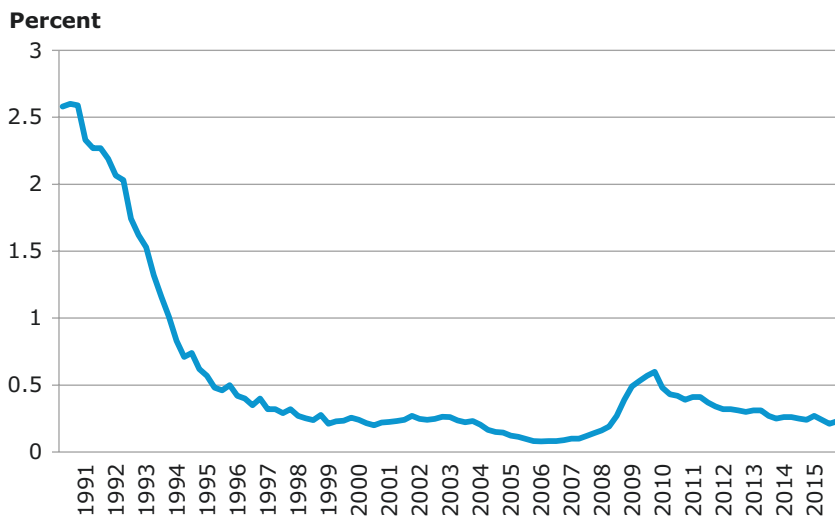
Andersen et al. (2012a) also present results showing that for approximately 33 percent of households, pension wealth after tax (the majority is taxed when paid out) exceeded DKK 1 million. Taking pension wealth into account, less than 25 percent of households have net debt.

This finding is backed up by an econometric analysis that demonstrates that the strong increase in the gross debt of households is more or less balanced by substantial growth in their pension wealth.

Turning to micro level findings regarding house-lending issues, Andersen and Duus (2013) find that the overwhelming majority of Danish households with mortgage debt service their debt on time. Since the mid-1990s, only a small fraction of households have fallen behind on their mortgage payments.

Even during the latest financial crisis, we witnessed only a slight rise in the level of mortgage arrears, see Fig. 6.1. And compared to the “Scandinavian” financial crisis in the beginning of the 1990s, the total number is relatively low. The micro level empirical findings from Andersen and Duus (2013) indicate that severe financial hardship in Denmark in the near future is not expected to lead to a surge in the number of households in mortgage arrears.

These results are supported by more recent findings by Andersen et al. (2012b) in terms of household abilities to withstand severe interest rate



**Fig. 6.1** Arrears in mortgage banks. *Source:* Association of Danish Mortgage Banks

shocks. Their assessment is that Danish households are resilient if they tighten their budget by reducing private consumption or savings, as they more often than not can take the pressure off their private economy by drawing on a buffer of liquid assets. The sensitivity analysis is based on how individual households income after tax, interest and installments and fixed expenditure change, if interest rates increase by 5 percentage points (or alternatively if installment on loans were to grow significantly).

This robustness result is grounded in not only interest rate movements but also a protracted period of unemployment (more specifically a temporary loss of income due to a three- or six-month unemployment period for the household member with the largest earnings). This assessment does not even take into account that a potential interest rate increase most likely happens in parallel with economic recovery and thereby also higher income and/or working opportunities.

However, Andersen et al. (2012b) also emphasize one case of concern. In 2016, around 52 percent of Danish households who own real estate have deferred installments on their mortgage loan. Lately, housing prices have been on the rise, but if they were to fall again, this, combined with the fact that mortgage banks often grant loans with deferred installments

up to the 80 percent LTV limit, many loans could potentially exceed 80 percent. Andersen et al. (2012b) estimate that this applies to around half of the loans with deferred amortization.

Kuchler (2015a) points to another aspect along the same line. A relatively large share of mortgage debt issued with no installments is held by families with scarce liquid assets and high LTV ratios. Hence, this indicates that this degree of freedom has not only been used to save more or bring down more expensive kinds of debt. On the other hand, Andersen (2015) demonstrates that removing tax-favored retirement accounts could affect gross debt accumulation, in that Danish households tend to amortize more.

Households may very well prioritize different approaches to save and finance throughout their life cycle. The critical aspect in this regard is that it does not harm financial stability.

In terms of financial stability, the balance-sheet inflation is thus not too much of an issue in Denmark according to the studies referred to above. Although households that adapted to tight budgets, were able to withstand interest rate risk, high gross debt is not without cost, and consequently the financial crisis did have an impact on the Danish real economy stemming from the large buildup of debt prior to 2008.

Households that were located in areas where real estate prices fell most, and with a large debt, and hence an increasingly high LTV, dialed down their private consumption to a degree, that did harm to aggregate demand and economic activity. Andersen and Duus (2014) highlight this empirical fact. The larger the LTV, the more private consumption fell. This underlines a channel that potentially can put pressure on macroeconomic stability during financial turmoil. From a policy point of view, this means that focus should be on the development of housing prices, as well as how it is financed.

Banks have changed the behavior though, as some of them are bringing an end to granting loans with deferred installments up to 80 percent LTV.

During the financial crisis, the Danish Financial Supervisory Authority (FSA) also introduced a number of actions. These have been directed in particular at the housing market and liquidity in commercial real estate. A so-called supervisory diamond will look at five dimensions, which banks and mortgage banks should address. This includes, for example, a maximum



limit of 55 percent on the share of loans with no installments and a LTV above 75 percent. The overall share of loans with variable rates within a credit institute is also in the scope. Short-term funding is also addressed, as the share of lending that is refinanced within a six-month period must be below 15 percent of total lending. Regarding lending to private homeowners and property rental, there is furthermore a limit of 30 percent where LTV exceeds 75 percent and interest rates are fixed for less than two years.

In the spring, the Danish FSA introduced “7 best practices”, urged by the Danish Systemic Risk Council. The seven best practices introduce a guideline on good credit management to ensure sufficient caution when granting loans on the basis of real estate property in geographic areas with significant price increases. The guideline is basically a supplement to existing practices.

Examples are that borrowers with negative equity must amortize sufficiently, borrowers with high debt-to-income ratios must have a robust and positive net wealth even in a scenario of falling house prices or high job security and fixed interest rate and amortization.

## 6.1 Firms

Now, turning to non-financial firms (hereafter referred to as firms), the response to the financial crisis has been fairly similar to households. Many of the mechanisms are the same for firms, and therefore we will not go into these in much detail.

During 2000–2007, Danish firms expanded their balance sheets significantly. On the liabilities side, firms increased their gross debt from 70 percent of nominal GDP to approximately 95 percent. Brandt et al. (2012) show that the debt mainly was used for buying shares and other equity, as well as increasing the stock of liquid assets.

When the financial turmoil began in 2008, Danish firms reduced their investments greatly. Not only in absolute terms but also in comparison with other countries, where firm debt expanded strongly before the turmoil, see Banerjee et al. (2015).

High debt could also have played a role for small firms’ contribution to the economic activity. Using Danish firm-level data, Kuchler (2015a, b)

explores to which extent leverage contributed to the development in investments during 2007–2012. The effect is significant, but the contraction in investments is largely driven by small and medium-sized enterprises, whereas the investment level of large firms remained relatively unchanged during this period.

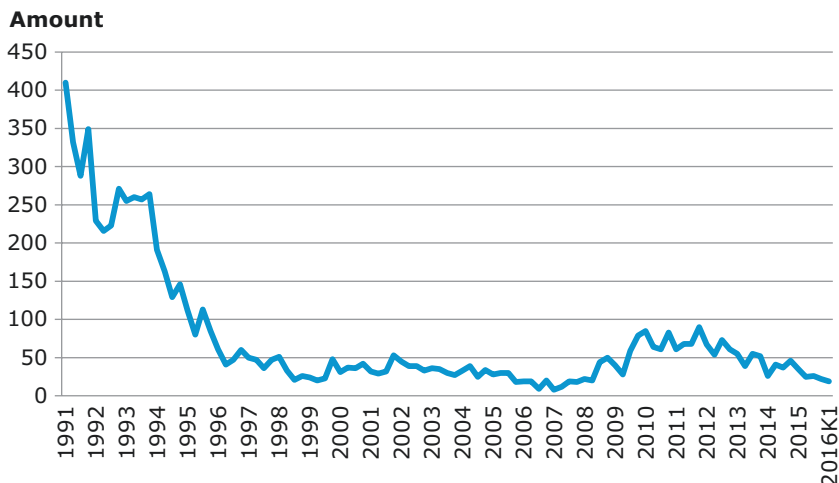
Economic activity during the financial crisis fell more in Denmark than in other similar countries, driven by both internal and external factors, as documented by Danish Economic Councils (2016). The low demand among other things initiated a process where firms voluntarily deleveraged with the aim to retain flexibility in future financing choices, as well as to increase their robustness in relation to future economic shocks.

The fact that firms wish to consolidate can be a reason why investments and the flow of credit from banks to firms have been standing still relative to nominal GDP. This is in spite of the fact, that the ECB-“imported” monetary policy has been extremely gentle. This is very much in line with Koo (2008) and his so-called balance-sheet recession. Firms have in general not been credit constrained, although some of the smaller firms with high leverage and problems with generating an income on an anecdotal basis have been squeezed on credit.

Since the financial crisis, Danish firms have improved their robustness mainly due to a higher level of equity. The most robust (typically large) firms also hold the largest share of total firm debt. Banks (and mortgage banks) are still the almost exclusive source of finance for firms, but due to the recent low levels of interest rates, insurance companies and pension funds have started lending directly to firms.

The Danish business sector was generally not subject to severe negative influence from the financial turmoil. The number of forced sales, for example, remained at a relatively low number, see Fig. 6.2. Higher interest rates should be expected to put more pressure on firms in terms of servicing their debt. But overall, firms are estimated to be able to withstand interest rate shocks in general.

One sector does, however, stand out, though, namely the agricultural sector. The high level of debt in the agricultural sector continued to rise well into the financial crisis, unlike other sectors. A number of unfortunate international events came along that have squeezed earnings among many farmers.



**Fig. 6.2** Forced sales among firms. *Source:* Statistics Denmark

The level of debt has now reached a point, where one could argue that it is unsustainable for as many as 25 percent of all farmers. Investments in the agricultural sector have since declined rather dramatically, see Danmarks Nationalbank (2016). Investments are even lower than depreciation in recent years, and the capital stock has henceforth been scaled back. This again reduces the sector's possibility to finance new investments and it hampers farmers' competitiveness now and in the future.

The situation in the agricultural sector is not severe enough to threaten financial stability in Denmark, as the overall exposure is relatively low. But the banks' impairment ratio for farmers is considerably high, and some minor banks with a large exposure are very dependent on improved conditions in the agricultural sector. This is underlined by the fact that many farmers have also been financed with loans at variable rates, implying higher interest rates which will increase their financing costs.

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# 7

## The Cyprus Experience in Dealing with Private Sector NPLs

Marios Clerides, Michalis Kammass,  
and George Kyriacou

### 1 Introduction

The Cypriot experience with problematic loans has been making news both in Cyprus and in foreign economic and financial circles because of its significance in relation to both the affected banks' balance sheets

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and the county's GDP. The restructuring of the banking sector, which was a key component of the country's rescue package of March 2013 and the resulting MoU, included a number of measures to address the significant challenge posed by the high NPL ratio in the Cypriot banking system.

The paper examines the experience of Cyprus regarding NPLs in the immediate years before<sup>1</sup> and after the Eurogroup decisions of March 2013. Following a presentation of the structure of the domestic banking system and the events leading to the crisis, the paper investigates a number of institutional, legal, and behavioral factors that contributed to the high number of NPLs even before the crisis. These include, *inter alia*, the role of the definition of NPLs prevailing before the Eurogroup decisions, delays in the foreclosure process, and the absence of reliable information on the financial situation of borrowers. The interplay of such factors points to serious weaknesses in the design and implementation of the regulatory and supervisory framework as well as in the operating environment and the institutional infrastructure, which led to the widespread practice of lending primarily on the basis of collateral and not on future cash flow, income, or ability to pay.

The disproportional increase and size of NPLs also remains a puzzle, especially considering the magnitude of the domestic recession, which proved milder than originally anticipated. A number of factors can be potentially associated with this asymmetry, including the high degree of vulnerability of borrowers to negative economic developments and the existence of strategic defaulters.

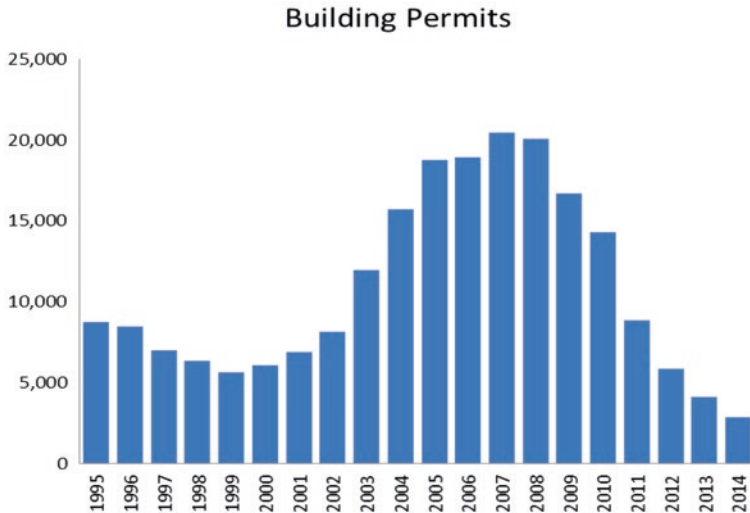
In the context of the restructuring of the domestic banking system, a number of reforms have been undertaken, including measures to address the high NPL ratio. Some encouraging results appear to be emerging recently, given the earlier than expected rebound of economic activity and the accelerated pace of private debt restructurings taking place since 2015. The question still remains whether the current dynamics are adequate to resolve the problem of private sector overindebtedness within a reasonable frame.

## 2 The Banking System in Cyprus and the Events Leading to the Crisis

Prior to the EU entry in May 2004, the banking system in Cyprus was segmented: One part—the Banks—was supervised by the Central Bank of Cyprus (CBC), and the other, the Co-ops,<sup>2</sup> was regulated and controlled by the Cooperative Societies Supervision and Development Authority. The part supervised by the CBC accounted for (approx.) 65% of the whole banking system and up until the EU entry included two kinds of banks: Domestic (Onshore) banks and International<sup>3</sup> (Offshore) banks, with the latter being restricted from dealing with Cypriot clients. It should also be noted that up to January 1, 2001, interest rates were controlled administratively and by law and could not exceed 9% per annum.<sup>4</sup> Foreign exchange controls were in place for many years and were (gradually) abolished with EU entry.

A number of major changes were brought about by the EU accession in May 2004. The Co-ops still remained outside the supervision of the CBC but had to comply with the full EU banking framework.<sup>5</sup> As a result, they began to merge. Bigger Co-ops absorbed smaller societies, with their number being reduced from over 350 to 93 by the start of 2013. Additionally, the distinction between “Onshore” and “Offshore” banks was abolished and “Offshore” banks were allowed to deal with Cypriots. Furthermore, banks from Greece began to take a more active interest in the Cyprus banking sector as part of their overseas expansion.<sup>6</sup> Finally, during this period, Cypriot banks expanded aggressively in Russia, other ex-Eastern European Bloc countries, and Australia, following their successful expansion (in the late 1990s) to Greece (Fig. 7.1).

Following EU accession, Cyprus real estate prices began to increase significantly, fueled in large by excessive credit growth (Clerides and Stephanou 2009), which eventually led to a property “bubble”.<sup>7</sup> This was triggered by a number of factors, including the EU entry itself (and the increased opportunities for a number of foreign business units moving to Cyprus), speculation about Cyprus house prices being “low” compared to European ones, which led to speculative buying by overseas house

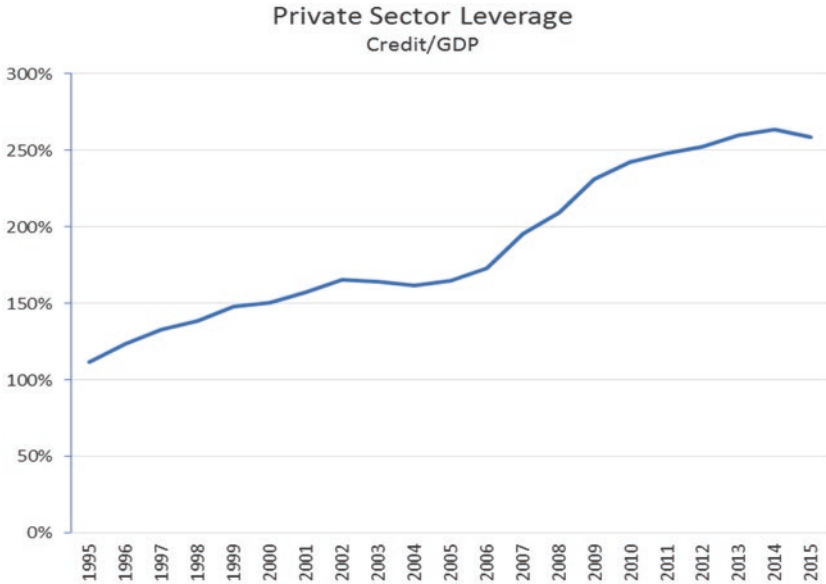


**Fig. 7.1** Building permits

buyers (mainly British),<sup>8</sup> and a widely held belief that investment in land and real estate property “never loses” value.<sup>9</sup> Furthermore, as a result of the increasing activity in the real estate market and the constantly rising property prices, collateral was both increasing in value and was considered to be very liquid, thus enabling banks to extend even more credit underestimating the risk of future losses. As mentioned, a large part of the boom was financed by a rapid expansion of credit—with bank lending to local residents growing in excess of 20%<sup>10</sup> per annum during 2007–2008.<sup>11</sup> This in turn was made possible by an influx of foreign currency deposits due to the “success” of the strategy to make Cyprus an International Business Center.<sup>12</sup>

The CBC was at the time unwilling to increase interest rates to contain the situation since it would have jeopardized interest rate convergence with the EU and, hence, euro adoption. What the CBC did, instead, was to introduce in July 2007 a tougher macro-prudential measure, namely, lending restrictions for housing loans requiring banks to obey strict prudency rules in house lending, in the form of tougher loan-to-value





**Fig. 7.2** Private sector leverage (credit/GDP)

requirements (Central Bank of Cyprus 2010). This action was heavily criticized by most at the time, but, with hindsight, it was a move that probably saved the system from its own excesses (Fig. 7.2).

The global financial crisis of 2007–2008 came at a time when both the CBC and the Cyprus banking system were preparing for the introduction of the euro (Figs. 7.3 and 7.4)

that was due on January 1, 2008. This led to an additional liquidity injection to the system, as euro deposits by non-residents, which up to that point were considered to be foreign currency and hence subject to the very high liquidity requirements imposed by the CBC, were reclassified as local currency bearing a much lower liquidity requirement of 25% that applied to local (CY pound) deposits. This accelerated domestic credit creation, while the reduction of the “euro”/local currency liquidity ratio to 20% in July 2008 further intensified the boom.<sup>13</sup> Finally, more conservative banks were forced by competition to act similarly since they

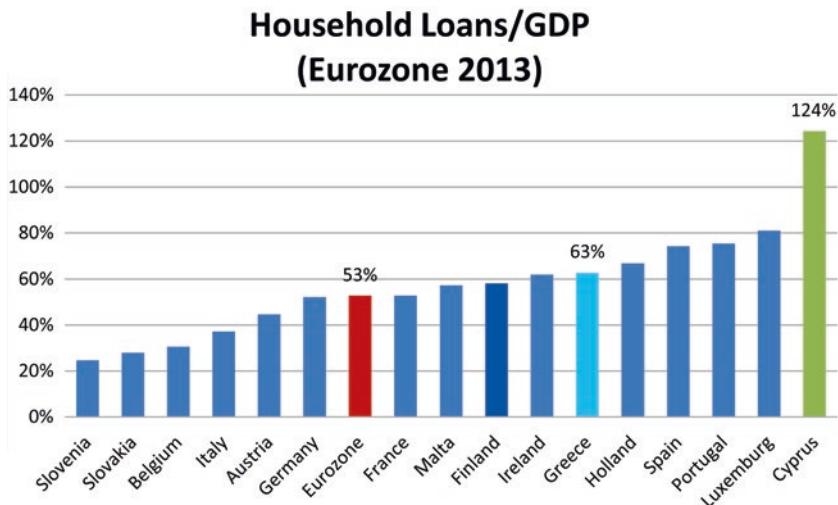


Fig. 7.3 Household loans/GDP

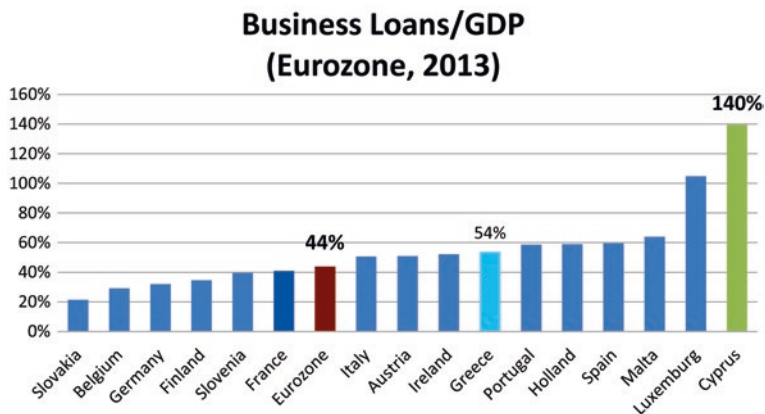
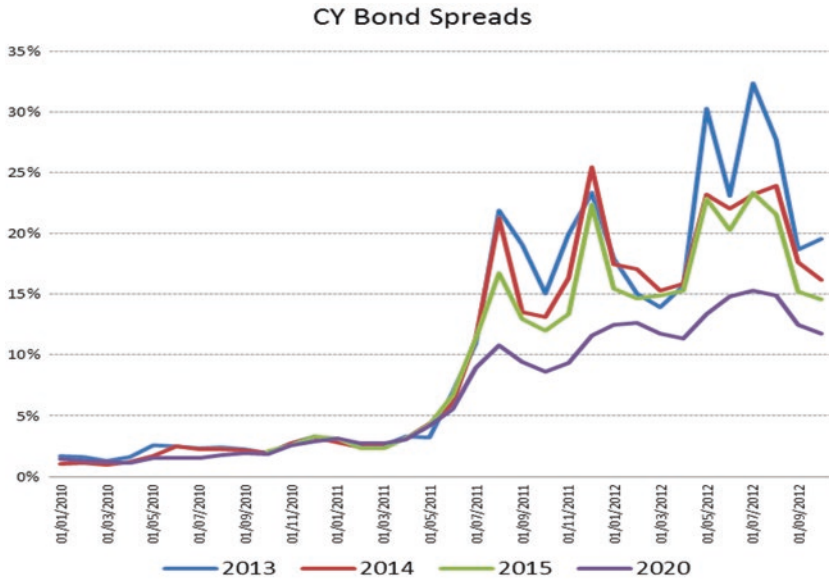


Fig. 7.4 Business loans/GDP

stood to lose key customers to the competition.<sup>14</sup> The above developments coupled with the fact that Cyprus did not have a global Credit Bureau till essentially 2014<sup>15</sup> led to an excessive extension of private sector credit, from an already high level of over 100% of GDP in 1995 to over



**Fig. 7.5** Bond spreads

250% in 2013, rendering Cyprus the country with the highest indebted households and businesses (in gross debt) in the euro area. This in turn led to a high degree of vulnerability to negative economic developments and constitutes one of the major parameters in the NPL experience in Cyprus (Fig. 7.5).

#### **Box A—Lending on the Basis of Collateral**

Domestic banks' lending practices prior to the MoU were such that key emphasis was placed on collateral (mainly immovable property and land) and less on the borrower's ability to repay. As suggested by the 2010 Household Consumer Finances Survey for Cyprus (European Central Bank 2013), Cypriot households, beyond being among the most leveraged in mortgage loans in the euro area, had by far the highest share of consumer loans secured by mortgages. The latter share reached about 30% of total loans compared to 19% in the euro area. This practice was the result of a variety of factors:

- a) The poor quality of company accounts (the vast majority of companies in Cyprus are of very small size) and the existence of a large informal economy, especially by the self-employed.
- b) Even in cases where accounts were properly prepared and recorded, these were primarily for tax purposes, and since the deadline for their submission was (is) 18 months after year end, they were practically of limited value in assessing borrowers' solvency.
- c) The fact that most companies had a single owner meant that their cash flow could be easily diverted into the personal wealth of the owner leaving the company bare. This led to the widespread use of guarantees demanded from the owners of the company and their close relatives and the mortgaging of their tangible wealth.<sup>16</sup>
- d) The fact that the interest rate was capped by law at 9% and was the same for all borrowers up to January 1, 2001, led domestic banks to lend to the most secured borrowers, creating a culture of "collateral lending" that persisted in the following years.
- e) Many Co-ops were demanded by existing regulation to lend on the basis of "existence-of-guarantors".<sup>17</sup>

Events in Greece triggered a reversal of the fate of the Cypriot banking system amid rising fears about the quality of their Greek asset portfolios and their large holdings of Greek government bonds.<sup>18</sup> The Greek PSI of February 2012 costed the three largest Cypriot banks a total of EUR 4.5 billion, an amount equivalent to 25% of the country's gross domestic product. Consequently, losses from Greek government debt exposures and the ongoing Cyprus stagnation have had a considerable negative impact on the banking system, undermining its stability and profitability.

These negative developments in the Cypriot banking system occurred against the background of a deteriorating domestic macroeconomic environment characterized by a mild recession in 2009—the significant economic impact of the Mari Electricity Power Plant destruction, a non-sustainable trajectory of public debt (which surged from 45.1% of GDP in 2008 to 79.3% of GDP in 2012), and the successive downgrades of Cyprus sovereign debt by credit rating agencies. The latter resulted in the drop of the sovereign bonds to the non-investment grade category (junk) in the first quarter of 2012 and the "exclusion" of the Cypriot government from the international capital markets in May 2011, with Cyprus

bond spreads exceeding 20% for shorter maturities and over 10% for longer maturities.

The signs of the quickly approaching crisis were not hard to see. The pursuance of expansionary fiscal policy against the background of an accommodative monetary policy, owing to the introduction of the euro as described above, and in the context of an economy with a large banking sector eight times its size, constituted inadvertently a high-risk policy. In fact, in (Syrichas et al. 2012) the situation before, the crisis was characterized as an “explosive cocktail”. Nevertheless, the prevailing political environment was not conducive to taking much-needed action. The most eminent issue at that time was not what to do, in terms of a comprehensive package to resolve or avoid the crisis, but who is to be blamed for the emerging crisis: The banks and the Central Bank were being blamed by the government for bad policies and practices and the government was blamed by bankers and the opposition of recklessly managing its fiscal affairs. A futile public dispute between the then outgoing Governor of the Central Bank of Cyprus and the government in 2011–2012 and an equally frantic confrontation between the newly appointed Governor of the Central Bank and the newly elected government in February 2013 only accentuated the situation.<sup>19</sup> As a result, even though the international lenders were invited by the departing government in June 2012, the program was not agreed until March 2013, just when the new government took over. During this period of indecision, inaction, and wait-and-see-who-to-blame game, the economic situation deteriorated sharply.

### **3 The Unfolding of the Crisis and the Rise in NPLs**

In May 2012, Marfin Popular Bank (Laiki) requested assistance from the government as it could not meet EU capital requirements. In June 2012, Bank of Cyprus also announced that it will not be able to meet EU capital requirements. At the same time, as it was mentioned earlier, the government was engaging in an excessively expansionary fiscal policy, despite the fact that it had already lost access to the markets. No surprise

then that financing of the day-to-day government operations was becoming an increasing challenge.

Given the mounting pressure stemming from the aforementioned fiscal and banking developments, Cyprus requested in June 2012 financial assistance from the European Union and the IMF to help capitalize its banks and to fund its deficit. As part of the process of getting EU and IMF support, Cyprus had to sign an MoU, which laid down the fiscal measures and structural reforms it had to implement. The program, which was eventually agreed upon in March 2013, was based on two main pillars: Pillar I focusing on restructuring the financial sector and Pillar II focusing on a comprehensive fiscal consolidation plan, underpinned by structural reforms (International Monetary Fund 2013).

In relation to the first pillar, prior to signing the MoU, Cyprus Banks had to undergo a Loan Quality Review/Stress test by PIMCO to ascertain their capital needs in case they would need extra government support in the forthcoming years (PIMCO 2013). The stress test revealed large capital needs for all the banks, with the biggest problems (by order of importance) being faced by Laiki, Bank of Cyprus, and the Co-ops. These results were heavily disputed.

As a result of the high level of estimated capital needs, the MoU included provisions that have radically changed (and are still changing) the Cyprus banking system including the following:

- The Cypriot banks were obliged to sell their Greek operations.
- Laiki was put under resolution. Its foreign operations would be sold to repay uninsured depositors while its Cyprus operations and assets were transferred to Bank of Cyprus in exchange for Bank of Cyprus shares. Its interbank liabilities and the emergency liquidity assistance (ELA) as well as the insured deposits of Laiki were also assumed by Bank of Cyprus.
- Bank of Cyprus was capitalized through the full contribution of the shareholders and bondholders of the bank and the conversion of 47.5% of the uninsured deposits into equity (depositor bail-in).
- The Co-ops were capitalized through a capital injection from the Government (bail-out). In exchange, the Co-ops underwent/are undergoing radical change. The 93 Co-ops merged into 18 that were

capitalized by the Co-op Central Bank, effectively losing their independence. The Co-op Central Bank also assumed the management and “first level supervision” of the Co-ops. A final major change in their regulatory structure was that Co-op supervision passed to the CBC.

One of the direct consequences of the aforementioned dramatic events was the significant increase in non-performing loans. The sharp decline in GDP and the increase in unemployment had a direct impact on the ability of borrowers to repay their loans. Furthermore, the high level of leveraging and indebtedness of both households and business made things worse. Following a relatively satisfactory implementation of the program by the authorities, in part owing to high degree of ownership exhibited by them but also by the broader public, the above measures have started bearing some fruits and gradually the banking sector in Cyprus is being stabilized, setting the stage for restoring its vital role into the Cyprus economy. Nevertheless, and despite the significant progress achieved, challenges remain, especially in relation to the quality of the loan portfolio due to the high levels of NPLs.

### Box B NPL Definition History

The definition that applies in Cyprus of what constitutes a non-performing loan (NPL) or non-performing exposure (NPE) has undergone several changes over the past 20 years.<sup>20</sup> The main factors affecting the classification were (i) the days past due (the trigger event) before a “loan” was classified as problematic<sup>21</sup>; (ii) the extent of “contamination”, whereby problems on one loan or facility were deemed to affect all the facilities of the borrower and hence warranted the inclusion of all the borrower’s facilities in the problem category; (iii) the inclusion or not of collateral in the definition; and (iv) the period where a problem loan that was restructured was maintained in the category of problem loans before being deemed as “cured” or performing again. Related to these were the rules on income recognition on these problematic loans.

The most recent changes in NPL categorization were introduced in January 2006, December 2008, July 2013, and September 2014.

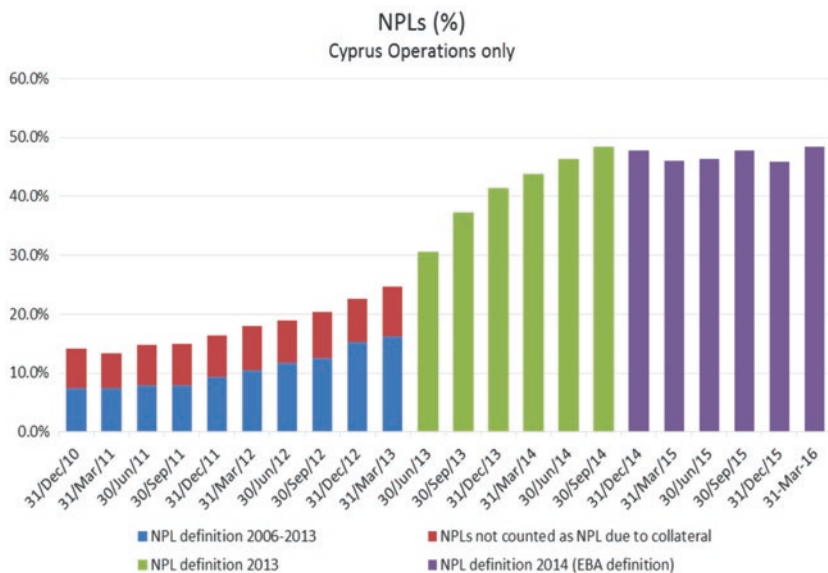
The 2006 definition had as a main trigger “the over the 90 days in arrears” on a given facility rule; significantly though it did not include loans that got restructured before they hit the 90-day rule, opening the possibility of “cosmetic” restructurings.<sup>22</sup> It was an all-encompassing definition, whereby if the loans with over 90 days past due exceeded 20% of the borrower’s facilities, then all the facilities of the same borrower were deemed to be non-performing, with the definition of facilities also including indirect credit exposures.<sup>23</sup> Significantly though it excluded from the NPL definition loans (or parts of loans) that were fully covered by tangible security.<sup>24</sup> It also mandated that previously categorized NPLs were to remain non-performing for a period of 6 months after being restructured.<sup>25</sup> Finally, it had some rules about income recognition on NPLs.

The 2008 CBC Directive basically refined the 2006 Directive. Its major change was to close various “loopholes” in the latter.<sup>26</sup> Significantly, it still excluded from the NPL definition, loans that were fully covered by collateral.<sup>27</sup> Finally, it removed any recognition-of-income rules that the previous directive envisaged, and it also allowed the banks to use IFRS standards in income recognition.

Major changes came about with the 2013 Directive, which was part of Cyprus’ commitments in the Memorandum of Understanding (MoU) agreed with official lenders in March 2013.<sup>28</sup> The major change brought about was that the existence of collateral no longer affected the classification of a problem loan (or set of loans), as non-performing. Credit facilities were also classified as restructured or not, on top of performing or non-performing. This led to four possible classifications—performing loan(s) non-restructured, performing loan(s) restructured, non-performing loan(s) restructured, and non-performing loan(s) non-restructured. It maintained the all-encompassing nature of the NPL definition as in previous directives. It also introduced a variety of rules that determined the time period after which a restructured loan could be removed from the NPL/restructured category.<sup>29</sup>

In September 2014, there was another change in the definition of non-performing exposures (NPE) as the CBC adopted the European Banking Authority (EBA) standards on the categorization of problem loans. The





**Fig. 7.6** NPLs (%), Cyprus operations only

major differences with the CBC directive of 2013 is that NPE exposures are marked as NPE for a longer period<sup>30</sup>; similarly, restructured facilities are marked as restructured for a longer period.<sup>31</sup> The chart below shows the NPL evolution in Cyprus. It should be noted that this series is subject to a number of changes in definitions which create data discontinuities<sup>32</sup> (see Box B). Nevertheless, it is useful as it broadly gives the picture of developments before and after the peak of the crisis (Fig. 7.6).<sup>33</sup>

Firstly, it shows that regardless of the definition used, the size of the NPL ratio in Cyprus is quite high, outside the typical norms prevailing in the European Union. Second, it is clear that the problem existed even before the crisis. It seems, however, that since loans were heavily collateralized and property prices were increasing continuously at least up until 2008, the risks stemming from this problem were underestimated (see Box C). Third, the deteriorating economic situation escalated the problems of NPLs, with the recession and the high levels of unemployment having a direct impact on the ability of borrowers to repay their loans.

Nevertheless, the sheer size of the NPL ratio in Cyprus, which is significantly higher even than that of Greece, constitutes a puzzle. That is, especially taking into account that the domestic recession, despite being unique by the country's historical standards, proved milder than expected and relatively smaller in magnitude than in other crisis-hit countries.

### Box C

The high level of NPLs even prior to the crisis needs some explanation. A variety of factors were at play:

- a) A very slow-moving legal and judicial system led to a buildup of NPL stock waiting before the courts.
- b) A slow-moving (and subject to political intervention) "foreclosed property auction process" under the Government Land Registry Department added to the problem of NPL stockpiling.
- c) The exclusion from reported NPLs of those covered by collateral (see Box B NPL definition history) masked the problem from bank management attention and, hence, action. In addition, management knowledge of the build-in delays in foreclosure contributed in the creation of a culture of "this is how the system works". Finally, the rising property/collateral prices of the past re-enforced a "nothing to worry about" attitude.
- d) The Central Bank was also drawn in this trap since the high collateralization levels in problem loans were understood to shield banks (and their capital) from losses from these loans.

One possible explanation is that, given the high level of debt carried by domestic households and businesses (and in conjunction with the fact that loans were primarily given on the basis of the value of collateral and not on the flow of income), borrowers in Cyprus were relatively more vulnerable to economic shocks, than borrowers in other countries. Therefore, for a negative economic shock of similar magnitude, say a certain increase in unemployment or reduction of wages, Cypriot borrowers' ability to pay would be more seriously affected than that of borrowers in other countries. It could also be argued that the vulnerability of borrowers was exacerbated by the bail-in in Laiki and Bank of Cyprus. Given the habit of households and businesses in Cyprus to borrow, even when they had deposits, and not necessarily using the same banks, it is possible that

in many cases the bail-in of deposits had affected the ability of borrowers to repay their loans. Another possible explanation for the higher than expected increase in NPLs is the existence of strategic defaulters; that is, borrowers who are in arrears despite the fact that they have the ability (but not the willingness) to pay. It can be argued that the legal framework prevailing until recently encouraged the existence of strategic defaulters, given the very slow foreclosure procedures and the lack of an insolvency framework. Furthermore, some evidence suggests the existence of such defaulters among households. Their numbers, however, seemed to have picked by 2015 and declining lately, following the introduction of the new foreclosure and insolvency framework (CBC 2016 forthcoming). In addition, if one examines the NPLs of businesses, which are about half of the total, it can be observed that while, as expected, the construction sector has been heavily affected by the domestic recession, the same cannot be said for the tourist sector. The latter is the sector least affected by the crisis in relative terms and still features a very high (albeit recently declining) share of NPLs.<sup>34</sup>

More specifically, the NPL ratio of the sector “accommodation and food service activities” which is related to the tourist industry appears constantly to hover around levels above the business sector average. For instance, in 2016Q1 it was recorded at 55.95% compared with 54.4% for the average for all non-financial corporations.

A number of other related issues need to be brought to the reader’s attention to complete the factual description of the current NPL situation.

Firstly, a significant part of NPLs are “terminated” loans—loans that are going to be collected through the legal recovery process, which mainly means liquidation of collaterals by the banks and/or sale of such loans to third-party investors. For these cases, successful dealing with NPLs is closely related to the developments in the property market and the attraction or not of foreign investors to either purchase these properties directly or buy the individual loans or loan portfolios themselves (Fig. 7.7).

Secondly, the impact of the problematic portfolio of bad loans on the solvency of the banks themselves hinges on two related parameters—the adequacy of the provisions that the banks have formed against these problem loans and the existence of “an adequate capital buffer” that can absorb any unexpected losses that can arise in the process of NPL resolution.<sup>35</sup>

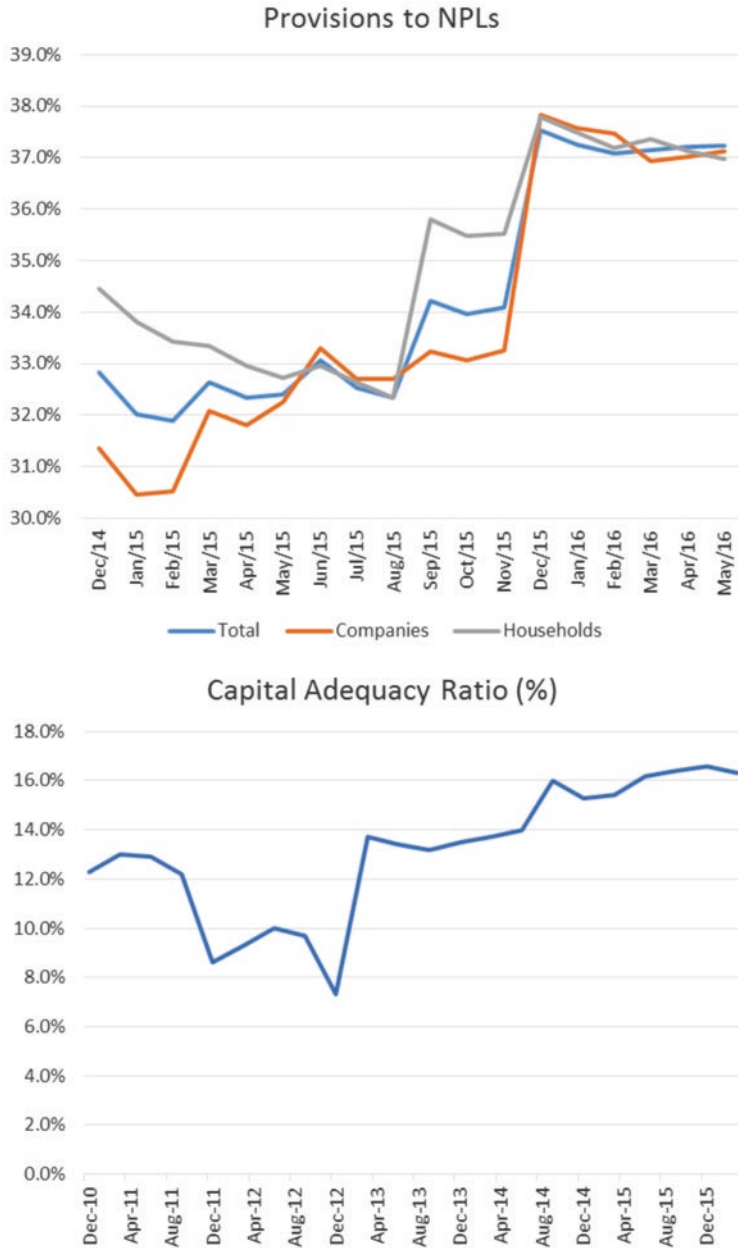


Fig. 7.7 Provisions to NPLs, capital adequacy

The latter is in turn related to the extent of overcollateralization (excess of collateral value to the value of the distressed loan) that exists. The situation in Cyprus appears to be one of increasing NPL provision coverage by banks. This is still below the EU average level (Directorate General For Internal Affairs, Economic Governance Unit 2016), but partly compensated by a higher than average collateralization level.<sup>36</sup> Indeed the 2010 Household Consumer Finances Survey for Cyprus (European Central Bank 2013) points out that Cyprus had by far the highest share of consumer loans secured by mortgages, which reached about 30% of the total loans vis-à-vis 19% in the euro area.

In terms of the banks' capital situation, the bailout/bail-in as well as the successful engagement of foreign investors has led to a strengthening of their capital position from a low of 7.3% in December 2012 to its current level (March 2016) of over 16%.

#### 1. *Measures undertaken to address the NPL problem*

As noted earlier, the MoU agreed with the international lenders of Cyprus focused on the restructuring of the financial sector in Cyprus. In this context, a variety of legal and institutional changes were implemented that impinged on the NPL performance and measurement. The key changes are listed below with a brief commentary on NPL impact:

**Loan origination:** In an attempt to handle the NPLs' problem at its source, the CBC issued in December 2013 a directive providing guidance to banks on how to deal with new loans. The focus of the Directive was to guide the banks to concentrate on income and the borrower's ability to pay when granting new credit and reviewing facilities. In March 2016, an amended directive was issued in order to deal with some administrative issues, which were delaying the granting of new credit facilities.

**Loan restructuring directive:** In September 2013, the CBC of Cyprus issued guidelines to local banks on how they should approach loan restructurings and on what it considers to be "viable" restructurings. This well-intended directive had, for a period, the unintended consequence, whereby problem borrowers, with the encouragement of their legal advisors, were threatening to instigate criminal proceed-

ings against banks and their staff, who did not apply the directive “correctly”. This complicated restructurings, which turned them, from being a financial matter, to a compliance issue. The directive was amended in March 2016 in order to reduce bottlenecks and delays observed in its application.

**New insolvency regime**<sup>37</sup>: This was voted in by Parliament in April 2015. It covers issues of insolvency and bankruptcy for individuals with significant protection of their principal residence and changes in the obligations of guarantors. Similarly, significant changes took place in the area of company examinership (restructuring) and liquidation aiming to speed up the process. The six new legal acts (five Laws and one Administrative Act [Regulation]) that form the insolvency framework came into force on the May 7, 2015. The voting of the new insolvency framework, almost two years after the signing of the MoU, and the rumors/misinformation surrounding its passage probably contributed to a “wait and see” attitude from borrowers in reaching agreement with the banks involved, slowing the restructuring process.

**Credit Bureau**: Prior to the MoU, banks in Cyprus operated two independent Credit Bureaus—one for commercial banks and one for Co-ops with no information sharing among the two<sup>38</sup> and dealing only with negative data—borrowers for whom legal action was taken. In compliance with the terms of the MoU in October 2014, the two bodies started exchanging data. In addition, positive data on all borrowers (with or without arrears, restructured, etc.) became available to all institutions.

**NPL restructuring targets**: As of April 2015, CBC has imposed to banks restructuring targets which are closely monitored. Bank managements failing to meet their targets face a “dressing down” by the Central Bank.

**Restructuring mediation**: As a result of the high increase in NPLs, the Financial Ombudsman office was by law assigned to appoint mediators to assist banks and borrowers seeking restructuring to find an amicable solution. The mediation is not binding.

**Interest rates**: In addition to the above actions (that were undertaken to address the problem of NPLs), the CBC introduced some

“macro-prudential”<sup>39</sup> measures that led to the reduction of both deposit and lending rates in 2014 and 2015, easing the debt burden on borrowers. The main aim of the latter measures was to facilitate credit flows and to restore the proper functioning of the monetary policy transmission mechanism.

## 2. *Perspectives on the NPL experience and the way forward*

The processes of dealing with private sector insolvency in Cyprus brought to the surface a variety of issues and “market related” failures that deserve some further analysis. These are presented below in rough chronological order.

**Capital controls**—These were introduced in March 2013 by Ministerial decree. They included restrictions on capital flows overseas and the movements of capital among local banks as well as a “freeze” of deposits in some banks. These were gradually relaxed throughout the period till their complete removal in April 2015. These controls are thought to have impacted the repayments of some loans and to have created an “artificial” increase in loan arrears<sup>40</sup> in the immediate post-MoU period.

**Deposit bail-in**—The deposit bail-in (haircut) of Bank of Cyprus and the closure of Laiki are also thought to have affected the evolution of NPLs, with borrowers claiming that the haircuts affected their repayment ability. It should be noted that the bail-in took into account the assets and liabilities of each depositor/borrower at the level of the legal entity (and not on a group or “family” level) and not across the two banks, even though Bank of Cyprus took over Laiki loans and insured deposits. In addition, that a significant part of the bail-in was borne by non-residents due the existence of substantial non-resident deposits in these banks.

**“Non-transparency” of a borrower’s true financial situation**—The existence of “asymmetric information” with regard to the overall wealth, and/or the real cash flow ability of the borrower due to the ability of defaulters to hide their income/wealth, locally<sup>41</sup> or abroad, creates the problem of “strategic” defaults,<sup>42</sup> which hinders the restructuring process and the offering of pre-packaged solutions. A time consuming process of “discovery” takes place were banks try-via a process

of hard negotiation with possibility of legal action always on the table—to separate genuine cases from strategic defaults.

**Export of capital**—The crisis itself gives added incentives for “strategic” defaults since the incentives are to have “foreign” assets and “domestic” liabilities. This is more likely to occur in sectors with foreign earnings like trade and tourism, where earnings can easier remain outside the country, circumventing any export-of-capital controls in existence.

**Unfair treatment**—Existing borrowers whose loans are in good standing feel that they are treated unfairly since those that are not paying their loans get reductions in the interest rates of their loans, possibly “haircuts” and so on. The moral hazard dilemma of this situation is for them to pretend that they have similar problems in order to get better terms for the loans. This group is a candidate for becoming strategic defaulters, along those who fraudulently do not pay, despite the fact that are able to pay in an attempt to defraud the bank.

**Restructurings and guarantors**—In cases of restructurings where the loans were secured by third-party personal guarantees, and where the guarantors have to give consent for the restructuring of the facilities, experience shows that some guarantors try to avoid endorsing the new restructured facility in the hope of “free riding”, hindering the restructuring process.<sup>43</sup>

**Misaligned incentives**—Legal advisors whose remuneration is based on “hourly” rates have incentives to prolong the settlement process. This is a problem of both asymmetric information (where the borrower doesn’t know his chances of winning) and a principal agent problem. The situation is further accentuated if the laws that apply are new (as is the case of Cyprus) and any legal ambiguities are going to be clarified via “legal precedents” in court.

**Foreclosures**—As was mentioned earlier, the legal process of foreclosure was and perhaps still is notoriously slow. So long as property prices were rising, none of the interested parties had any reason to speed up the process. Problems arise now when we allow for the possibility of property price drops. Such situations resemble “Option” payoffs. The defaulter in fact will want to drag out the liquidation



period because it gains from any upside, while the bank takes all the downside risk. A similar but opposite problem is created when the value of the collateral far exceeds the value of the secured loan. In this case, the foreclosing bank might be looking for a quick sale and, hence, might be willing to accept a discount to the market price, in order to achieve quick disposal.

**Wealth redistribution**—A well-known effect of depositor bail-in is the implied wealth redistributive effect from savers to borrowers. As was mentioned earlier, a substantial part of the bail-in was borne by non-residents; hence, the “wealth re-distributive effect” of the bail-in was not fully borne by Cypriots, thus moderating its impact on consumption and growth.

A similar but slightly different redistributive effect arises from the reduction in interest rates, which affects the incomes of savers and reduces debt servicing burden. Due to the reduction in interest rates, bank depositors/savers have borne and are bearing a substantial part of the adjustment process. This effect, along with the bail-in redistributive effects mentioned, is to be studied further.

**Taxation**—The existence of property taxes (both on capital gain and on property ownership), and, even worse, the uncertainty about the future fate of such taxes, stifles debt for asset swaps, whereby the bank takes over property in exchange for debt forgiveness. Similarly, it can inhibit property funds from getting involved. Similar issues arising from some old Central Bank directives (which were intended to stop banks from becoming “property developers”) are proving a hindrance to the debt settlement and recovery process.<sup>44</sup>

**Debt/property swaps**—The absence of a National Asset Management Agency (NAMA) and the fact that a lot of debt restructuring seems to involve debt for property swaps are pushing banks into becoming property managers. This requires not only different sets of skills, but it can also divert management attention away from the prime function of banks which is lending.

**The deleveraging effect**—The combination of private sector deleveraging and unwillingness to borrow in view of the perceived economic uncertainties, coupled with a “capital preservation” behavior by

banks, leads to a marked slowdown of new credit \*(and even credit contraction for some quarters), thus accentuating the squeeze on bank profitability which further hinders the financing of new investments and stifles recovery. At the same time, banks competing among themselves for the few remaining “performing” loans lead to a “credit-margin” squeeze and the possible (long-term) underpricing of these loans—a harbinger of future problems.

### **Concluding remarks**

Addressing the problem of the high level of NPLs in Cyprus is challenging for both borrowers and creditors. It is also of utmost importance for policy makers, given its potential implications for economic growth and financial sector stability.

At this stage, it may be premature to draw definite conclusions on whether the measures already undertaken are sufficient to rectify the problem over a reasonable time frame. Yet, a thorough analysis of certain key parameters of the problem could assist us in shedding some light on this question.

On the negative side, the sheer size of the NPLs and their slow rate of reduction so far suggest that the problem may take a long time to correct, needs constant monitoring by the authorities and the banks, and requires readiness for quick actions when problems arise in order to fine-tune or redirect the process. What makes the task even more demanding is that a large portion of NPLs consists of terminated loans whose expected recovery is certainly more difficult than that of the NPLs under restructuring and hinges on the fate and developments in the real estate/property sector. In this respect, and having in mind the scale of lending that is going to be resolved one way or another via property sales (foreclosures or swaps), it becomes clear that the problem cannot be resolved by internal transactions only, but foreign investor interest is key to the success. Furthermore, the high level of private indebtedness renders the correction process even more difficult to complete, as the much-needed deleveraging which is taking place concurrently hinders new credit creation and investment financing. This in turn stifles growth and the vicious circle continues. Finally, a lot

depends on how the Supervisory Authorities at EU level approach the NPL-related issues in areas like interest recognition on NPLs, lifetime loss provisioning, and EU level bad banks.

On the positive side, it is clear that a number of factors that were responsible for the high level of NPLs have already been addressed. For instance, the legal framework for foreclosure and insolvency, as adopted in May 2015, is now more favorable and provides better incentives for the restructuring of problematic loans, which indeed have accelerated in pace since the beginning of 2015. Yet, one needs to be careful of the “low hanging fruit effect”, whereby it is rational for banks to concentrate in the beginning on the large/easy cases while the more difficult and time-consuming are left for later. A similar situation and comment applies for the “quality” of the restructurings where, currently, approx. 75% of restructured loans do not re-default, and the question is whether this good metric will continue as more “difficult” loans get restructured down the road. Also, the significant decline in interest rates in recent years takes some pressure off the problem, facilitating the restructuring of loans.<sup>45</sup> Finally, the macroeconomic factors that were largely responsible for the deterioration of the problem are now clearly reversed and improving beyond initial expectations. GDP growth, owing in part to a solid rebound in investment<sup>46</sup> and tourism,<sup>47</sup> is expected to accelerate from 1.5% in 2015 to at least 2.7% in 2016 (CBC 2016). In line with the acceleration of economic activity, unemployment is sharply declining from its peak of 16.3% in 2013Q3 to 14.1% in 2016Q1 (unadjusted data). Finally, developments in the real estate market clearly point to a reversal of the downward trends in the sector, raising the prospects for a rebound in the value of collaterals but also facilitating the process of “debt for equity swaps” in which a number of involved parties are engaged in.

In line with the above macroeconomic developments, but also following the significant restructuring of the sector after the crisis, banks have strengthened their balance sheets and improved their provisioning levels and profitability. This strengthens domestic banks’ capacity to absorb more provisions and write-offs and at the same time contribute to the restoration of credit creation in the domestic economy.

## Notes

1. The bail in in Cyprus and the events leading to it have extensively been presented and discussed in the literature, for instance (International Monetary Fund 2013; Lascelles et al. October 2013; Pikis et al. 2013; Michaelides 2014; Orphanides 2014). The background presentation here is limited to the basic facts that are sufficient to help the discussion on NPLs.
2. Co-ops were “mutual” type banking institutions. They were two types—Co-op Saving Societies and Co-op Credit Societies—the first with limited and second with unlimited liability of their members. The rules and regulations that applied to Co-ops were much less strict than those of banks.
3. International banks were/are located in Cyprus but are principally active abroad. They are based here mainly due to the favorable tax regime. They were not in general allowed to deal with Cypriot clients. The only exceptions were to deal with offshore companies located in Cyprus and with foreign clients that lived in Cyprus. Later they were allowed to lend to locals but not to receive deposits from them, since accepting deposits from Cypriots was considered to be a violation of exchange controls.
4. At the same time, the law dictated that accumulated interest could not exceed the amount of the original loan. The cap on the interest rate at 9% and the restriction on the doubling of the principal were thought to prevent usury.
5. Subject to some transitional arrangements in applying the capital adequacy rules up to December 31, 2007.
6. In this period, Piraeus and Eurobank began local operations, and Alpha Bank (which was already present in Cyprus) began aggressive local expansion mainly in the property development area. In the same period Marfin financial group of Greece bought the HSBC stake in Laiki bank and effectively took control.
7. House prices increased by almost 50% in the period January 4 to December 8. Price increases became excessive broadly since mid-2006, when the surge in credit began (CBC 2016). A previous episode of housing boom can be traced back in 1999–2001 after the

stock exchange bubble, when substitution effects in asset allocation led first to a slowdown in housing demand (during the market upswing) and then to an increase in housing/land demand during the peak period (due to a wealth effect and asset relative price effect), an acceleration of land/property investment during the “crash” as investors sought safe haven in land. Pashardes and Savva (2009) show some evidence of this. They find a negative association between Cyprus house price increases and Cyprus stock market returns with a high growth in house prices after the stock market collapse in 2001.

8. Data from the CBC of Cyprus on Foreign Direct Investment suggest that inflows related to real estate purchases increased significantly during the period of the excessive price increase from approx. €115 million in 2002 to over €520 million in 2007.
9. This belief was the result that, for years, property investment was the only alternative investment to bank deposits (because of the foreign exchange controls that Cyprus operated) and, secondly, its virtually nonexistent capital market.
10. In fact Platis and Orphanides (2005) argue that it is not just “credit” that affects house buying in Cyprus but all elements of it—availability, interest rate, loan duration, the ratio of loan value to the value of the house, and so on.
11. A big part of this lending was directed to the sectors of construction and real estate sectors. The share of the “Real Estate, renting and business activities” in total bank lending increasing from 9.8% in December 2006 to 16.3% at the end of September 2008. Bank lending to the more narrow “Real Estate activities” sector increased its share in total bank lending from 5.4% to 8.0% in September 2008. At the same time, the share of “Construction” in total bank lending increased from 7.0% in December 2006 to 10.2% at the end of September 2008. Similarly, the share of bank housing loans in the banks’ portfolio increased from 16.7% in 2005 to 21.6% at the end of 2008. A striking aspect of the fast expansion in bank housing loans was the marked increase of such lending to non-residents whose share of bank housing loans increased from 3.2% of the total bank housing loans in January 2006 to 18.6% in March 2009, demonstrating clearly the way the international property bubble spread to Cyprus.

12. Since the early 1990s, Cyprus had/has a policy to develop as a financial center using a network of double tax treaties. As such “foreign owned” deposits have been steadily increasing in the last 20+ years and were becoming an ever more important source of funding for local banks. The CBC, fearing the possibly unstable nature of these deposits (being tax dependent), was/is requiring high liquidity ratios to be met for these deposits.
13. These were done to bring the liquidity ratio in line to that in Greece since Cypriot Banks were competing with Greek Banks both locally and in Greece.
14. A classic “race to the bottom” competition. Attempts by the CBC to control the situation through “prudency” guidelines were met with heavy criticism.
15. A Credit Bureau was set by the Banks in 2008 after CBC pressure. For legal reasons it covered only negative data. The Co-ops also at the same time had a Co-op only Bureau. There was no exchange of information among the two and no easy way to monitor a borrower’s total credit facilities.
16. Mervyn King (2016) makes a similar point—that collateral lending is useful where monitoring costs are high and the returns low—as in the case of small business loans.
17. The logic being that a “not-credit worthy” individual will be unable to find enough guarantors. In addition, guarantors were used as a means of peer pressure on the defaulter to settle his/her debts. This quickly degenerated into a social issue of “family” or “friend” support with guarantors unable to resist the social pressure to sign the guarantee. This led to a contagion effect on guarantors’ own credit behavior.
18. In September 2011, approx. 40% of Bank of Cyprus assets were outside Cyprus while the figure for Laiki was approx. 55% and that of Hellenic Bank at just over 10%. In terms of lending, 50% of Laiki loans were in Greece, with the equivalent figure for Bank of Cyprus at 34.1% while that of Hellenic Bank at 17.1%. The three banks had also significant exposures to Greek sovereign bonds of €2 billion for Bank of Cyprus, €3 billion for Laiki, and €110 million for Hellenic Bank.

19. In Orphanides (2014), a number of citations are presented documenting an “assault” on the banks by the then outgoing government. Also, the new Governor of the Central Bank of Cyprus appointed in May 2012 by the outgoing government referred to “casino banks” publicly in (Demetriades 2013).
20. The categorization of problem loans was done by CBC directives and circulars. These didn’t apply to the Co-ops that were following their own rules—generally more relaxed.
21. One year, six months, and 90 days were used successively in the definition.
22. It had other triggers too, for example, provisions or write-offs on the account and judgment on the collectability of the loan.
23. Letters of Credit, Guarantees, and so on.
24. This warrants a special mention because, as we had argued previously, it was one of the main factors that led the banking system to tolerate such a high level of NPLs.
25. Again significantly it did not include loans that got restructured before they hit the 90-day rule.
26. For example, classifying as NPLs that got restructured before hitting the 90 days-past-due rule, loans that got repaid by the granting of new loans, and so on.
27. Interestingly, it also mandated that banks report to the CBC their exposures that would have been classified as NPLs had it not been for the existence of collateral.
28. This Directive had for the first time applicability to the Co-ops since one key term of the MoU was to bring the Co-ops under the direct supervision of the CBC of Cyprus.
29. This basically was a function of the type of restructuring done, whether there was grace period of interest/capital repayments, whether the loan had any step-up provisions or bullet payments, and so on.
30. Minimum 1 year after the forbearance and provided the debtor does not have any past due amounts > 90 days, compared to 6 months following the commencement of the new amortization repayment schedule of capital instalments under the CBC 2013 Directive.

31. Minimum 2 years after the restructuring date from the date the loan is performing and provided that the debtor does not have any past due amount > 30 DPD compared to a minimum of one year under the CBC Directive.
32. Two changes in the definition of what constitutes an NPL took place in this period with the CBC Directive of July 2013 (part of the MoU) and that of September 2014 affecting the measurement of NPLs (see Box B). It should also be noted that the NPL/total loans ratio has a built-in bias toward increasing as “good” loans are repaid, but no new loans are granted as banks enter a “capital preservation” mode of operation during the crisis. Finally, the figures presented mask somehow the problem since they include data from “Offshore” banks with negligible amounts of Cyprus loans; from the reported NPL data of the three major banks (for only whom data is individually available), the NPL ratio is of the order of almost 60%.
33. A warning is also due on how one reads this chart. A rise in the ratio of NPLs to total loans doesn’t necessarily mean an increase in NPLs. It is also a result of deleveraging with the amount of total loans being reduced, repayments of performing loans, and no new loans being granted by banks or demanded by borrowers. This, for example, explains the “jump” in the NPL ratio in 2016Q1.
34. On average for the period 2012–2015, tourist receipts increased by 5% where in terms of real activity, the sector “accommodation and food service activities” on average increased 1% compared with a decline of 2.3% for the whole economy.
35. These losses can be the result of interest/loan haircuts, failure for the collateral (in the case of terminated loans) to fetch the expected price, and so on.
36. “The coverage ratio is the ratio of loan loss reserves to impaired loans. A low coverage ratio does not necessarily imply a risk of underprovisioning, since it could also reflect rigorous lending practices (high collateralization of exposures) or a strong insolvency framework (where collateral repossession is easy for creditors)” (Directorate General For Internal Affairs, Economic Governance Unit 2016).
37. The six new legal acts (five Laws and one Administrative Act [Regulations]) that form the insolvency framework came into force



on May 7, 2015, that is, upon their date of publication in the Official Gazette of the Republic apart from the part of first Law relating to the Debt Relief Order (this part came in force 3 months afterward, i.e., on August 7, 2015).

38. The Credit Bureaus covered mainly “negative” data, that is, on defaulted facilities where legal action was instigated. This was due to data protection issues and due to competitive issues with big banks being unwilling to share with new “entrants”, or smaller banks, data on their good clients.
39. More specifically, the Central Bank of Cyprus, against the background of very high levels of interest on deposits and loans in Cyprus, linked the higher deposit rates offered by banks to higher capital requirements.
40. This was recognized in the 2013 Directive of the CBC that had decreed that facilities that were performing on March 2013 and developed problems thereafter and were restructured before August 2013 were just marked restructured but not as NPLs.
41. Transferring assets to their spouses or children and/or having their “cash” assets in one bank and their borrowing from another are the methods more often used. The fact that the exchange of data between banks implemented under the MoU covers only credit facilities and not assets and liabilities facilitates such behavior.
42. Borrowers who can afford to pay but who pretend that they cannot, hoping to obtain (fraudulently) a better deal from the bank be it interest reduction or loan haircut. This is more evident in the case of self-employed individuals or single owner/shareholder companies.
43. This is more prevalent in the Co-ops where third-party personal guarantees were widely used.
44. For example, banks are not allowed to “develop” foreclosed property. This might mean that unfinished buildings cannot be completed before disposal by the bank, big plots of land cannot be broken into smaller plots and sold individually, and so on.
45. One word of caution is due. This concerns the viability of restructured loans and the ability of the borrowers to withstand future increases of interest rates without re-defaulting.
46. Mainly in hotel refurbishments.
47. Aided by events in Middle East and Turkey.

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# Part III

**Greece: Private Sector Bad Loans—  
Problem Dimensions, Intrinsic  
Characteristics and Remedial  
Strategies**

# 8

## The Road to Recovery: Are Greek Banks Able to Finance Greece's Economic Recovery?

Nikolaos V. Karamouzis

### 1 Introduction

The big question facing Greece these days is whether the conditions are in place for the economy to return to a path of strong and sustainable economic growth. A year after the country signed its third loan and reform program with European partners, many wonder whether the steady and timely implementation of the deal agreement is enough by itself to ensure that, or additional initiatives are necessary.

For an economy plagued by a multi-year, double-dip recession, record unemployment, anemic investment and high public debt, a return to

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With the valuable contribution of Dr. Tassos Anastasatos, Eurobank Deputy Chief Economist

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growth should be the main priority of economic policy, the targeted cure for the economic malaise. Just as importantly, it is a key prerequisite for the program's success.

But the road to recovery hinges on several critical pre-conditions. Perhaps the most important of all is the ability of Greek banks to provide the credit needed to support economic growth. Will Greek banks have the financial strength, liquidity, capital and risk appetite to finance the recovery cycle of the Greek economy?

The answer depends on how Greece—and the Greek banks—navigate four key challenges ahead. Namely:

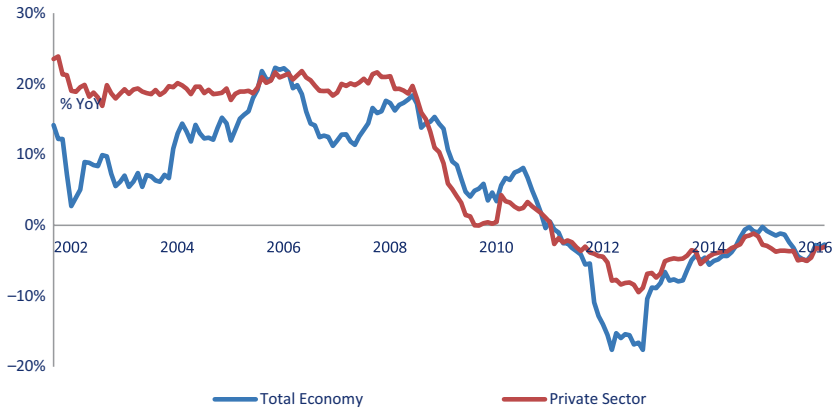
- Restoring normal liquidity conditions.
- Successfully managing a large stock of bad and problem loans.
- Diminishing official sector interference in banking operations.
- Tackling the sweeping, transformational changes now gripping the European banking sector as a whole.

These challenges critically affect the ability of the Greek banks to deliver sustainable profitability and grow their business, but also seriously complicate strategic decisions, priorities, operating and business models and risk management.

## 2 A Creditless Recovery?

All international organizations, including the International Monetary Fund, are forecasting a resumption of economic growth in Greece from 2017 onwards. And yet, credit expansion to the private sector in Greece remains in negative territory. According to the latest available data, bank lending (including to the General Government) shrank at an annual rate of 2.7% in July 2016, further extending a roughly five-year-long downtrend. Lending to households and corporates in particular was even worse, shrinking at a 3.1% rate year-on-year in July 2016 (Fig. 8.1).

Research shows that instances of a creditless recovery are rare in world economic history—and when they do happen, they tend to be associated with very weak and halting upturns. In Greece, where the banking sector



**Fig. 8.1** Credit to total economy and private sector, YoY rates of change, Greece, 2002–2016. *Source:* Bank of Greece, Eurobank Research

plays a pivotal role in funding economic activity, it is hard to overstate the importance of the Greek banks. An estimated 97% of total outstanding household and corporate debt originates from the Greek banking system. Eurobank's own economic research confirms this point. Our analysis shows that for every one percentage point increase in Greek bank lending, Greece's economy responds with a 0.35% increase in real gross domestic product after six quarters.

Of course, equilibrium in the market for loanable funds depends on both demand and supply. Credit demand depends on factors such as the level of GDP and rate of real economic growth, interest rate cost, economic climate and expectations, inflation and the rate of unemployment. Hence, credit demand is expected to increase along with the expected normalization of economic conditions and return to economic growth in 2017. However, if credit supply is seriously constrained, demand will not be met and economic growth prospects may be limited.

But without bank lending, where could financing for the recovery come from?

One could argue that the international capital markets could theoretically be an alternative source of funding for corporate and other economic entities. However, there are only a handful of major Greek companies and public utilities that have the required qualifications, size and credit rating today to borrow internationally—and assuming that global capital

markets open up for Greek risk. Therefore, it seems that this is not a materially significant option for future funding of the economy.

### 3 Coping with a Liquidity Squeeze

The biggest challenge facing Greek banks at this point is the **tight liquidity conditions**. The liquidity squeeze mainly stems from the substantial funding gap between outstanding loans and deposits and the sluggish deposit recovery. But it is compounded by the limited access Greek banks have to the international capital markets. These problems have forced the banks to become heavily dependent on the European and Greek central banks for funding.

In my view, the return of Greek banks to the international debt markets is likely to proceed in tandem with the return of deposits to the Greek banking system. For that to happen, it is of paramount importance that the Greek government pursue a set of policies that improve Greece's policy credibility, investment climate and market confidence.

Note that as recently as 2013–2014, Greece's improving credibility and market confidence in the prospects of the Greek economy allowed Greek banks to raise more than €5 billion of liquidity via debt issuing from international markets. At the same time, furthermore, around €17 billion of domestic resident deposits returned to the banking system over the period July 2012–July 2014, while banks were also able to raise billions of euros in fresh private equity through a recapitalization process.

Since the beginning of the crisis, the Greek banking system has lost c. €124 billion of total deposits from their peak levels—a staggering 45% decline. Relative to the size of the economy, that equates to ca 70% of current GDP, one of the worst global performances ever.

Due to capital controls, as well as lingering economic and political uncertainty, bank deposits have remained stagnant for months. However, over the period April to July 2016 there is some evidence of deposit repatriation into the banking system with ca €2.8 billion returning, ca €1.8 billion from the Government and ca €1bn of corporate deposits. This is a positive development, especially if this trend continues in the following quarters.

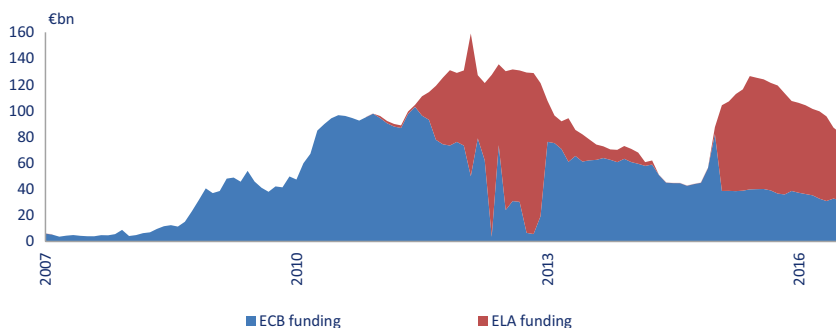
Overall, the current liquidity conditions in the Greek banking system are as follows:

As of July 2016, total deposits and bank repos stood at €157.2 billion, against total loans at €222.4 bn. Thus, there is a funding gap of approximately €65 billion.

Greek banks' dependence on Eurosystem funding remains at very high levels, albeit reduced from the 2015 peak (Fig. 8.2): at €78.5 billion in August 2016 (according to the latest Bank of Greece data), with €48.9 billion of that total drawn from the Bank of Greece's Emergency Liquidity Assistance (ELA) facility, and the rest from the European Central Bank. Over the medium term, Greek banks are obliged to eliminate their ELA borrowing, and reduce their borrowing from the ECB to approximately €25 billion, based on current ECB rules.

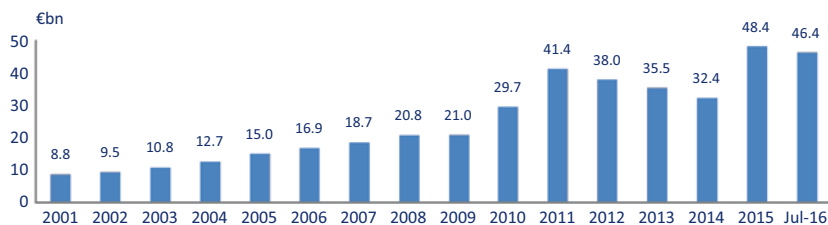
The total amount of banknotes in circulation in Greece (August 2016) remains at extremely high levels at €45.4 billion (or 27% of GDP vs a 9% average in the Eurozone). To put that in context, before the crisis, the average stock of banknotes in circulation in Greece was €20 billion (Fig. 8.3).

A large number of mid-sized and large corporates transferred their cash reserves abroad before the imposition of capital controls last year. In addition, it is highly likely that they are not repatriating their proceeds from export activities. Total corporate deposits now stand at €15 billion compared to €38 billion before the crisis.

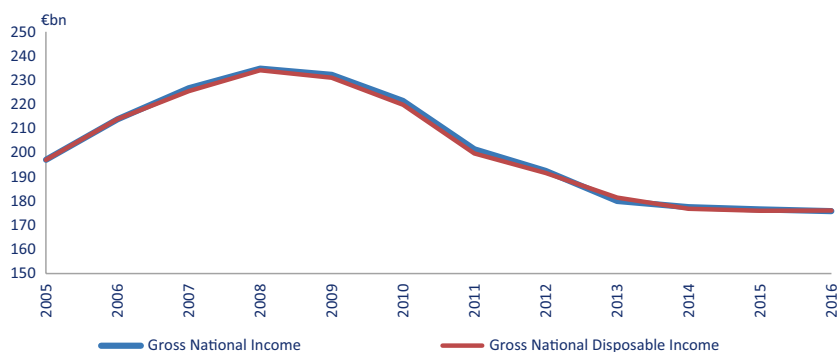


**Fig. 8.2** Eurosystem (ECB and ELA) funding of Greek banks, 2007–2016.  
Source: Bank of Greece





**Fig. 8.3** Banknotes in circulation, Greece, 2001–2016. *Source:* Bank of Greece

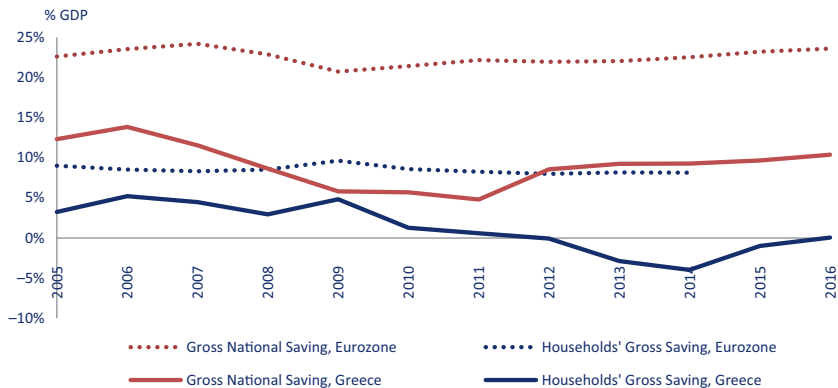


**Fig. 8.4** Gross national income and gross national disposable income, Greece, 2005–2016. *Source:* Ameco

Gross national income continues to shrink and gross national disposable income remains stagnant (Fig. 8.4). Substantial additional tax charges recently imposed by the Greek government are being funded through a draw down in savings, further reducing, *ceteris paribus*, the deposit base.

Gross national savings have collapsed dropping in 2015 to 9.7% of GDP from a pre-crisis peak of 16.4%, and compared to an average of 23.2% in the Eurozone today. Household gross savings are currently negative (at  $-1\%$  of GDP), compared to 4.8% before the crisis and a current average of 8.4% in the Eurozone (Fig. 8.5 here). In order to maintain a certain standard of living, households, *ceteris paribus*, are in effect gradually depleting their savings and liquidating other real and financial assets.

Capital controls seriously hinder the process of orderly restoring sound liquidity conditions. Recent liberalization initiatives are in the right



**Fig. 8.5** Gross national saving and households' gross saving as % GDP, Greece and Eurozone, 2005–2016. *Source:* Ameco, Eurobank Research

direction and would help accelerate the return of deposits, mainly “bank notes under the mattress”, into the banking system. However, the full lifting of capital controls will have to go hand in hand with the restoration of confidence.

Domestic credit expansion remains negative, as mentioned above (end of July at  $-2.7\%$  yoy,  $-3.1\%$  yoy for private sector); the same is true for foreign capital inflows (i.e. net foreign direct investment at  $-\text{€}260$  million in 2015). With both credit and foreign capital inflows shrinking, the traditional money multiplier effect does not work as an accelerator for deposit generation.

In my view, and based on my own estimates, if market confidence and policy credibility improve considerably and risk premia start declining, approximately  $\text{€}25$  billion of deposits could return to the Greek banking system over an estimated period of 18 months. That estimate includes  $\text{€}10$  billion worth of bank notes now being held outside the banks,  $\text{€}10$  billion in corporate deposits abroad and  $\text{€}5$  billion in private deposits abroad that might be repatriated or else return to the banking system through asset switching. Altogether that is more than one-third of the funding gap Greek banks need to cover. Therefore, we need additional initiatives to further boost liquidity and restore sound local liquidity conditions. In addition, increased access to the international capital markets for unsecured debt and other assets could provide Greek banks with

additional liquidity via debt issuing of between €5 billion and €8 billion during the same 18-month period.

It's worth noting that Greek banks' access to international capital markets is gradually improving, at least for high-quality collateral. In the last few months, Greek banks have been able to repo roughly €20 billion using mainly high-quality EFSF and covered bonds as security. But the global financial market is not yet open for unsecured Greek debt, which is critical for improving liquidity.

Ultimately, market access for the Greek banks depends to a great extent on external factors not directly controlled by the banks themselves. It mainly hinges upon restoring market confidence, the credibility of economic policies and the commitment to reforms. In other words, it is a political issue rather than a commercial one.

The government has to convince international markets that it intends to comply with Greece's reform program, thereby providing the basis for a sustainable economic recovery, fiscal sustainability, financial stability, lifting capital controls, and promoting growth and investment. As long as the markets are not convinced, risk premia remain excessively high, and Greece's implementation track record weak, Greek banks will continue to face a liquidity challenge. And as a consequence, Greek banks will not be able to support investment and economic growth in Greece.

## 4 Managing the Stock of Bad Loans

A second major challenge Greek banks are facing today is the efficient management and the substantial reduction of the huge stock of **non-performing loans**.

There is growing pressure on the banks from both regulators and shareholders to substantially reduce the huge stockpile of non-performing exposures and non-performing loans in their portfolios over the next three to four years. Today, Greek banks' non-performing portfolios stand as follows: NPEs €106 billion and NPLs €84 billion in Greece. Taking into account foreign subsidiaries, the total stock of NPEs at the group level was €117 billion as of the end of the first quarter of 2016. To date,

the Greek banks have set aside €58 billion in provisions against that stock of bad and problem loans.

The Greek banks are now expected to move quickly beyond the so-called “extend-and-pretend” strategies they have mainly pursued so far, pushing the problem into the future. Instead they are now expected to mobilize the provisions they have accumulated to actively manage down those non-performing loans. Doing nothing is no longer an option. That’s because continued inertia—while maintaining such a large stock of bad and problem debt on their books—weighs on the recovery prospects of the banks themselves. Among other things, it:

- Fuels uncertainty over the capital adequacy of the banks.
- Lowers the valuation of Greek banks.
- Delays Greek bank access to capital markets.
- Ties up valuable liquidity resources.
- Consumes a lot of management attention and focus.
- Forces regulators to impose higher minimum capital ratios.
- Encourages otherwise solvent borrowers to become strategic defaulters.
- Promotes unfair competition in the market by keeping afloat non-viable companies.
- Delays the restructuring and recovery of the Greek economy.

The European Central Bank has made it clear it wants action. The ECB’s pan-European banking regulator, the Single Supervisory Mechanism (SSM), has now set seven annual NPE targets for the Greek banks starting in 2016. The banks are also being measured against 38 other separate indicators to monitor progress on a quarterly basis. To keep up the pressure on the banks, it is highly likely that the NPE reduction targets will become part of the ECB’s annual review process from 2017. And it’s also likely that the ECB may start levying additional capital charges on any bank failing to meet those targets.

In addition, in the recent agreement with the institutions, the HFSF is mandated to undertake all necessary initiatives to accelerate the implementation of a more effective management of NPEs/NPLs. That means coordinating better the cooperation among banks, especially in corporate

NPEs/NPLs management, and bringing down the stock of NPEs/NPLs. The aim is a rapid—but orderly and efficient—reduction in the stock of NPEs done in a transparent way and by deploying all modern tools, but also aimed at minimizing the hit on banks' capital.

The Greek banks have recently become more active in managing their bad loans by creating specialized internal departments—in effect, internal Bad Banks—and staffing them with experienced and trained personnel and by offering flexible, long-term, viable solutions to their non-performing clients. Recently, Eurobank and Alpha Bank also concluded Greece's first third-party NPL servicing agreements with the New York-based KKR fund to handle problem loans.

Specifically, Greek banks today are more active in:

- Writing-off non-viable and not collectable NPEs, in order to clean up their loan portfolios, especially in cases where a number of tax obstacles are lifted.
- Engaging in active loan and business restructuring of NPEs/NPLs entities, by applying long-term viable solutions. The latter involve the use of all modern tools, including selective debt forgiveness based on professional and objective analysis, and modeling different options of well-designed restructuring plans. And of course it means the implementation of transparent and clearly defined internal criteria, processes and procedures.
- Selling selective NPLs to third parties, especially NPEs/NPLs managers abroad.
- Selectively using experienced external servicers in managing NPEs.
- Selectively selling repossessed assets.

In actively managing their portfolios of bad debt, the Greek banks will have to balance efficiently the interests of different stakeholders, regulators, shareholders, depositors, investors, creditors, NPL companies' business competitors and the government. While regulators will want to see the banks quickly reduce their stock of bad debts, their shareholders will naturally be interested in getting top dollar for the assets marked for disposal. In other words, they would be against a strategy of forced sales as a matter of principle. That may conflict with investors, both foreign

and Greek, who are looking to pick up problem loans—or problem companies—cheaply. Foreign investors, given the prevailing uncertainties in Greece, expect a high return on investment to compensate themselves for the risk undertaken. Thus, it seems that there is currently a wide gap between bid and offer prices for NPLs trading, which makes very difficult the completion of NPLs and all transactions.

As the restructuring of the Greek economy gathers pace, healthy competitors of troubled—but viable—companies, will pressure the banks to close them down. Moreover, any debt restructuring at problem companies may be seen by them as stoking unfair competition. But at the same time, the banks will certainly face pressure from the government, unions and suppliers of troubled companies to rescue these problem companies at any cost, preserve jobs and the unsecured claims of suppliers.

Another major obstacle until now has also been Greece's overburdened and inefficient judicial system that lacks both a special process, and special judges, to handle bankruptcy proceedings. For example, there is currently a backlog of some 170,000 cases pending in Greek courts relating to mortgage arrears. Some of those cases are not scheduled to be heard until the year 2020 and beyond!

Against this backdrop, it is extremely positive that in recent months the legal and institutional framework in Greece for managing NPEs/NPLs has been considerably improved. In May, the Greek Parliament approved legislation allowing—for the first time ever—the licensing of loan servicers and/or the sale of performing and non-performing loans to qualified third parties. The law does provide for a few exceptions, specifically with respect to mortgages on primary residences, but those exceptions will disappear on January 1, 2018. In addition, a number of outstanding tax issues have now been addressed which facilitates the selling, assigning or writing-off of bad loans.

More changes are likely in the months ahead as the government considers further moves to liberalize and rationalize the existing bankruptcy framework. For example, legislation is now being drafted that would facilitate fast-track court procedures for loan restructuring agreements and insolvency cases involving holdouts. The draft law also aims to encourage out-of-court settlements in debt workout cases by making use of outside expertise.

By the second half of 2016, Greece's bank rescue fund—the HFSF—will present a bad loan resolution action plan designed to enhance coordination among banks. That should make it easier for the banks to work out a joint approach to restructuring the problem loans of distressed, but otherwise viable, large corporates.

## 5 Meddling in Management

Since the start of the global financial crisis in 2008, the Greek banks have received substantial state aid in the form of government guarantees, capital injections and liquidity facilitation schemes. But that aid has come at a cost: **official sector meddling in how banks do business.**

As a result, Greek banks have had to agree on a restructuring plan with the European Commission's competition authority and the Greek state that includes reorganizing and downsizing their operations, selling off mainly non-core and international assets and complying with a number of constraints on management and staff. Collectively, those restrictions have seriously impeded the Greek banks' ability to effectively manage their balance sheets and grow their businesses.

The banks today are dependent on official sector support for their capital and liquidity needs in three main areas:

- Through a series of capital increases, Greece's four big banks have issued additional equity, some of which was bought by the HFSF over the last three years. Currently, the HFSF's total holdings in the four banks, valued at current market prices, amount to €1.25 bn. The Fund's direct equity stake in each of the four banks is as follows: Eurobank 2.54%, Alpha Bank 11.25%, Piraeus Bank 25.6% and National Bank of Greece 43%.
- Greek banks have issued so-called Pillar II bonds, which are senior debt obligations carrying a guarantee of the Greek State. These bonds are used to fund the banks via the ELA facility. The four banks have used Pillar II bonds to tap a combined €5.1 bn in system liquidity (August 2016 data—Eurobank: €2.0 billion, Alpha Bank: €3.1 billion, NBG: zero, Piraeus Bank: zero). These government guaranteed bonds,

which constitute a very costly source of funding (all in costs over 3%), will be eventually cancelled, as banks gradually restore market access and deposit inflows accelerate and/or through the use of other eligible assets for accessing cheaper funding from the Eurosystem.

- Greek banks have issued perpetual preference shares bought by the Greek State, which will stop however counting as core capital from December 31, 2017, and will at some point have to be repaid; Eurobank has €950 mn worth of preference shares outstanding, while NBG has converted them into equity. Piraeus Bank and Alpha Bank have fully repaid their preference shares.

As a consequence of that state aid, the Greek banks also face additional obligations and restrictions beyond those detailed in their respective restructuring plans with DG Comp. They include:

- Restrictions on fixed and variable remuneration of senior management.
- Obligatory representation of the Greek state and the HFSF on the board of directors.
- Appointment of a European Commission monitor to the board of directors and key board committees, tasked with overseeing business development, risk management and select other essential business decisions.
- Signing an RFA with the HFSF defining the degree and extent of HFSF's intervention in banks' management decisions.

Since Eurobank and Alpha Bank did not receive additional state aid in the last capital raising that took place in the fourth quarter of 2015, the two banks face lighter restrictions compared to their counterparts Piraeus Bank and NBG. Nevertheless, all four banks must fully implement their restructuring plans no later than the end of 2018. Therefore, this is the earliest that the Greek banks could be free from all state, HFSF and European competition commission interference in their management decisions.

In this case as well, restoration of market confidence, the credibility of economic policies pursued and commitments undertaken are the key for Greek banks to reaccess international capital markets and for deposit repatriation into the banking system. That would accelerate the return of



sound liquidity conditions in the Greek market and the removal of state and official interventions in their management.

## 6 A Changing European Banking Landscape

Looking beyond Greece's borders and the challenges stemming directly from the country's economic crisis, Greek banks face additional headwinds from the rapidly changing landscape in the European financial sector. These headwinds, in combination with domestic economic problems, are forcing Greek banks to reconsider and redirect their strategic priorities. Though it may take years for the changes to play themselves out, the transformational challenges—from new regulations to new technology—facing Europe's banks will substantially reshape the sector from top to bottom. Eventually, market structure, business models, profitability, strategic priorities are all bound to be affected. The following are some key emerging trends and developments which are currently forging a more competitive and challenging landscape for European banking:

- A prolonged period of deflation, negative interest rates and sluggish economic growth in the Eurozone that will adversely affect revenue generation, profitability and deposit gathering.
- Intense competition from emerging, mostly niche, non-bank financial entities (shadow banking), which are less regulated, enjoy considerable flexibility, specialization and lower operating costs.
- The growing role of capital markets in Europe—which are still quite underdeveloped compared to the U.S.—as an alternative channel to banks for depositors, investors and borrowers.
- Sweeping and costly regulatory changes aimed at enhancing banking supervision, prudential risk management, transparency and corporate governance.
- Growing restrictions on management and staff remuneration, aimed at aligning stakeholder interests and discouraging excessive risk taking.

- Stricter reporting and monitoring requirements from the ECB and SSM, as well as tougher thresholds for capital, liquidity and leverage ratios that will constrain profitability, growth and returns on equity.
- Far-reaching technological innovation that is fundamentally transforming the operating and business model of banks and the channels for serving corporate, household and institutional clients.
- New burden sharing rules on depositors and debtors in the case of a bank failing. All things being equal, these rules will further encourage banking disintermediation, require higher core equity capital ratios, and will raise the cost of capital to banks.

All the above, *ceteris paribus* would have a detrimental effect on economic growth and especially on investment.

Bureaucratic, hierarchical and heavy organizational structures exist currently in most banking institutions. Relatively inflexible processes and procedures, expensive staff and inflexible labor contracts, significant internal inertia and resistance-to-change attitudes, low internal transformation appetite and strong silos' structures and legacy issues, including business culture, all serve as obstacles to change. In the end, they undermine banks' ability to compete effectively in the new banking and financial markets landscape.

In this more competitive and challenging European banking environment we should expect:

- Banks to further strengthen their capital base via additional capital increases, restructuring and downsizing.
- Banking disintermediation to accelerate significantly, intensifying competition.
- Local and cross-border mergers and acquisitions to pick up, as banks attempt to capture economies of scale, address possible capital shortfalls and dilute the cost of capital investments.
- General focus on deposit gathering efforts rather than extending credit.
- Selling non-core assets and sub-optimal business activities.
- Possible cut back of riskier activities and credits with heavier capital charges.

- Further rationalization and streamlining of operating costs.
- Substantial investment in technology and transformation initiatives.

These significant changes will gradually transform the European banking landscape. But most significantly, they will also have a material impact on the strategic decisions, priorities, business development, operating models and planning of Greek banks, as the country slowly returns to more normal economic and market conditions and reintegrates in European markets.

## 7 Is Capital Adequacy an Issue?

After six years of economic crisis, an unprecedented sovereign debt restructuring, repeated stress tests, and three successive capital increases, Greek banks have weathered the storm. As a whole, the Greek banks are the best capitalized financial institutions in all of Europe.

In my view, the Greek banks are in a position to deal effectively with even adverse market conditions, while at the same time managing their stock of non-performing loans and also financing economic growth.

Point of fact, as of the end of the first quarter of 2016, Greece's big four systemic banks had:

- Core tier I capital adequacy ratios averaging close to 18%, among the highest in Europe and well above the EU average of 12.5%.
- A substantial stock of provisions for non-performing loans totaling €58 billion at the group level, and a provisions-to-loans ratio of 24.9%, among the highest in Europe.
- High provisioning coverage ratios of both NPL and NPE portfolios at 65% and 55%, respectively. That too is among the highest ratio in Europe.
- Pre-provision operating income of €4.2 billion in 2015 and rising in 2016, which constitutes a strong annual buffer before capital is hit in the case of additional losses occurring.
- Between 60% and 65% of their total loan portfolios are collateralized, mainly with real estate assets valued at current depressed prices.

- Billions of euros in other valuable assets that could be sold or merged with third entities to create additional capital buffers if the need arises.

In addition, the Greek banks:

- Have gone through three full stress tests in the last three years, the latest by the European Central Bank, which led to an additional €60 billion capital injection to cover even the most adverse economic or market scenario.
- Returned to operating profitability in the first quarter of 2016—the first time since 2010—and are now generating internal capital.

Recently, the IMF took the position that the Greek banks are not adequately capitalized. It claimed that the banks lacked the required capital buffers to deal effectively with the huge stock of NPEs/NPLs, while simultaneously being able to support and finance a Greek economic recovery. The IMF assessment is a bit surprising given that it has never carried out its own stress tests on Greek banks. The SSM, the Eurozone's official banking regulator that carried out the last exhaustive stress test, receives daily Greek banking data and oversees the banks' business plans, clearly disagrees having publicly stated that Greek banks are fully and adequately capitalized.

The only true risk factor that I can see would be one induced by an unexpected regulatory change. That would only materialize if the European Commission competition authority, or the SSM itself, suddenly changed the rules on deferred tax credits, negatively affecting the capital base of the Greek banks. What's striking though in the IMF's recent assessment is that its own official forecast sees Greece's economy rebounding strongly in 2017 and beyond. If that's the case, then the Greek banks should see the pressure on bad loans ease, asset quality improve, and profitability grow. Hardly an adverse case scenario. Which brings us back to our central question and conclusion. Today, Greek banks have more than adequate capital structures to support economic growth and effectively reduce the large stock of bad loans.

## 8 Conclusion: Weathering the Storm, Planning the Next Day

To summarize, the main challenges for the Greek banking system today are related to:

- Overcoming tight liquidity conditions and regaining access to international capital markets.
- Effectively managing and substantially reducing their stock of bad loans.
- Removing the fetters of the official sector that impede business development and growth.
- Adapting to a rapidly changing European banking environment.

Of those four challenges, the most acute and critical for economic growth is the liquidity squeeze facing Greek banks.

But as I said earlier, the repatriation of deposits and access to international financial markets hinges upon the Greek government demonstrating a convincing commitment to implementing the program and key economic reforms, as well as other pro-market and pro-growth economic policies. Restoring market confidence in the Greek economy and proper business climate are a *sine qua non* for a Greek economic recovery.

Greece needs to undertake front-loaded groundbreaking policy initiatives, which would impress international markets, open up access and improve dramatically liquidity conditions in Greece. Such developments would lead to a substantial reduction of risk premia and interest rates, resumption of positive credit expansion, significant repatriation of deposits and widening possibilities for Greek economic agents to raise debt and equity internationally on attractive terms.

Moreover, renewed Greek access to money and capital markets would enhance the negotiation power of the Greek government with the Troika and would also improve liquidity conditions, thus, facilitating funding economic growth and private investment.

These front-loaded initiatives could encompass a drastic reduction of tax rates, along with a sharp crackdown on tax evasion, an ambitious privatization agenda as well as aggressive liberalization of products,

services and professional markets. Other measures could include a strong public commitment to fully implement the program, initiatives to strengthen the banking sector's credibility and its ability to fund the economy, creation of a business and investment friendly environment, administrative reforms in key areas of the public sector like the justice system, and the restructuring of public debt in exchange for accepting an aggressive reform agenda.

In order to further normalize liquidity conditions, a number of additional initiatives must be undertaken.

Such initiatives should take into account the inclusion of Greece in the ECB's quantitative easing programs (PSPP and CSPP) and the ECB's Assist Purchase Program (TLTRO's), a smart and well-designed program for legalizing unreported income and wealth inside and outside Greece (tax "amnesty"), tax and other incentives to attract foreign capital flows and foreign direct investments.

Particularly helpful would also be a comprehensive and ambitious program of cooperation between Greek banks and international official financial institutions (EIB, EBRD, EIF and IFC) as well as with state-controlled European Development Banks (i.e. KfW) to provide financing, debt and equity to SMEs, infrastructure projects and small businesses. Moreover, the government should draft a full plan for a front-loaded absorption of EU structural funds and the full use of the opportunities offered by the Juncker Plan, which could amount up to €50 billion in the next three years. The government should also exercise moral suasion on Greek and multinational companies operating in Greece, to repatriate substantial liquidity maintained in foreign banks, as well as their proceeds from exports and other activities, estimated in total over €30 billion.

On the issue of NPEs/NPLs, a systemic strategy of forced sales of NPEs/NPLs assets under fire sale prices and current market conditions would be counterproductive and perhaps destabilizing for banks and the country's interest. It would fuel fears of new rounds of recapitalization and bail in risk. Private shareholders would object because, in effect, it means transferring substantial shareholders' value to third parties and the government as well. That's because, under current market conditions, a fire sale of distressed assets does not resolve any of the policy challenges, rather it makes them more complicated and difficult.

But a more measured, medium-term approach, which could include transferring the management of NPLs to third-party servicers, or creating joint ventures or other structures between banks and investors to sell and manage NPLs, will yield dividends for all stakeholders. I expect the SSM to approve the NPEs reduction targets set by the Greek banks by no later than September this year. Under current conditions and without excessively squeezing asset prices, the Greek banks can aim for an ambitious but realistic target of reducing NPEs by €10 billion per year over the next four years. That target could easily be overshoot if Greece also records a substantial improvement in economic and market conditions in the years ahead.

In meeting their targets, banks have to flexibly utilize all available tools, without prejudice or ideological biases. This includes selling loans in cases where it is deemed justified or even creating a joint “bad bank” for managing certain categories of NPLs and with the participation of private investors. This option would be more plausible if risk premia in Greece decline substantially.

Thus, if the question is “Can Greek banks help finance Greece’s economic recovery?”, then the answer is: Yes, if Greece and the Greek government can help its banks to recover by undertaking groundbreaking and convincing policy initiatives.

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# 9

## The Determinants of Loan Loss Provisions: An Analysis of the Greek Banking System in Light of the Sovereign Debt Crisis

Platon Monokroussos, Dimitrios Thomakos,  
Thomas A. Alexopoulos, and Eleni Lydia Tsioli

### 1 Introduction

Non-performing loans (NPLs) and loan loss provisions (LLPs) have generally been considered to be the main transmission channels of macroeconomic shocks to banks' balance sheets. Provisions represent an important quantitative indicator of the credit quality of loan portfolios. Banks take them in anticipation of potential losses, and they are a key contributor to

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*Loans and Resolving Private Sector Insolvency*, Palgrave

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fluctuations in bank earnings and capital (Hoggarth and Pain 2002). In effect, loss provisions constitute a tool for adjusting the historical value of loans to reflect their true value (Dinamona 2008). Numerous empirical studies have examined the behavior of provisioning practices based on data for individual banks or aggregate data for one or more countries. Some of the issues and testable hypotheses examined in these contributions include procyclicality of provisioning policies, the role of provisioning in the broader context of capital regulation and the use of provisions for managing earnings.

Using a new set of macroeconomic and regulatory data, this study looks at the evolution of provisioning practices in the Greek banking system over the period 2005–2015. This is performed by examining the determinants of the aggregate (industry-wide) loan loss reserves to total loans ratio, which reflects the accumulation of provisions net of write-offs and constitutes an important metric of the credit quality of loan portfolios. Our empirical findings make several contributions to the literature. While in other periphery economies (e.g. Ireland, Spain and Cyprus) the outbreak of the recent crisis was mainly concentrated in over-levered domestic banking systems, in Greece's case it was the outcome of a huge fiscal derailment that eventually mutated to a severe domestic recession and a full-blown financial sector crisis. Between Q1 2008 and Q4 2015, the ratio of non-performing loans to total bank loans in Greece increased by 30.9ppts (and by 38.4ppts if restructured loans are also accounted for), hitting 35.6% (and 43.5%, respectively) at the end of that period.<sup>1</sup> In addition, the unprecedented (in size and scope) restructuring of privately held Greek public debt in early 2012 completely wiped out the capital base of major Greek banks, necessitating a major recapitalization of the domestic banking system in the following year. Two additional recapitalizations of the systemic banks followed (in 2014 and in late 2015) to address severe liquidity and solvency problems faced by these institutions due to the sizeable drawdown of deposits and the sharp increase of bad loans.<sup>2</sup> In this context, it is of primary importance to analyze the provisioning policies of domestic credit institutions, especially as Greece remains a crucial factor influencing macroeconomic and financial system stability in the common currency area.

Second, a thorough understanding of the determinants and the behavior of bank provisioning policies is key for designing countercyclical provisioning policies that aim to alleviate the amplifying macroeconomic effects of bank lending practices along the business cycle. This is particularly relevant not only for the periphery economies but also for the euro area as a whole, given the primary role of the regulated banking system as a provider of liquidity to the real economy. The existence of provisioning policies that encourage credit institutions to behave in a more forward-looking way by providing for lean years during good years is also important from a systemic stability standpoint. In this context, it is not a surprise that in the case of Greece, domestic financial stability constitutes a key pillar of the current stabilization program, with particular emphasis on the management of bad loans and reforms to the domestic regulatory and legal framework in dealing with private-sector insolvency.

Third, the behavior of provisioning policies in the Greek banking system is a topic that has not been thoroughly analyzed in the past. Furthermore, our study features some novel aspects relative to a (pretty limited) number of earlier contributions. For instance, compared to the data panel estimation methods that have been mostly used in earlier studies, we estimate a number of vector autoregression (VAR) models that relate loan loss reserves to a range of macroeconomic and banking-system-specific drivers. This gives us the additional advantage of addressing potential endogeneity issues and allows us to fully capture the dynamic interactions between different types of determinants. As a robustness check, we also run a series of single equation models that express loss reserves as a function of macro- and bank-related variables that have been found to be significant in the VAR equations.

Fourth, our study utilizes a fully updated set of macroeconomic and banking-sector quarterly data spanning the period 2005–2015. This time horizon covers a significant part of the high growth period that followed the country's euro area entry as well as the years after the outbreak of the Greek sovereign debt crisis in late 2009/early 2010.

Finally, in addition to examining the robustness of some earlier empirical findings in the context of our extended data set, we test a number of new hypotheses that appear to have important macroeconomic and policy-related implications. Among others, we empirically document

that, at an aggregate level, Greek banks generally behave in line with the stylized facts of provisioning policy procyclicality, taking higher provisions (and increasing their loan loss reserves) when domestic macroeconomic conditions deteriorate. International experience shows that the procyclical behavior of bank provisioning practices can be potentially mitigated by the impact of bank earnings, that is, provided that banks provision considerably more when earnings are high (and vice versa). Such a behavior contributes to banks' financial soundness and implies a positive association between loan loss provisions and earnings (income smoothing hypothesis). Since our study lacks income statement data, we cannot directly test the latter hypothesis. However, the data at hand *do* allow us to test the so-called capital management hypothesis, which postulates that banks with low regulatory capital are inclined to take more general provisions in order to keep their capital ratios adequate. Our empirical findings do not support the latter hypothesis. Furthermore, they are in general agreement with the view that the unprecedented domestic recession is the primary cause of the credit quality deterioration witnessed in the portfolios of major Greek banks in recent years.

Separately, our estimates show that domestic banks respond relatively quickly to macroeconomic shocks, with the peak quarterly change in the loan loss reserves ratio (i.e. the flow of provisions net of write-offs) being realized within two quarters. Yet, the effects of such shocks on the provisioning behavior of the domestic banking system show significant persistence. For instance, the impact of GDP shocks on loss reserves dies out in about ten quarters, while the impact of shocks on the unemployment rate persists for a considerably longer period. In terms of quantitative impacts, our bivariate VAR estimates show that a 1 percentage point (ppt) decline (increase) in real GDP growth leads to an increase (decline) of 0.11 ppts in the quarterly change of the loss reserves ratio after a quarter, with the corresponding long-run effect being around 0.18 ppts.

Another interesting finding of our analysis is that the impact of macroeconomic shocks on the loan loss reserves ratio has become stronger (both in terms of magnitude and statistical significance) following the outburst of the Greek sovereign debt crisis. From a macro policy perspective, this result indicates that a sustainable stabilization of macroeconomic conditions is a key precondition for safeguarding domestic financial stability.

For a regulatory standpoint, it suggests that the possibility of macroeconomic regime-related effects on banks' provisioning policies should be taken into account when macro prudential stress tests of the banking system are designed and implemented.

As a final note to this section, we emphasize that our analysis does not *explicitly* account for the three major bank recapitalizations that took place in the Greek banking system over the period 2012–2015. Naturally, these recapitalizations facilitated the effort of domestic banks to reach adequate provisioning levels for their loan portfolios. In any case, we note that the main aim of our study is to decipher the long-term macro- and bank-specific determinants of the provisioning behavior of Greek credit institutions, regardless of such one-off events as the aforementioned recapitalizations. Furthermore, as it will be shown in the empirical part of our analysis, our formal statistical tests do not identify any structural breaks around the relevant bank recapitalization dates.

The rest of this document is structured as follows: Chapter 2 includes a literature review of the macro- and micro-related determinants of banks' loan provisioning practices; Chapter 3 provides a bird's-eye view on the evolution of problem loans and bank provisioning policies in Greece in the years before and after the outbreak of the global crisis; Chapter 4 discusses our data and empirical methodology; Chapter 5 presents our empirical results and discusses their policy implications; and Chapter 6 concludes.

## 2 What Determines Banks' Provisioning Practices?

Many banking-sector variables are potentially able to convey signals about the evolution of banks' riskiness over the business cycle; however, non-performing loans and loan loss provisions have generally been considered to be the main transmission channels of macroeconomic shocks to banks' balance sheets (Quagliariello 2007). Provisions represent an important quantitative indicator of the credit quality of banks' portfolios. Banks take them in anticipation of potential loan losses. In addition, provisions constitute a key contributor to fluctuations in earnings and capital (Hoggarth and Pain 2002). In effect, loan loss provisions constitute a

tool for adjusting the historical value of loans to reflect their true value (Dinamona 2008).

In the beginning of a typical expansionary phase, corporate profits improve, collateral values rise and households form optimistic expectations about their future finances. These dynamics eventually lead to an acceleration of banks' lending activities, which are often accompanied by a gradual loosening of credit standards and a reduction of provisions for future losses (see, e.g. Keeton 1999 and Fernandez De Lis et al. 2000). The literature identifies a number of causes for such a behavior on the part of bank managers. These include, among others, disaster myopia (Guttentag and Herring 1986), herding behavior (Rajan 1994), lack of institutional memory (Berger and Udell 2003), principal-agent problems (Perez et al. 2006) and signaling (Ahmed et al. 1999). The latter is on the basis that higher provisions are interpreted by stakeholders as a signal of lower-quality portfolios.

International experience suggests that banks' increasingly liberal credit practices during the more advanced stages of an economic upturn may take the form of "negative NPV" strategies, involving lower interest charges and/or increased lending to low-credit quality borrowers (Rajan 1994). Such strategies usually backfire during recessionary phases, when credit risks actually materialize. In an economic recession, the rise of unemployment and the decline in household and corporate incomes hinder the debt-servicing capacity of borrowers. The incipient rise in problem loans and the decline in collateral values lead to a serious tightening of credit conditions as banks become increasingly unwilling to extend new credit in an environment characterized by increased information asymmetries with respect to the actual credit quality of borrowers. The whole situation is exacerbated by a notable deterioration in banks' balance sheets due to the incipient rise in non-performing exposures at a time when additional capital is either more costly to acquire or simply nonexistent. Banks react by scaling back lending, a course of action that contributes to an acceleration of the economic downturn (procyclicality). The feedback effect from bank credit to the real economy may be particularly pronounced in economies where the biggest share of private-sector financing takes place through the domestic banking system and direct access to wholesale credit markets is not an option for many firms.

Perez et al. (2006) argue that in economic upturns, banks increase loan growth due to principal-agent problems, herd behavior and short-term objectives. For instance, with a view to obtain a reasonable return on equity for their shareholders, managers may engage in riskier activities and put more emphasis on their own rewards, which may be based more on growth objectives than on profitability targets. In such situations, managers may have incentives to increase loans growth, even in periods of declining profitability. Herd behavior may be another reason for higher loan growth volatility. During boom periods, many banks are encouraged to increase loans volume in order to preserve their market share. Another reason may relate to banks' focus on short-term objectives. Looking at some of these issues from another angle, Cavallo and Majnoni (2002) rely on an agency approach to explain the difficulty faced by the regulation of banks' provisioning practices. The authors suggest that the imperfect control and monitoring ability of insiders (bank managers and majority shareholders) by outsiders (minority shareholders or the fiscal authority) is for banks as for non-financial corporations a source of agency problems. However banks, due to the safety net, may face a very specific set of agency costs.

The literature has extensively studied the causes of the procyclical (and, in some instances, backward-looking) behavior of banks' credit policies and provisioning practices. As regards the latter, Borio et al. (2001) demonstrate that provisions increase during the recession, reaching their maximum one year after the real deceleration of the economy. The procyclical behavior of provisions constitutes an important challenge for banks and regulatory authorities alike. From a regulatory standpoint, it is of great importance to design countercyclical provisioning policies aiming to alleviate the amplifying macroeconomic effects of bank lending practices along the business cycle. From the standpoint of bank stakeholders, it is important for banks to behave in a more forward-looking way by providing for bad years during good years.

Numerous empirical studies have examined the behavior of banks' provisioning policies based on bank-specific or aggregate (industry-wide) data for one or more countries; see, for example, Bikker and Hu (2001), Cavallo and Majnoni (2002), Lobo and Yang (2001), Laeven and Majnoni (2003), Bikker and Metzmakers (2005), Fonseca and González

(2008), Bouvatier and Lepetit (2008) and Perez et al. (2006). Some of the issues and testable hypotheses examined in these contributions include procyclicality of provisioning policies, the role of provisioning in the broader context of capital regulation and the use of provisions for managing earnings.

Bank' provisioning practices may differ considerably across countries and institutional arrangements and be greatly influenced by existing accounting and taxation rules (Dinamona 2008). Broadly speaking, it is common to distinguish between two types of provisioning: general provisions and specific provisions. The former are generally taken against expected losses on non-impaired loans and are based on a probabilistic (and judgmental) assessment of the future evolution of the quality of the credit portfolio. The latter are made only when losses are known to occur and are somewhat akin to write-offs.

The aforementioned definitions suggest that general provisioning may be subject to a discretionary assessment on the part of bank managers. This, in turn, increases the risk of accounts manipulation and explains why regulatory authorities have set up rules for this particular class of provisions. On the other hand, specific provisions are generally taken against loan losses that are known to materialize. This reduces the risk of accounts manipulation, but potentially contributes to the amplification of the business cycle (Borio et al. 2001; Bouvatier and Lepetit 2008).

The literature cites several reasons for the potential use of provisioning for purposes not directly related to the need to adjust the value of loans to more realistic levels. One such use relates to earnings management. In more detail, provisions may be increased in good times for use in lean years, so as for banks to be able to report a more stable income stream. That is, on the basis that the latter is usually a good indication of performance from the perspective of stock price stability, credit ratings, cost of funds and management rewards (Greenawalt and Sinkey 1988; Fudenberg and Tirole 1995).

Separately, though not unrelated to the above argument, general provisioning may also be used to manage the capital ratio, particularly if general provisions account as regulatory capital (Kim and Kross 1998; Ahmed et al. 1999; Cortavarria et al. 2000). A relevant hypothesis that



has been tested in the literature conjectures a negative correlation between a bank's capitalization ratio and the level of general loan loss provisions.

Lobo and Yang (2001) show that banks which have a small capital ratio can increase their loan loss provisions with the intention to reduce the regulatory costs imposed by capital requirements. However, in recessionary periods capital becomes expensive and loan loss provisions are high. Banks often respond by reducing their loans. Consequently, it is difficult for banks to manage their capital by the way of loan loss provisions in periods of recession. On their part, Hasan and Wall (2004) argue that the effect on earnings is so important that banks' stock analysts routinely discuss whether a bank has managed its loss accounting so as to help smooth earnings or hit the current period's earnings target.

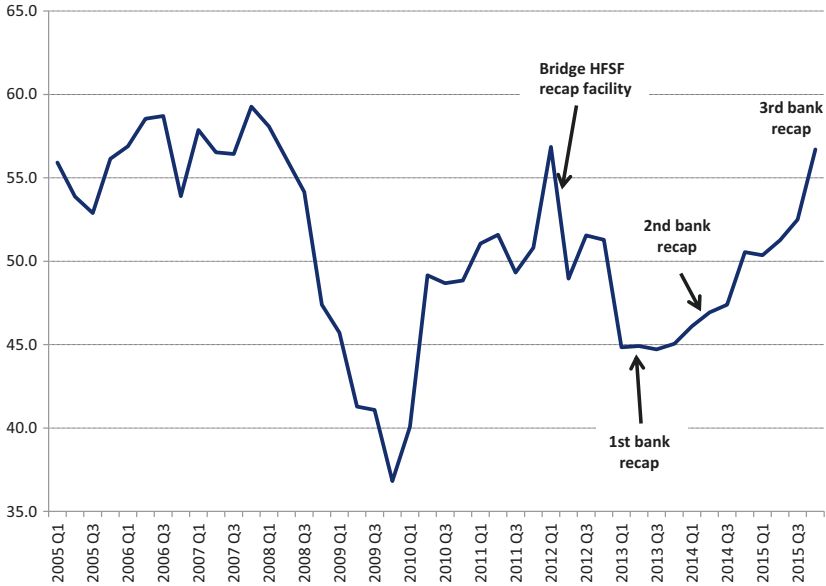
Finally, another reason may have to do with existing taxation rules. For countries in which general provisions are tax deductible, there may be a strong incentive for banks to increase general provisions (Cortavarria et al. 2000). On the other hand, a very restrictive tax policy may discourage banks from adequately provisioning against future loan losses (Cavallo and Majnoni 2002). To complicate things further, taxation rules may interfere with broader state financing objectives, especially in countries facing severe fiscal pressure. Overall, the disincentives built in different layers of regulation (accounting, fiscal and prudential) may jointly explain why loan loss provisions do not often reach the required level suggested by expected loan impairments.

There is a general agreement that unexpected loan losses should be covered by bank capital, whereas expected losses by loan loss provisions. As a result, cyclical capital shortages may not only be due to inadequate risk-based capital regulation but most prominently to the lack of risk-based regulation of banks' provisioning policies. Given this close relation between provisions and capital, a number of studies have argued that a sound provisioning policy should be part of any regulations on capital requirements (Cavallo and Majnoni 2002). For instance, these authors argue that the lack of a coherent and internationally accepted regulation of provisions, as is the case in many emerging markets, reduces the usefulness of minimum capital regulation. Furthermore, the lack of a well-defined and internationally agreed code of conduct may give rise to a multiplicity of institutional solutions. In several cases, for instance,

the protection of outsider claims to banks' incomes may be too rigid or too expensive, providing a disincentive to adequately provision for loan losses, with negative implications for banking system stability.

### **3 The Evolution of NPLs and LLRs in the Greek Banking System**

In Greece, a country that has experienced one of the most severe and prolonged recessions in recent economic history, cumulative real GDP losses between Q1 2008 and Q4 2015 amounted to around 26%, while the ratio of non-performing loans to total loans increased by 30.9ppts (and by 38.4ppts if restructured loans are also accounted for), hitting 35.6% (and 43.5%, respectively) at the end of that period. This followed double-digit growth of domestic bank lending in the post-euro-entry years that led to the 2007/2008 global financial crisis. However, it is important to note that the global crisis found Greece's private sector not particularly over-levered relative to other euro area economies. In terms of nominal amounts, the total outstanding stock of NPLs (including restructured loans) in Greek commercial banks' balance sheets stood at €98.4bn at the end of 2015, with corporate bad loans accounting for 57.1% of the total stock. The overwhelming portion of the latter share consists of bad debts owed by very small, small and medium-sized firms. The corresponding percentages for mortgage and consumer problem loans were 27.6 and 15.2 at the end of 2015. In terms of provisioning, the coverage of NPLs (excluding restructured loans) by loan loss reserves ranged between 50 and 60% during the initial part of our sample (Q1 2005–Q4 2008). The said coverage fell precipitously in the following few quarters (reached a low of 36.8% in Q4 2009), before increasing gradually thereafter and hitting a post-crisis high of 56.7 at the end of 2015 (Fig. 9.1). Finally, the flow (measured as, e.g. the quarterly change of the level) of NPLs including restructured loans embarked on an upward path after the outbreak of the global crisis, hitting a record peak of €13.8bn in Q1 2013. This compares with an average quarterly flow of c. €3.5bn in the prior three years and can be mainly attributed to the absorption of the balance sheets of the Cypriot subsidiaries in Greece by one of the domestic systemic



**Fig. 9.1** Coverage of NPLs (excluding restructured loans) by loan loss reserves. *Source:* BoG, Eurobank Economic Research

banks. The pace of increase of the said flow measure declined significantly in 2014 (it even recorded a negative reading of c.—€2.4bn in Q4 2014), it hit a two-year high in Q1 2015 (€2.35bn) and ended that year with a small increase of €0.2bn.

### 3.1 A Brief History of Domestic Banking-system Recapitalizations Following the Outbreak of the Greek Sovereign Debt Crisis

Greece's four largest (systemic) banks were first recapitalized in May 2012 via a bridge HFSF facility of €18bn, which aimed to bring their capital adequacy ratio to 8% (minimum required threshold under Basel II). The implementation of the aforementioned followed the publication of domestic banks' results for FY 2011, which revealed that the restructuring of privately held Greek sovereign debt (PSI) had completely wiped out their capital base. Then, a full-scale recapitalization of domestic

credit institutions was conducted between May and June 2013, following an exercise carried out by the Bank of Greece (BoG), which estimated the capital needs of the four systemic banks at €27.5bn for the period 2012–2014. Under a minister cabinet act, agreed in consultation with the European Commission, the ECB and the IMF, Greek banks had to meet a Core Tier 1 capital ratio of at least 6% exclusively through the issuance of common shares. Private shareholders were required to cover at least 10% of new common equity capital so as to keep credit institutions privately run. The remaining 90% would have to be covered through the issue of common shares to the Hellenic Stability Fund (HFSF) with restrictive voting rights. The remaining capital requirement, that is, above the 6% core Tier 1 ratio—that was necessary to meet the BoG’s core Tier 1 target (estimated at 9%)—would be covered through the issue of contingent convertible bonds (CoCos) taken up by the HFSF upon approval of the general meeting of shareholders of each credit institution. However, private-sector participation was enough to cover at least 10% of total capital needs, allowing the coverage of the full required amount solely through common equity. The total share capital increase for the four systemic banks amounted to €28.6bn, above the capital needs estimated by the BoG, as the HFSF approved and provided Piraeus Bank with a further capital contribution of €1.1 in order to meet the additional capital requirements arising from the purchase of (i) the “healthy” part of publicly owned Agriculture Bank of Greece (ATEbank) that was resolved in July 2012 (€570mn) and (ii) balance sheet items of the Greek branches of three Cypriot banks (€524mn). Out of the total share capital increase, HFSF’s contribution (in the form of EFSF bonds) stood at €25bn. The remaining €3.6bn was covered by private investors who were granted warrants as an incentive enabling them to purchase the remaining common shares from the HFSF at a future time.

The second bank recapitalization (March–May 2014) was based on the results of an independent diagnostic study conducted by BlackRock under the supervision of the Bank of Greece. The exercise aimed to ensure that the financial system was “well prepared to face the impact of expected losses from the high-level of non-performing loans” and was conducted under an amended recapitalization framework. Incentives provided by the HFSF to the private sector in the first recapitalization exercise, such

as the issuance of warrants, were no longer foreseen and any injection of capital (via the HFSF) into viable banks would be done through subscription of ordinary shares carrying full voting rights, on the condition that at least 50% of the total share capital increase would be covered by the private sector. BlackRock Solutions estimated that the total capital needs of the domestic banks over the period June 2013–December 2016 would amount to €6.4bn under the baseline scenario. All four systemic banks opted for a share capital increase via private placements and public offerings. Solely with the participation of the private sector, the share capital increase amounted to €8.3bn, covering fully the capital needs of these banks and allowing for the repayment of the preference shares of Alpha Bank (€950mn) and Piraeus Bank (€750mn) held by the state. As a result, the HFSF's shareholding in all four systemic banks was reduced significantly; in Alpha Bank, it dropped from 81.7% to 69.9%, in Eurobank, from 95.2% to 35.4%, in National Bank of Greece from 84.4% to 57.2% and in Piraeus Bank from 67.3% to 66.9%.

In line with the conditionality underlining Greece's third adjustment program that was agreed with official creditors in August 2015, Greece's four system banks underwent another recapitalization that was successfully completed in December 2015. A comprehensive assessment carried out by the ECB estimated total capital needs of €4.4bn under a baseline scenario and €14.4bn under an adverse scenario. Banks had to exhaust all private means to cover at least the capital needs identified under the baseline scenario. Any remaining shortfall (under the adverse scenario) would be covered through a combination of common equity capital and CoCos while any common shares acquired by the HFSF would have full voting rights. Two banks, Eurobank and Alpha Bank, managed to raise the required capital exclusively through internal capital raising means (LME) and private-sector injections, while the capital shortfalls of the other two were partially covered by the HFSF via ordinary shares and CoCos. As a result, total financing from official sources (i.e. the ESM through the Hellenic Financial Stability Fund) was limited to just €5.43bn. This was below the amount committed (up to €25bn) in the context of Greece's new bailout program for bank recapitalization and resolution purposes. The HFSF's shareholding in all four core banks was reduced further; in Alpha Bank, it dropped from 69.9% to 11.0%; in Eurobank, from

35.4% to 2.4%; in National Bank of Greece, from 57.2% to 40.4%; and in Piraeus Bank, from 66.9% to 26.4%.

## 4 Data and Methodology

### 4.1 Data

For the purpose of our empirical analysis, we utilize a novel data set of macroeconomic and bank-specific variables (quarterly observations) spanning the period between Q1 2005 and Q4 2015. Our data sources include Bank of Greece, Greece's statistics agency (EL.STAT.) and EUROSTAT.

### 4.2 Provisioning Policy Variable

*Loan loss reserves*: aggregate (system-wide) loan loss reserves to total loans ratio (acronym, *LLR*). This variable constitutes the primary focus of our empirical study. The data are taken from the consolidated balance sheet of the domestic banking system, which is regularly reported by the Bank of Greece. Loan loss reserves constitute a stock variable, while loan loss provisions (not examined in this study) a flow variable.<sup>3</sup> The following relationship links loan loss reserves and loan loss provisions:

$$LLR_t = LLR_{t-1} + LLP_t - WO_t \quad (1)$$

where *LLR* denotes loan loss reserves, *LLP* loan loss provisions, *WO* write-offs and *t* is the time subscript (here it measures quarters). As can be inferred by the above equation, the change ( $\Delta$ ) of the stock of loan loss reserves between quarter  $t-1$  and quarter  $t$  equals the flow of provisions taken in quarter  $t$  minus the loans that are written off banks' balance sheets in that quarter. As noted in Bikker and Metzmakers (2005), loan loss reserves and provisions are different in character. LLPs reflect discrete managerial decisions at a point in time, which may be more cycle-dependent. On the other hand, LLRs reflect the respective accumulation

of provisions (net of write-offs) that, on average, ought to better reflect actual expected loan losses. Analysts, regulators and bank managers regularly view the latter variable as an important metric for the credit quality of a loan portfolio.

### 4.3 Explanatory Variables

#### Realized Credit Risk Variables

*Non-performing loans:* Greek banks' loans overdue for more than ninety (90) days. For the purposes of our analysis, we utilize supervisory data for the aggregate (industry-wide) stock of bad loans including restructured loans. The relevant variable examined in the study is the ratio of bad loans to the total outstanding stock of loans (acronym, *TNPL*). As noted in Quagliariello (2007), this variable can be viewed as a reliable proxy for the overall quality of a bank's portfolio, implying a positive association between non-performing loans and loan loss reserves.

*Default rate:* The stock of bad debts is considered by some authors to be only a rough measure of bank credit quality as some of these debts are simply written off as time elapses. For this reason, our study also examines the behavior of a proxy for the loans classified as non-performing for the first time in the reference period. The relevant explanatory variable we use is the ratio of the flow of loans classified as bad debt in the reference period to the total stock of performing loans of the prior period. The respective acronym is *DR*. The expected sign of this variable is positive on the basis that banks that are not able to screen potential debtors are more likely to incur loan losses in the future (Quagliariello 2007).

#### Macroeconomic Variables

*Real GDP growth (RGDP):* an aggregate indicator of the state of the macroeconomy and the phase of the business cycle. If the procyclicality hypothesis holds (i.e. credit risks increase in a downturn and vice versa), then there is a negative association between LLRs and real GDP

growth. For instance, in their empirical study involving 8000 bank-year observations from 29 OECD countries between 1991 and 2001, Bikker and Metzmakers (2005) find a negative and significant coefficient of GDP growth, with the respective short- and long-run elasticities of the effects on the LLR ratio being  $-0.77$  and  $-4.95$ .<sup>4</sup> These authors state that their findings imply procyclicality and, probably, a lack of forward-looking risk assessment over the business cycle. A negative (but mostly insignificant) association between the loan loss reserves ratio and GDP growth is also found in Makri (2015), a recent study utilizing both aggregate and bank-specific data for the Greek banking system. An alternative view to the procyclicality argument has been proposed by Borio et al. (2001), who claim that risks are actually built up during economic booms, when loan growth accelerates. If the latter hypothesis holds, then we should expect a positive association between LLRs and real GDP growth.

*Labor market conditions:* unemployment rate as a percentage of the total labor force (*UNPL*). In line with the procyclicality argument, a positive association holds between the LLR ratio and the unemployment rate.

*Collateral values:* index of prices of dwellings, deflated by the harmonized inflation rate for Greece (*RHP*).<sup>5</sup> One should expect a negative relationship between collateral values and loan loss reserves, that is, provided that the procyclical hypothesis for bank provisions holds and housing prices constitute a good coincident indicator for the phase of the business cycle. In line with Quagliariello (2007), the impact of collateral values on the overall riskiness of a bank's loan portfolio may also be given an alternative interpretation; namely, in periods of increased collateral valuations, banks may be tempted to reduce their screening activity making their portfolios riskier. This behavior would then lead to higher NPLs (and thus, the need for higher provisioning), implying a positive association between LLR and RHP.<sup>6</sup>

*Debt service cost:* real interest rate on bank loans calculated using as weights the outstanding volumes of domestic monetary financial institutions' loans vis-à-vis euro area private-sector residents (*L\_RIR*). Many empirical studies document a positive link between lending interest rates and non-performing loans, particularly in the case of floating rate loans (see, e.g. Louzis et al. 2012, Beck et al. 2013). This should also imply



a positive association between real loan rates and the LLR ratio. In our analysis, the aforementioned variables enter in first differences (quarterly change in the respective real loan interest rate), alleviating concerns related to the fact that interest rates are usually higher in expansionary phases, when NPLs tend to be low (negative association).<sup>7</sup>

*Inflation (INFL)*: herein proxied by the quarterly change in the harmonized consumer price index for Greece. The impact of inflation on future bad debts (and, by implication, on banks' provisioning policies) may be ambiguous (see, e.g. Nkusu 2011). On the one hand, higher inflation erodes the real value of outstanding debt, thus making debt servicing easier. On the other hand, it may reduce real incomes (when prices are sticky) and/or instigate an interest rate tightening by the monetary authority.

### **Bank-specific Variables**

The procyclical behavior of bank provisioning practices implied by a negative association between loan loss reserves and GDP growth may be mitigated by the potential impact of bank earnings (income smoothing hypothesis), that is, provided that banks provision considerably more when earnings are high (and vice versa). Such a behavior contributes to banks' financial soundness (by reducing procyclicality) and implies a positive association between loan loss provisions and earnings. Since our study lacks income statement data, we cannot directly test the income smoothing hypothesis. However, the data at hand do allow us to test the existence of other effects that could somewhat mitigate the procyclicality of banks' provisioning policies. As analyzed below, this can be done by looking at, for example, the growth of total loans and its impact on loan loss reserves.

*Bank solvency and capitalization*: industry-wide solvency ratio, measured as total common shareholders' equity to total bank assets (*ETA*). Based on a number of earlier empirical studies, a negative association between the capital to assets ratio and provisions provides support to the capital management hypothesis, which postulates that banks with low regulatory capital are inclined to take more general loan loss provisions

in order to keep their capital ratios adequate. That is, especially if general provisions are tax deductible. On the other hand, expected gains to boosting capital may be very small once a bank attains a sufficiently high capital adequacy ratio (Hasan and Wall 2004; Bikker and Metzmakers 2005). An alternative phenomenon causing a negative relationship between provisions and capital may relate to the fact that some banks may simply hold a greater share of risky loans (and thus incur more losses and provision more) and, at the same time, have a lower capital ratio (Bikker and Metzmakers 2005).

*Loans growth rate (LG\_R)*: an indicator of loan portfolio riskiness. In line with the procyclical credit hypothesis, there must be a negative association between the said variable and banks' loan loss provisions, that is, especially if loans' growth in good economic times is associated with reduced monitoring efforts. An alternative hypothesis is that loan portfolio risk is actually building up during economic booms, which implies a positive coefficient on loans' growth (Borio et al. 2001).<sup>8</sup>

*Loans to assets (LtA)*: ratio of banking-system-wide loans to total assets. This is another indicator of the overall riskiness of banks' portfolios. In the context of our study, it would be of interest to estimate model specifications that include both *LG* and *LtA* as potential explanatory variables of loan loss reserves. For instance, the finding of a negative coefficient on the growth of loans in conjunction with a positive coefficient on the loans to assets ratio could be interpreted as evidence supporting the view that provisions increase as a share of total assets when the increase of new lending tends to reinforce the risk exposure of bank portfolios (Bikker and Metzmakers 2005).

*Loans-to-deposits interest rate spread (LD\_IRS)*: the interest rate spread between loans and deposits could be viewed as an indicator of the relative competitiveness conditions in the domestic loans and deposits markets or the degree of risk taking on the part of domestic credit institutions, implying a positive association with non-performing loans and hence provisions. Table 9.1 provides a summary of the sign(s) of the theoretical relationship between the LLR ratio and the set of explanatory variables examined in this study.

**Table 9.1** Potential drivers of loan loss reserves

	Variable	Acronym	Sign of theoretical relationship
Realized credit risks	Non-performing loans to total loans	NPL	(+)
	Default rate	DE	(+)
Macroeconomic variables	Real GDP growth	RGDP	(-)
	Unemployment rate	UNPL	(+)
	Real growth of the index of prices of dwellings	RHP	(-)
	Harmonized consumer price index	INFL	(-)/(+)
	Real interest rate on bank loans	L_RIR	(+)
Bank-sector variables	Common equity to total assets	ETA	(-)/(+)
	Loans growth	LG	(-)/(+)
	Loans to deposits	LtD	(+)
	Loans to total assets	LtA	(+)
	Loans-to-deposits interest rate spread	LD_IRS	(+)

## Methodology

Since our time series are relatively short, we avoid complicated methods that could potentially require a larger data sample. Instead, we employ an unrestricted vector autoregression (VAR) in differences as well as single equations estimated in different samples, with the aim to examine the robustness of our empirical results and identify potential regime-switching behaviors.

The standard VAR model with  $p$  lags, when the variables are expressed in differences, is written as:

$$\Delta y_{q,t} = \nu + \sum_{i=1}^p A_i \Delta y_{q,t-i} + B X_t + u_t \quad (1)$$

where  $y_{q,t}$  is a  $(K \times 1)$  column vector,  $\nu = (\nu_1, \dots, \nu_k)'$ ,  $B = (B_1, \dots, B_k)'$  are  $(K \times 1)$  column vectors of intercept terms,  $A_i$  are  $(K \times K)$  coefficient matrices,  $u_t$  is *i.i.d.*  $N(0, \Sigma)$  and  $X_t$  is an exogenous variable, herein the crisis

dummy C10 as explained in the next section. The subscripts in the vector of our variables are used to identify the different models and variable combinations as follows:

$$y_{q,t} = \left[ LLR_t, \left\{ TNPL_t, UNPL_t, INFL_t, RGDP_t^*, RHP_t^*, DR_t^*, L\_RIR_t, \right. \right. \\ \left. \left. \left. ETA_t, LtD_t, LtA_t, LD\_IR_t, LG\_R_t^*, PERFO\_RG_t^* \right\}_q \right], \\ \text{for } q = 1, \dots, 35 \tag{2}$$

The optimal lag length is chosen by fitting the VAR representation sequentially with lag orders  $p = 0, 1, \dots, p_{\max}$  and selecting the value that minimizes standard information criteria, with the following (generic) form:

$$IC(p) = \ln |\tilde{\Sigma}_u(p)| + h(p, n) \tag{3}$$

where  $h(p, n)$  stands for the penalty function  $\tilde{\Sigma}_u(p) = T^{-1} \sum_{t=1}^T \hat{\varepsilon}_t \hat{\varepsilon}_t'$  of the respective VAR( $p$ ) model. Depending on the penalty function, the information criteria used include the Akaike information criterion (AIC), the Schwarz criterion (SC) and the Hannan-Quinn criterion (HQ). We mostly rely on the latter for selecting the lag length.

Finally, we briefly illustrate below the causality testing, partitioning the vector of interest in  $m$ -dimensional and  $(K - m)$ -dimensional sub-vectors  $y_{\alpha,t}$  and  $y_{\beta,t}$ :

$$y_t = \begin{bmatrix} y_{\alpha,t} \\ y_{\beta,t} \end{bmatrix} \quad \text{and} \quad A_i = \begin{bmatrix} A_{11,i} & A_{12,i} \\ A_{21,i} & A_{22,i} \end{bmatrix} \quad i = 1 \dots p \tag{4}$$

where  $A_i$  are partitioned in accordance with the partitioning of  $y_t$ ,  $y_{\alpha,t}$  *does not* Granger-cause  $y_{\beta,t}$  if and only if the following hypothesis *cannot* be rejected:

$$H_o : A_{12,i} = 0 \quad \text{for } i = 1 \dots p \tag{5}$$

Thus, the null hypothesis is formulated as zero restrictions on the coefficients of the lags of a subset of the variables. This is in the form of a standard Wald-type test and therefore inference is asymptotically normal. After estimating each of the VAR models, a set of standard residual and misspecification tests is applied. Detailed results on these tests are available on request.

Selecting the variables presenting the highest stability in terms of significance, sign and magnitude, we construct univariate time series models and estimate them using both the full time length, from 2005Q1 to 2015Q4, and the subsample from 2010Q1 onwards. These models have the following general representation:

$$y_t = a + B'X_t + \gamma t + \epsilon_t \quad (6)$$

where  $B$  is either a scalar when we estimate bivariate models or a column vector in the case of multivariate analysis. We also include a time component to capture any trend like characteristics. Splitting the time length into two different samples allows us to examine whether any structural break has been created following the outbreak of Greece's sovereign debt crisis in late 2009/early 2010. Besides using different estimation periods, we also conduct a range of stability diagnostic tests in order to verify the significance of any structural change in the variables under examination.

We perform two stability diagnostics, namely, the Quandt-Andrews test and the Bai-Perron test. We first apply the Quandt-Andrews breakpoint test for one or more unknown structural breakpoints in the sample and test whether there has been a structural change in a subset of the parameters. The Quandt-Likelihood Ratio (QLR) statistic, also called the "sup-Wald statistic", is the maximum of all the chow F-statistics over a range of  $\tau$ ,  $\tau_o \leq \tau \leq \tau_1$ , in which a conventional choice for  $\tau_o$  &  $\tau_1$  is such so as to produce the inner 70% of the sample (after trimming the first and the last 15% of observations). Thus, QLR has the following form:

$$QLR = \max[F(\tau_o), F(\tau_o + 1), \dots, F(\tau_1 - 1), F(\tau_1)] \quad (7)$$

Secondly, we apply the Bai-Perron approach for  $m$  potential breaks, producing  $m + 1$  regimes within the sample. Hence, for the observations  $T_j, T_{j+1}, \dots, T_{j+1} - 1$  in regime  $j$ , we estimate the following regression model:

$$y_t = X_t' \beta + Z_t' \delta_j + \epsilon_t \quad (8)$$

for  $j = 0, \dots, m$ , where  $X$  variables are those whose parameters do not vary across regimes, while  $Z$  variables have coefficients that are regime specific. The procedure begins with the full sample and performs a test of parameter constancy with unknown break. If the test rejects the null hypothesis of constancy, break date is determined and the sample is divided into two samples where single unknown breakpoint tests are performed in each subsample. Each of these tests may be viewed as a test of an alternative to the null hypothesis of breaks. The procedure is repeated until all of the subsamples do not reject the null hypothesis or, alternatively, until the maximum number of breakpoints allowed or the maximum subsample intervals to test are reached.

## 5 Empirical Analysis and Discussion of Policy Implications

### 5.1 VARs with Macro- and Bank-Specific Variables

This section discusses the estimates of our vector autoregression (VAR) models that analyze the dynamic impact of random disturbances on systems incorporating different combinations of the variables under study. Compared to the data panel estimation techniques that have been extensively used in the literature to analyze non-performing loans and bank provisioning policies, the VAR methodology has the advantage of addressing the issue of potential endogeneity (by treating all variables as endogenous) and of fully capturing the dynamic interactions between the different types of potential determinants. The variables utilized in the analysis include:

- $\Delta(LLR)$ : quarterly change in the aggregate (system-wide) loan loss reserves to total loans ratio;
- $\Delta(TNPL)$ : quarterly change in the aggregate (system-wide) ratio of non-performing loans (including restructured loans) to total loans;
- DR*: ratio of the flow of loans classified as bad debt in the reference period to the total stock of performing loans of the prior period;
- RGDP*: quarterly growth of Greece's real GDP;
- $\Delta(UNPL)$ : quarterly change in Greece's unemployment rate (all domestic industries);
- RHP*: real quarterly growth of the residential house prices index;
- $\Delta(L\_RIR)$ : quarterly change of the real interest rate on bank loans (calculated using as weights the outstanding volumes of domestic monetary financial institutions' loans vis-à-vis euro area private-sector residents);
- $\Delta(INFL)$ : quarterly change in the harmonized consumer price index for Greece;
- $\Delta(ETA)$ : quarterly change in the aggregate (banking-sector-wide) solvency ratio, measured as total common shareholders' equity to total bank assets;
- LG\_R*: real quarterly growth of bank loans;
- LG\_PERFO*: real quarterly growth of bank performing loans;
- $\Delta(LtD)$ : quarterly change of the aggregate (banking-sector-wide) loans to deposits ratio;
- $\Delta(LtA)$ : quarterly change of the aggregate (banking-sector-wide) loans to total assets ratio;
- $\Delta(LD\_IRS)$ : quarterly change of the interest rate spread between loans and deposits and
- C10*: crisis dummy taking the value of 1 from Q1 2010 onwards and zero otherwise.

The estimates of our VAR model specifications for the ratio of loan loss reserves to total loans are shown in Tables 9.2, 9.3, 9.4 and 9.5. The tables also report the results of a series of relevant causality tests,

Table 9.2 Estimated models M1–M9 for loan loss provisions

	M1	M2	M3	M4	M5	M6	M7	M8	M9
<b>D(LLR(-1))</b>	-0.29	-0.19	-0.28	-0.30	-0.19	0.16	-0.22	-0.25	-0.23
<i>t</i> -statistic	-1.71	-1.24	-1.58	-1.74	-1.19	0.95	-1.40	-1.63	-1.44
<b>RGDP(-1)</b>	-0.13								
<i>t</i> -statistic	-0.77								
<b>D(LLR(-2))</b>	-0.11								
<i>t</i> -statistic	-2.56								
<b>RGDP(-2)</b>	-0.07								
<i>t</i> -statistic	-1.41								
<b>D(UNPL(-1))</b>		0.26		0.21	0.24			0.22	0.16
<i>t</i> -statistic		2.78		2.01	2.44			1.84	1.27
<b>RHP(-1)</b>			-0.10	-0.07					
<i>t</i> -statistic			-2.35	-1.43					
<b>INFL(-1)</b>					0.13	-0.07			
<i>t</i> -statistic					1.20	-0.58			
<b>D(L_RIR(-1))</b>							-0.13	-0.16	-0.01
<i>t</i> -statistic							-1.45	-1.80	-0.29
<b>C</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>t</i> -statistic	0.62	0.25	0.42	0.24	-0.62	2.53	0.27	0.00	0.41
<b>Exogenous variables</b>									
<b>C10</b>	0.01	0.01	0.01	0.01	0.01		0.01	0.01	0.01
<i>t</i> -statistic	3.96	4.27	4.05	4.13	4.34		4.79	4.80	3.45
<b>Statistics</b>									
<b>R<sup>2</sup></b>	0.50	0.49	0.46	0.51	0.51	0.20	0.50	0.55	0.51
<b>Akaike criterion</b>	-7.88	-7.96	-7.91	-7.97	-7.95	-7.52	-7.95	-7.99	-7.91
<b>Causality Wald test (p-values)</b>									
<b>RGDP</b>	0.01					0.03	0.01	0.25	0.25



D(UNPL)	0.00	0.02	0.04	0.02	0.07	0.20
RHP			0.15			
INFL				0.23		
D(L_RIR)					0.15	0.77*
All	0.01	0.02	0.00	0.01	0.01	0.03

Notes: All variables are expressed in growth rates or first differences with the exception of L\_RIR in model M9 which is measured in levels. The first panel of the table presents the estimates and associated t-statistics for the dynamic equation; the second panel presents the estimates and associated t-statistics for the exogenous (dummy) variable; the third panel presents the standard statistics for goodness of fit ( $R^2$ ) and the Akaike information criterion (AIC); and the fourth panel presents the p-values for standard causality tests, with the null hypothesis being that the respective explanatory variable does not cause LLR. C10 is a dummy variable that takes the value 1 from Q1 2010 onwards and the value zero (0) otherwise

Table 9.3 Estimated models M10–M18 for loan loss provisions

	M10	M11	M12	M13	M14	M15	M16	M17	M18
<b>D(LLR(-1))</b>	0.33	0.36	0.31	0.22	-0.15	0.22	0.20	0.18	-0.02
<i>t-statistic</i>	2.07	2.23	1.88	1.28	-0.75	1.28	1.13	1.04	-0.12
<b>RGDP(-1)</b>		-0.09	-0.04				-0.08	-0.05	
<i>t-statistic</i>		-1.71	-0.66				-1.66	-0.89	
<b>D(ETA(-1))</b>	0.17	0.18	0.16	0.14	0.04	0.14	0.14	0.14	0.07
<i>t-statistic</i>	2.54	2.74	2.47	2.17	0.55	2.17	2.20	2.08	1.01
<b>LG_R(-1)</b>				-0.04	-0.03	-0.04	-0.05	-0.04	-0.04
<i>t-statistic</i>				-1.77	-1.24	-1.77	-2.16	-1.85	-1.81
<b>D(UNPL(-1))</b>	0.23	0.18	0.18	0.18	0.21	0.18		0.11	
<i>t-statistic</i>	2.06	1.29	1.59	1.59	2.08	1.59		0.77	
<b>C</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>t-statistic</i>	1.55	1.78	1.60	2.31	0.94	2.31	2.74	2.42	1.44
<b>Exogenous variables</b>									
<b>C10</b>					0.01				0.01
<i>t-statistic</i>					2.88				2.54
<b>Statistics</b>									
<b>R<sup>2</sup></b>	0.35	0.33	0.36	0.40	0.51	0.40	0.40	0.41	0.45
<b>Akaike criterion</b>	7.72	-7.69	-7.69	-7.76	-7.92	-7.76	-7.77	-7.73	-7.85
<b>Causality Wald test (p-values)</b>									
<b>D(UNPL)</b>	0.04		0.20	0.11	0.04	0.11	0.10	0.44	
<b>D(ETA)</b>	0.01	0.01	0.01	0.03	0.58	0.03	0.03	0.04	0.31
<b>RGDP</b>		0.09	0.51					0.37	
<b>LG_R</b>				0.08	0.22	0.08	0.03	0.06	0.07
<b>All</b>	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.09

Notes: All variables are expressed in growth rates or first differences. The first panel of the table presents the estimates and associated *t*-statistics for the dynamic equation; the second panel presents the estimates and associated *t*-statistics for the exogenous (dummy) variable; the third panel presents the standard statistics for goodness of fit (*R*<sup>2</sup>) and the Akaike information criterion (AIC); and the fourth panel presents the *p*-values for standard causality tests, with the null hypothesis being that the respective explanatory variable does not cause LLR. C10 is a dummy variable that takes the value 1 from Q1 2010 onwards and the value zero (0) otherwise

Table 9.4 Estimated models M19–M27 for loan loss provisions

	M19	M20	M21	M22	M23	M24	M25	M26	M27
<b>D(LLR(-1))</b>	-0.07	-0.13	-0.12	0.07	-0.02	-0.05	-0.05	0.27	-0.01
<i>t</i> -statistic	-0.40	-0.72	-0.66	0.36	-0.10	-0.31	-0.31	1.73	-0.07
<b>RGDP(-1)</b>		-0.08	0.04			-0.07	-0.06		
<i>t</i> -statistic		-1.59	0.23			-1.55	-1.01		
<b>D(ETA(-1))</b>			-0.07						
<i>t</i> -statistic			-1.15						
<b>LG_R(-1)</b>	-0.05	-0.06	0.15		-0.07	-0.07	-0.07		-0.06
<i>t</i> -statistic	-2.27	-2.61	1.49		-2.76	-3.26	-2.83		-2.28
<b>D(UNPL(-1))</b>	0.14		-0.06		0.15		0.06		0.17
<i>t</i> -statistic	1.08		-2.39		1.24		0.44		1.33
<b>D(TNPL(-1))</b>	0.14	0.16		0.22					
<i>t</i> -statistic	1.39	1.79		2.31					
<b>D(LD_IRS(-1))</b>									0.23
<i>t</i> -statistic									0.52
<b>DR(-1)</b>					0.10	0.11	0.10	0.09	0.10
<i>t</i> -statistic					1.92	2.12	1.90	1.56	1.71
<b>C</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>t</i> -statistic	2.68	2.92	2.80	1.61	2.79	3.15	2.90	1.70	2.70
<b>Statistics</b>									
<b>R<sup>2</sup></b>	0.36	0.38	0.38	0.21	0.38	0.40	0.40	0.15	0.39
<b>Akaike criterion</b>	-7.69	-7.73	-7.68	-7.58	-7.74	-7.76	-7.72	-7.51	-7.69
<b>Causality Wald test (p-values)</b>									
<b>D(UNPL)</b>	0.28		0.82		0.22	0.12	0.66		0.18
<b>D(ETA)</b>							0.31		

(continued)

Table 9.4 (continued)

	M19	M20	M21	M22	M23	M24	M25	M26	M27
RGDP	0.02	0.11	0.25						
LG_R		0.01	0.02		0.01	0.00	0.00		0.02
D(TNPL)	0.16	0.07	0.14	0.02					
DR					0.05	0.03	0.06	0.12	0.09
D(LD_IRS)									0.60
All	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.12	0.00

Notes: All variables are expressed in growth rates or first differences. The first panel of the table presents the estimates and associated *t*-statistics for the dynamic equation; the second panel presents the estimates and associated *t*-statistics for the exogenous (dummy) variable; the third panel presents the standard statistics for goodness of fit (R2) and the Akaike information criterion (AIC); and the fourth panel presents the *p*-values for standard causality tests, with the null hypothesis being that the respective explanatory variable does not cause LLR. C10 is a dummy variable that takes the value 1 from Q1 2010 onwards and the value zero (0) otherwise

Table 9.5 Estimated models M28–M35 for loans loss provisions

	M28	M29	M30	M31	M32	M33	M34	M35
<b>D(LLR(-1))</b>	-0.05	0.14	0.06	0.04	0.02	-0.30	0.32	0.36
<i>t</i> -statistic	-0.29	0.89	0.32	0.20	0.13	-1.75	1.92	2.13
<b>RGDP(-1)</b>	-0.08			-0.10	-0.06	-0.07		
<i>t</i> -statistic	-1.59			-1.98	-1.01	-1.29		
<b>D(ETA(-1))</b>							0.17	
<i>t</i> -statistic							2.50	
<b>LG_R(-1)</b>	-0.07		-0.05	-0.06	-0.05	-0.03		
<i>t</i> -statistic	-2.93		-2.12	-2.61	-2.20	-1.44		
<b>D(UNPL(-1))</b>		0.35	0.23		0.14	0.13	0.23	
<i>t</i> -statistic		3.02	1.94		0.95	1.07	2.04	
<b>D(LD_IRS(-1))</b>	0.18	0.67						
<i>t</i> -statistic	0.43	1.61						
<b>DR(-1)</b>	0.11							
<i>t</i> -statistic	1.99							
<b>D(GLTA(-1))</b>			0.00	-0.01	0.00	0.02	0.01	-0.02
<i>t</i> -statistic			-0.04	-0.14	-0.09	0.58	0.33	-0.50
<b>C</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>t</i> -statistic	3.11	2.43	3.10	3.71	3.20	1.11	1.54	2.55
<b>Exogenous variables</b>								
<b>C10</b>						0.01		
<i>t</i> -statistic						3.82		
<b>Statistics</b>								
<b>R<sup>2</sup></b>	0.40	0.29	0.32	0.33	0.34	0.54	0.35	0.11
<b>Akaike criterion</b>	-7.71	-7.64	-7.64	-7.64	-7.62	-7.92	-7.68	-7.46

(continued)

Table 9.5 (continued)

	M28	M29	M30	M31	M32	M33	M34	M35
	<b>Causality Wald test (<math>p</math>-values)</b>							
D(UNPL)		0.00	0.05					
D(ETA)					0.34	0.29	0.04	
RGDP	0.00			0.05	0.31	0.20	0.01	
LG_R	0.11		0.03	0.01	0.03	0.15		
DR	0.05							
D(LD_IRS)	0.67	0.11						
D(GLTA)			0.97	0.89	0.92	0.56	0.74	0.62
All	0.00	0.01	0.01	0.01	0.01	0.02	0.00	0.62

*Notes:* All variables are expressed in growth rates or first differences. The first panel of the table presents the estimates and associated  $t$ -statistics for the dynamic equation; the second panel presents the estimates and associated  $t$ -statistics for the exogenous (dummy) variable; the third panel presents the standard statistics for goodness of fit ( $R^2$ ) and the Akaike information criterion (AIC); and the fourth panel presents the  $p$ -values for standard causality tests, with the null hypothesis being that the respective explanatory variable does not cause LLR. C10 is a dummy variable that takes the value 1 from Q1 2010 onwards and the value zero (0) otherwise

which confirm the efficacy of the selected model specifications. In most cases, the estimated coefficients have the correct theoretical sign and are statistically significant. Furthermore, all estimated VAR models presented in this sector pass the usual diagnostic tests as regards model specification and stability, selected lag length as well as residual autocorrelation, heteroscedasticity and normality (all results are available on request).

In the VAR equations that feature the quarterly change of the loan loss reserves ratio at the left-hand side, the coefficient of the first lag of that variable alters in sign across different model specifications and is not always significant (same result applies for models including more than one lag of  $\Delta(LLR)$ ). One possible explanation for this finding may relate to the fact that our loss reserves variable enters in first differences and thus constitutes a flow variable. Recent empirical evidence on the sign (and the significance) of the lagged non-performing loans variable or that of the flow of loss provisions is somewhat ambiguous. For instance, in their earlier contributions for Italy by Salas and Saurina (2002) and Quagliariello (2007) find that the flow of provisions exhibits some positive persistence. These authors explain this finding on the basis that it usually takes some time for NPLs to be written off of banks' balance sheets. On the other hand, in their panel data study on Greek NPLs, Louzis et al. (2012) document a negative and significant coefficient on the lagged NPLs variable for the case of consumer and corporate loans, along with an insignificant coefficient for mortgage loans. They explain this finding on the basis that NPLs are likely to decrease when they have increased in the previous quarter, due to write-offs.

In all estimated models, the coefficients of the lagged real GDP growth and the quarterly change in the unemployment rate have the expected signs (negative and positive, respectively) and are statistically significant (models M1 and M2). Furthermore, the magnitude of these coefficients exhibits notable stability across model specifications. This result provides evidence in favor of the procyclicality hypothesis as regards the provisioning policies of Greek banks at an aggregate level and is in line with the findings of numerous earlier empirical studies on the behavior of loan loss reserves and provisions. On the other hand, it implies that the

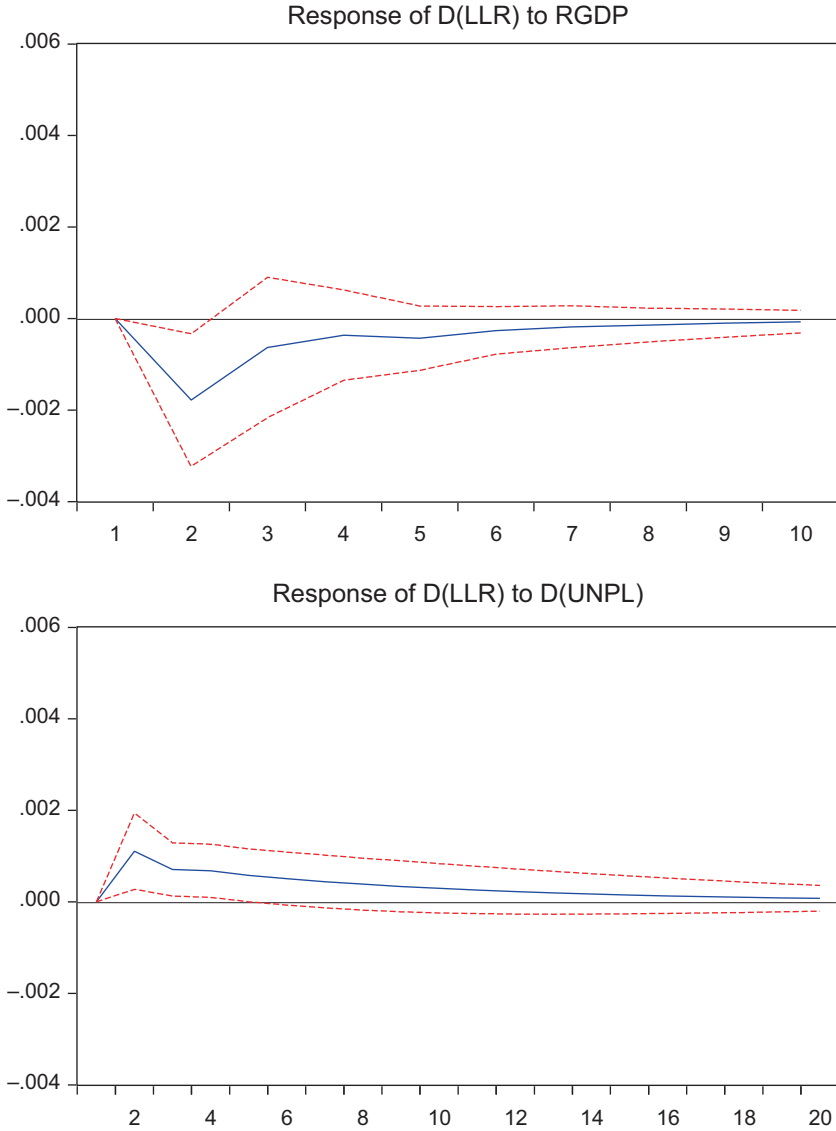
procyclicality argument advanced by Borio et al. (2001) does not apply to the provisioning practices followed by the domestic credit institutions in recent years.

In more detail, our findings show that, at an aggregate level, Greek banks take higher provisions (and increase their loan loss reserves) when domestic macroeconomic conditions deteriorate and vice versa. Estimates of bivariate VAR models that include real GDP growth or, alternatively, the change in the unemployment rate as the sole explanatory variable suggest that domestic banks respond relatively quickly to macroeconomic shocks, with the peak change in the LLR ratio being realized within two quarters. Yet, the effects of such shocks on the provisioning behavior of the domestic banking system show significant persistence; in more detail, the impact of GDP shocks on loss reserves dies out in about 10 quarters, while the impact of shocks on the unemployment rate persists for a considerably longer period, that is, it takes about 20 quarters for these effects to die out (see impulse response graphs of Fig. 9.2).

In terms of the respective quantitative impacts, our estimates show that a 1 percentage point (ppt) decline (increase) in real GDP growth leads to an increase (decline) of 0.11 ppts in the quarterly change of the loss reserves ratio after a quarter, with the corresponding long-run effect being around 0.18 ppts. This is actually comparable with the respective impacts documented in some earlier studies for other euro area economies. For instance, in a dynamic panel model estimated for a large number of Italian intermediaries over the period 1985–2002, Quagliariello (2007) finds that the long-run effect of a 1% GDP change on loan loss provisions is 0.13 (and 0.17 in the respective static model specification). As to the impact of labor market conditions, our estimates show that a 1% increase (decrease) in the unemployment rate leads to an increase (decrease) in the change of the LLR ratio by 0.26% after a quarter and by 0.27 ppts in the long run. These results are also in broad agreement with the estimates derived from the rest of the VAR specifications analyzed in this study as well as the single equation models presented in Table 9.5.

The coefficient of the lagged real growth of residential house prices is found to have the expected sign (negative), but not to be always significant. This especially applies to VAR model specifications that





**Fig. 9.2** Impulse response of  $D(LLR)$  to Cholesky's one s.d.  $RGDP$  and  $D(UNPL)$  innovation for VAR models M1 and M2, respectively

also include other macroeconomic indicators of the state of the macroeconomy, for example, GDP growth and unemployment rate (models M3 and M4). To the extent that our *RHP* variable constitutes a sound coincident indicator of the phase of the business cycle, the aforementioned result may be seen as providing some incremental support to the procyclicality hypothesis of banks' aggregate provisioning policies. On the other hand, our results do not support an alternative hypothesis postulating that in periods of increased collateral valuations banks may be tempted to reduce their screening activity making their portfolios riskier, which would in turn imply a positive association between LLRs and house prices.

The effect of inflation on the Greek banking system's loan loss reserves ratio is found to be ambiguous in sign and statistically insignificant in most estimated models (models M5 and M6). This is broadly in agreement with the findings of a number of recent empirical studies (see, e.g. Nkusu 2011). On the one hand, higher inflation erodes the real value of outstanding debt, thus making debt servicing easier. Other things being equal, the latter implies a lower volume of bank loans and thus, a lesser need for taking provisions (negative association). On the other hand, higher inflation may reduce real incomes (when prices are sticky) and thus, affect negatively the ability of borrowers to service their loans. This, in turn, would imply a positive association between inflation and the ratio of loan loss reserves. In our study, we find no conclusive evidence in favor of either of the aforementioned hypotheses.

The estimated coefficient of the real loan interest rate,  $L\_RIR$ , is mostly negative in sign, regardless of whether it is measured in levels or quarterly changes (models M7–M9). Although this is not always found to be statistically significant, it seems a bit counterintuitive to us on the basis that an increase in loan servicing costs should normally hinder the debt-servicing capacity of borrowers, leading to a higher number of bad loans in the future and thus higher provisions to account for such loans. It also appears to be in disagreement with the findings of several earlier empirical studies. For example, in a recent analysis on the determinants of non-performing loans in the Greek banking system, Monokroussos et al. (2016) document a positive and significant coefficient on the real loan interest rate, both at

an aggregate level (all loans) and for the major categories (consumer, mortgage and corporate) of bank loans.

Separately, the coefficient of the loans-to-deposits interest rate spread,  $\Delta(LD\_IRS)$ , is insignificant in all cases and also with alternating signs (positive in the estimated VARs and negative in the single equation model specifications) (models M27–M29). As we have already noted, this variable can be viewed as a proxy for the degree of risk taking by domestic credit institutions. A positive association between the said variable and non-performing loans (and hence, loss provisions and reserves) could be interpreted as evidence favoring the view that Greek banks engage in riskier activities by selecting lower credit quality borrowers to whom they charge higher interest rates. The aforementioned analysis shows that our empirical results do not provide evidence in support of that hypothesis. This is despite the fact that in the latter part of our data sample, there has mostly been a positive co-movement of LLRs and the loans-to-deposits interest rate spread due to the deep economic recession and the incipient tightening of domestic financial conditions. The latter saw major Greek banks becoming extremely cautious in extending new credit to domestic households and businesses, with loan interest rates lagging significantly behind the gradual declining trend in deposit interest rates witnessed after the first half of 2012.

The coefficient of our bank capitalization indicator,  $\Delta(ETA)$ , is found to be positive and significant in the majority of model specifications under study (models M10–M14). This result argues against the so-called capital management hypothesis, which postulates that banks with low regulatory capital are inclined to take more general provisions in order to keep their capital ratios adequate (negative association between loan loss reserves and the equity to assets ratio). On the contrary, our analysis shows that in the Greek banking system, strongly capitalized banks tend to take more provisions (and loan loss reserves) than weakly capitalized banks. However, an alternative explanation for the positive coefficient on the *ETA* variable is as follows: the sharp increase of non-performing loans and, by implication, of loss provisions and reserves has been one of the main reasons that necessitated the three major recapitalizations (in early 2013, mid-2014 and late 2015) of the domestic banking system in order to boost the

capital base of Greek credit institutions to levels above the required regulatory minimum. This point mostly applies to the latter part (crisis period) of our data sample and relates especially to the latest two recapitalizations.<sup>9</sup> Note that a positive (though insignificant) coefficient on the ratio of bank capital to total assets is also reported in a dynamic panel analysis of the EU banking system presented in Bikker and Metzmakers (2005).

The coefficient of the real growth of both total and performing loans is negative and significant in all estimated models (M15–M18). This finding is in line with the classical procyclicality hypothesis of bank provisioning policies, and it runs counter to an alternative hypothesis claiming that loan portfolio risks are actually building up during economic booms, which would instead imply a positive coefficient on loans growth (Borio et al. 2001).

As we noted in Sect. 4.3 of this paper, the finding of a negative coefficient on the growth of loans in conjunction with a positive coefficient on the loans to assets ratio could be interpreted as supporting the view that provisions tend to increase as a share of total assets when the increase of new lending raises the risk exposure of banks portfolios (see, e.g. Bikker and Metzmakers 2005). In all VAR model specifications estimated in our study, the loans to assets ratio is found to be insignificant and with alternating signs, both when estimated alone or in conjunction with the loans growth variable (models M30–M35). Therefore, based on this evidence alone, we cannot infer that the evolution of gross loans to assets ratio signifies an overly aggressive lending strategy by Greek credit institutions.

Finally, as expected, the estimated coefficients on the quarterly change in the non-performing loans to total loans ratio,  $\Delta(TNPL)$ , and the default rate,  $DR$ , are found to be positive and mostly significant (models M19–M22 and M23–M26).

## 5.2 Robustness and Stability Analysis: Single Equation Models

As a robustness check to the estimation procedure under study, we also run a series of single equation models that express loss reserves as a func-

Table 9.6 Single bi- and multivariate models

<b>Bivariate single models</b>					
<b>Estimation period 2005Q1–2015Q4</b>					
	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>S5</b>
@TREND	0.02	0.03	0.01	0.03	0.03
RGDP(–1)	–0.09				
D(ETA)		–0.18			
LTD(–1)			0.02		
D(UNPL(–1))				0.29	
INFL(–1))					0.17 <sup>\$</sup>
<b>Estimation period 2010Q1–2015Q4</b>					
	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>S5</b>
@TREND	0.02	0.01	–0.01	0.03	0.01
RGDP(–1)	–0.21				
D(ETA)		–0.19			
LTD(–1)			0.01		
D(UNPL(–1))				0.34	
INFL(–1))					0.07 <sup>\$</sup>
<b>Multivariate single models</b>					
<b>Estimation period 2005Q1–2015Q4</b>					
	<b>S6</b>	<b>S7</b>	<b>S8</b>	<b>S9</b>	
@TREND	0.02	0.03	0.01	0.03	
RGDP(–1)				–0.07	
D(ETA)	–0.17	–0.17	–0.18	–0.17	
LTD(–1)	0.01		0.02		
D(UNPL(–1))	0.15	0.26			
<b>Estimation period 2010Q1–2015Q4</b>					
	<b>S6</b>	<b>S7</b>	<b>S8</b>	<b>S9</b>	
@TREND	0.02	0.04	0.01	0.04	
RGDP(–1)				–0.12	
D(ETA)	–0.18	–0.18	–0.19	–0.18	
LTD(–1)	0.01		0.02		
D(UNPL(–1))	0.17	0.30			

Notes: All estimated coefficients are significant except those of the inflation variable (superscripted in \$). The first panel of the table presents coefficient estimates from single bivariate models estimated over the full data sample (2005Q1 to 2010Q1) and over the reduced (post-crisis outbreak) sample 2010Q1–2015Q4. The second panel presents the respective estimates of the multivariate models

tion of a range of macro- and bank-related variables that have mostly been found to be significant in the VAR equations (Table 9.6).

A quite interesting result inferred by the estimates presented in Table 9.5 is that the impact of shocks in explanatory variables on the loan

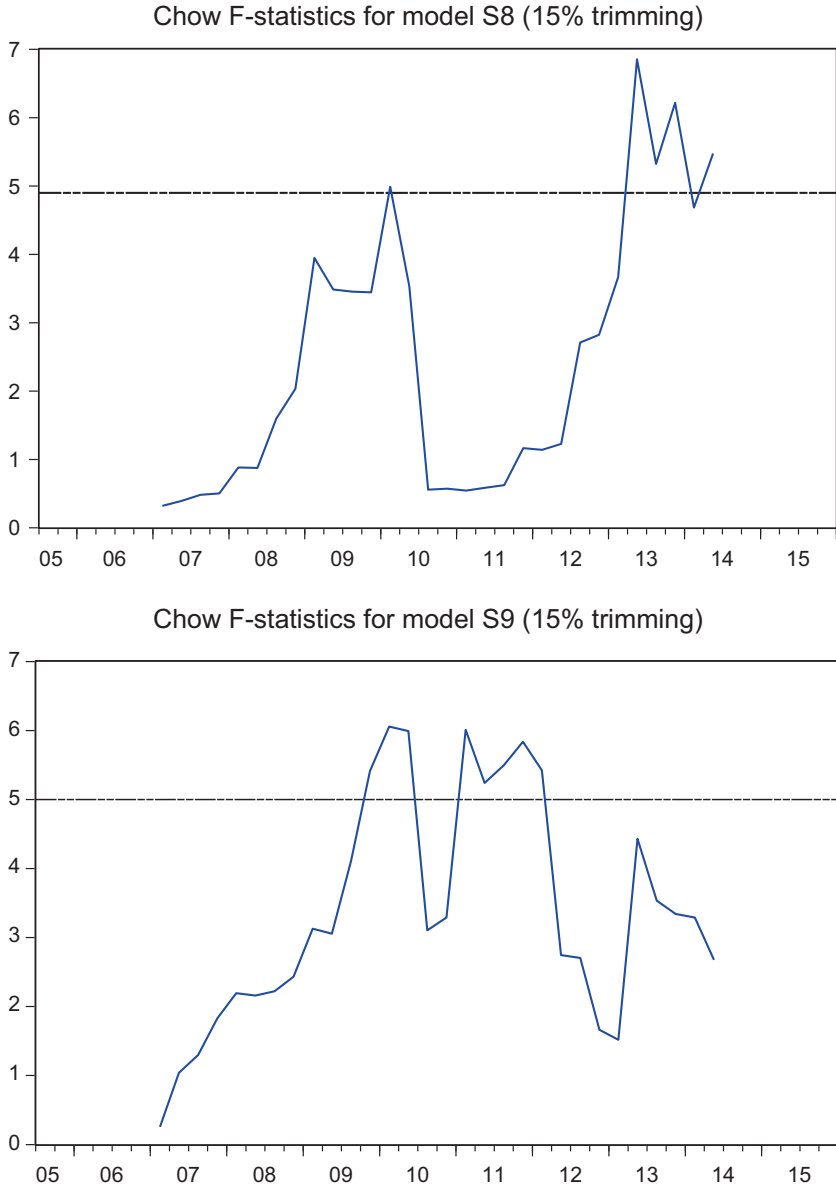
loss reserves ratio has become stronger (in terms of magnitude and statistical significance) in the period following the outbreak of the Greek crisis. For instance, in a bivariate single equation model that is estimated from Q1 2010 onwards and includes GDP as the sole explanatory variable, a 1ppt decline in real GDP growth leads after a quarter to a 2.1ppts increase in the LLR ratio. This compares with an estimated impact of c. 0.9ppt when the full data set (Q1 2005–Q4 2015) is used in the estimation. The respective bivariate model coefficients for the unemployment rate are 0.34 for the post-crisis period and 0.29 for the full time horizon. From a macro policy perspective, these results indicate that a sustainable stabilization of macroeconomic conditions is a key precondition for safeguarding domestic financial stability. From a regulatory standpoint, the results suggest that the possibility of (macro) regime-related effects on banks' provisioning policies should be taken into account when supervisory authorities design and implement macro prudential stress tests of the banking system.

Towards this direction, our stability diagnostics results validate the post-crisis outbreak regime (from 2010 Q1 onwards). As shown in Fig. 9.2, the Quandt-Andrews breakpoint test indicates two structural breaks when  $LTD_{t-1}$  and  $D(ETA)_t$  are jointly considered as breakpoint variables for model S8 and  $RGDP_{t-1}$  and  $D(ETA)_t$  for model S9, respectively. In the case of S8, the Likelihood Ratio F-statistic rejects the null hypothesis of no breakpoints in Q1 2010 as well as in the period between Q3 2012 and Q3 2013. For model S9, the maximal individual chow F-statistic occurs also in Q1 2010 (Fig. 9.3).

Moreover, we find similar results for models S8 and S9 when multiple breakpoint tests are applied (see Table 9.7). F-statistics from Bai-Perron's sequentially determined breaks reject the null hypothesis in both models for Q1 2010 and Q2 2013. Hence, the increased estimated impact observed in most bi- and multivariate single equations can be justified on the basis of the post-crisis outbreak regime.

## 6 Concluding Remarks

This study utilizes a new set of macroeconomic and regulatory data to analyze the evolution of loan loss provisioning practices in the Greek banking system over the period 2005–2015. This is performed by exam-



**Fig. 9.3** Individual Likelihood Ratio F-statistics series of Quandt-Andrews breakpoint test for models S8 (up) and S9 (down). *Notes:* The QLR statistic for model S8 is 6.85 at Q2 2013 and for model S9 is 6.06 at Q1 2010

**Table 9.7** Multiple breakpoint test for models S8 and S9

<b>Bai-Perron tests of <math>L + 1</math> vs. <math>L</math> sequentially determined breaks</b>			
<b>Multiple breakpoint tests for S8 model</b>			
<b>Break test</b>	<b>F-statistic</b>	<b>Scaled F-statistic</b>	<b>Critical value</b>
0 vs. 1	6.85	13.70	9.81
1 vs. 2	10.34	20.69	11.40
<b>Break dates</b>	<b>Sequential</b>	<b>Repartition</b>	
1	2013Q2	2010Q1	
2	2010Q1	2013Q2	
<b>Multiple breakpoint tests for S9 model</b>			
<b>Break test</b>	<b>F-statistic</b>	<b>Scaled F-statistic</b>	<b>Critical value</b>
0 vs. 1	6.05	12.11	9.81
1 vs. 2	8.85	17.70	11.40
<b>Break dates</b>	<b>Sequential</b>	<b>Repartition</b>	
1	2013Q2	2010Q1	
2	2010Q1	2013Q2	

Notes: Breakpoint variables are  $LTD_{t-1}$  and  $D(ETA)_t$  for model S8 and  $RGDP_{t-1}$  and  $D(ETA)_t$  for model S9. Data are trimmed by 15% where we exclude the first and last 7.5% of the observations. Significance level 0.10; maximum breakpoints 2

ining the determinants of the aggregate (industry-wide) loan loss reserves to total loans ratio, which reflects the accumulation of provisions net of write-offs and constitutes an important metric of the credit quality of loan portfolios. Our empirical findings make several contributions to the literature, especially as the behavior of provisioning policies in the Greek banking system has not been thoroughly analyzed in the past. Among others, we empirically document that, at an aggregate level, Greek banks generally behave in line with the stylized facts of provisioning policy procyclicality, taking higher provisions (and increase their loan loss reserves) when domestic macroeconomic conditions deteriorate. On the other hand, our results do not provide evidence in support of the so-called capital management hypothesis, which postulates that banks with low regulatory capital are inclined to take more general provisions in order to keep their capital ratios adequate. On the contrary, our analysis shows that in the Greek banking system more strongly capitalized banks tend to take more provisions (and increase their loan loss reserves) than weakly capitalized banks. Separately, our estimates show that domestic banks respond relatively quickly to macroeconomic shocks, with the peak quarterly change in the loan loss reserves ratio (i.e. the flow of provisions



net of write-offs) being realized within two quarters. Yet, the effects of such shocks on the provisioning behavior of the domestic banking system show significant persistence. Another interesting finding of our analysis is that the impact of macroeconomic shocks on the loan loss reserves ratio has become stronger (both in terms of magnitude and statistical significance) following the outbreak of the Greek sovereign debt crisis. From a macro policy perspective, this result indicates that a sustainable stabilization of macroeconomic conditions is a key precondition for safeguarding domestic financial stability. For a regulatory standpoint, it suggests that the possibility of macroeconomic regime-related effects on banks' provisioning policies should be taken into account when macro prudential stress tests of the banking system are designed and implemented.

## Notes

1. Monokroussos et al. (2016) argue that the primary cause of the sharp increase of non-performing loans in Greece following the outbreak of the sovereign debt crisis can be mainly attributed to the unprecedented contraction of domestic economic activity and the subsequent rise in unemployment. In addition, their findings offer no empirical evidence in support of a range of examined hypotheses assuming overly aggressive lending practices by major Greek banks or any systematic efforts to boost current earnings by extending credit to lower credit quality clients.
2. The last capital raising exercise of Greece's four systemic banks was successfully completed in December 2015. Total financing from official sources (i.e. the ESM through the Hellenic Financial Stability Fund) to recapitalize these banks was limited to just €5.43bn as two of them, Eurobank and Alpha Bank, managed to fully cover their respective capital shortfalls (under both the baseline and the adverse scenario) exclusively through internal capital raising means (LME) and private-sector funds injection. This was below the amount committed (up to €25bn) in the context of Greece's new bailout program for recapitalization and resolution purposes. Greece's systemic banks have been exempted from the EU-wide stress testing exercise that was

launched in late February 2016, on the basis that they have been adequately recapitalized quite recently.

3. Data for loan loss provisions can be found in banks' income statements.
4. In their study, Bikker and Metzmakers (2005) measure loan loss reserves as a ratio to total banking-system assets. In the study presented in this paper, we express LLRs as ratio to total outstanding bank loans.
5. Bank of Greece publishes a newer index based on apartment prices. However, our study uses the historical series of the index of prices of dwellings due to the greater time span of the latter series.
6. As noted in Borio (2012), combining credit and property prices appears to be the most parsimonious way to capture the core features of the link between the financial cycle, the business cycle and financial crises. Analytically, this is the smallest set of variables needed to replicate adequately the mutually reinforcing interaction between financial constraints (credit) and perceptions of value and risks (property prices). Empirically, there is a growing literature documenting the information content of credit, taken individually for business fluctuations and systemic crises with serious macro dislocations. But it is the interaction between these two sets of variables that has the highest information content.
7. A casual look at the evolution of the aforementioned variables in levels (data available on request) shows that, with the exception of a significant decline experienced in 2010, real loan rates in Greece have been on an upward path in more recent years due to strengthening disinflation and excessively tight conditions in the domestic lending market. At the end of 2015 (latest part of our data sample), real lending rates were higher relative to their levels in the pre-crisis period under examination.
8. An interesting interpretation of the growth of performing loans as a potential determinant of Italian banks' provisioning policies is provided in Quagliariello (2007). Using a large data set of Italian intermediaries over the period 1985–2002, the study estimates both static and dynamic models to investigate whether loan loss provisions and non-performing loans show a cyclical pattern. The author notes that the

growth of performing loans may signal a positive phase of the business cycle if it is led by demand factors (suggesting a negative sign) or an aggregate supply policy of banks, which in turn involves lower credit standards, the exposure to excessive risks and higher future provisions (positive sign). In line with this reasoning, the growth of performing loans may show a negative sign when current values are considered and a positive sign when lagged (see also Salas and Saurina 2002).

9. It can be argued that the first recapitalization of the domestic banking system (early 2012) was mainly caused by the debt restructuring of Greece's sovereign debt held by private-sector accounts (PSI), which completely wiped out the capital base of major Greek banks.

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# 10

## Micro-behavioral Characteristics in a Recessionary Environment: Moral Hazard and Strategic Default

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### 1 Introduction

#### 1.1 The Greek Economic and Financial Crisis

Following the Great Financial Crisis of 2007–2008, the Greek economy entered a deep and protracted recession, during which real GDP declined by 26% and the unemployment rate peaked at 27% in 2014 up from less than 8% in 2008 (Fig. 10.1). The Greek crisis was essentially a sovereign debt crisis: global investors perceived Greek sovereign debt as

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unsustainable and were no longer willing to refinance maturing debt. In order to avoid default, the Greek sovereign received financial assistance from the International Monetary Fund and Eurozone member states in May 2010 in exchange for a bold economic adjustment program which aimed at restoring fiscal balance, improving competitiveness, eliminating the large current account deficit and conducting a set of structural reforms to improve long-term growth conditions.

The sovereign debt crisis in Greece soon turned into a banking crisis: banks were gradually excluded from the interbank market, suffered significant deposit outflows and losses to the value of their assets as the sovereign was downgraded by rating agencies. What started as a liquidity crisis for banks turned into a solvency crisis following the Greek debt restructuring and debt buyback in 2012, with banks suffering losses of 38 billion euro, wiping out their entire capital base. Furthermore, the decline in GDP and the increase in unemployment impacted negatively on the income of households and businesses and therefore the ability of borrowers to service their debt obligations. As a result, non-performing loans (NPLs) increased by around seven times, from 5% in 2008 to more than 35% in 2015, with corporate NPLs, the focus of the current study, increasing from 4.2% in 2008 to 34.3% in 2015 (Fig. 10.1).<sup>1</sup> Such a huge surge in NPLs, in conjunction with the losses from the Private Sector Involvement (PSI), has put significant pressure on the banking sector, which was forced to raise additional capital in three consecutive years (2013, 2014, 2015), exacerbating the conflicts of interest between creditors and borrowers.

## 1.2 Economic Environment and Borrowers' Behavior

Despite contributing significantly to the creation of NPLs, financial distress due to the adverse economic conditions is not the sole cause of non-performing loans. Some borrowers may find it economically more attractive not to pay off their liabilities or renegotiate the loan on better terms, in order to use the cash saved for other consumption or saving activity. This decision in credit markets is known as strategic default, a term that has been widely used following the global financial turmoil in 2007.

This study, to the best of our knowledge, is the first to use Greek data and one of the few that utilizes data from corporate loans as the majority of studies focus on strategic behavior on mortgages (Mayer et al. 2014). It aims to provide empirical evidence on the characteristics of strategic defaulters among Greek businesses during the recent recession. The Greek crisis offers a unique field for empirical observation of strategic default for two reasons. First, the growth of non-performing loans is so large that it should be possible to empirically observe a sufficiently large sample of strategic defaulters, allowing for more reliable statistical inference. Second, the institutional environment in Greece, mainly related to inadequate information sharing and cooperation between financial institutions, exacerbates the information asymmetry between lenders and borrowers which in turn increases strategic default.

Using a unique database on business loans and a combination of identification processes, we aim, first, to assess the percentage of businesses that may be classified as strategic defaulters and, second, to identify the potential determinants of such behavior. Our empirical results suggest that strategic defaulters, as a percentage of all borrowers, have consistently increased during 2009–2015; however, the percentage of strategic defaulters among all defaulters slightly declined during the same period, a development that is attributed to the prolonged recession and the liquidity constraints. In addition, we provide evidence of sectoral variation of strategic default.

Regarding the determinants of strategic default, we find evidence of a positive relationship between strategic default risk and outstanding debt, as higher values of outstanding debt increase the benefits from default, providing a strong incentive to the firm to walk away from its liabilities. The value of collateral has a negative effect on strategic default in support of the risk mitigating property of collateral that is well documented in the literature. Further, we find evidence that the relationship between strategic default risk and size and age is an inverted U-shape, that is, strategic default is more likely among medium-sized firms and middle-aged firms. Finally, profitability is identified as a factor that can be used to distinguish the strategic defaulters from the financial distressed defaulters, as retained profits are used for internal financing when the firm has no access to external financing.



The study is organized as follows: the next section provides a short review of the related literature. Section 3 describes data and methodology. Section 4 presents the empirical findings and Sect. 5 concludes.

## 2 Literature Review

Finance theory devotes considerable attention to the conflict of interest between shareholders and managers and between shareholders and creditors. We shortly review this literature in order to set up appropriate research hypotheses for our empirical analysis.

### 2.1 Debtholders vs Shareholders

Based on Merton's (1974) structural model for corporate debt, shareholders hold a call option on firm's assets. If the value of assets when debt is maturing exceeds the value of debt, shareholders exercise the call option by paying off the debt and receiving back the ownership of the assets. If, however, the value of assets drops below the value of debt, they have the right to default and walk away from the firm leaving the assets to the lender. Due to their "option" right, the shareholders (firm's owners) and the debtholders (firm's lenders) have different incentives that generate conflicts of interests. Several authors have identified and discussed potential conflicts of interest between lenders (creditors/bondholders) and borrowers (shareholders). The following presentation is based on Jensen and Smith (1985) and on the references presented therein. Accordingly, there are at least four major sources of conflicts between these two groups of stakeholders:

**Dividend policy:** If bonds are priced assuming a constant dividend policy, their value will decline if dividends, financed either by borrowing or by reductions in planned investments, increase unexpectedly (Kalay 1982).

**Additional debt:** If bonds are priced assuming the firm will not issue additional debt of the same or higher seniority, their value will decline if the firm issues additional debt (Jensen and Smith 1985).

Undertaking higher-risk/asset substitution: If bonds are priced assuming the firm invests in certain assets with a given risk profile, their value will decline to the benefit of shareholders, if the firm substitutes a high-risk investment for a low-risk one (Jensen and Meckling 1976).

Underinvestment: As Myers (1977) demonstrates, if a major part of the value of a firm consists of growth opportunities, the firm—acting in the best interest of shareholders—may reject a positive net present value project if most of the benefits from accepting the project are captured by the bondholders.

As Jensen and Smith (1985) explain, rational debtholders recognize the incentives of shareholders in the above four cases and adjust debt prices accordingly. Consequently, debtholders do not suffer losses, unless they systematically underestimate the effects of such future selfish actions by shareholders. However, the firm and its shareholders suffer losses from the non-optimal pricing decisions. Such incentives are stronger when the companies are in financial distress, as it is the situation of the Greek companies in the current crisis.

## 2.2 Moral Hazard and Strategic Default

In markets where information asymmetry is present, the phenomenon of using private information to benefit from an incomplete contract is known as moral hazard (Arrow 1963). The problem of moral hazard may arise when individuals engage in risk sharing under conditions where their actions affect the probability distribution of the outcome (Hölmstrom 1979).

One stream of the literature on strategic default has focused on the use of collateral as an incentive that motivates the borrower to undertake a higher effort to stay solvent (Deng et al. 2000; Fay et al. 2002). These papers document a strong link between negative home equity and default. Edelberg (2004) also finds strong evidence that loan terms may have a feedback effect on borrower's behavior. Similarly, Karlan and Zinman (2009) find relatively strong evidence of economically significant moral hazard in the consumer credit market in South Africa. Adams et al. (2009) provide evidence of the underlying forces of moral

hazard among subprime borrowers using auto loan data, while Morse and Tsoutsoura (2013) show the importance of foreclosure, as a credible threat, for completing the mortgage market using Greek consumer loan data. Another stream of research investigates the strategic choice of defaults among different types of debts by the same borrower (Elul et al. 2010; Jagtiani and Lang 2010).

Other recent studies consider the effect of behavioral factors on the strategic default decision. Guiso et al. (2013) use the US consumer finance survey to conclude that strategic default is driven by economic, emotional and sociological factors (see also Fay et al. 2002). Similarly, Gross and Souleles (2002) interpret the increase in credit card default among US consumers as evidence that the stigma associated with bankruptcy has diminished.

All the aforementioned empirical evidence comes from the consumer credit market where strategic default has been at the forefront. In the scarce corporate literature, Giroud et al. (2012) use the level of snow as an exogenous instrument to identify distress due to debt overhang (strategic defaulters) among a set of highly leveraged Austrian ski hotels. Furthermore, Hyytinen and Väänänen (2006) use Finnish survey data to find empirical evidence of moral hazard. They conclude that firm age is inversely related to moral hazard, which corroborates the theoretical position of Diamond (1989, 1991) on the role of reputation in debt markets. In the Diamond (1991) model, borrowers rely on building positive reputations for repayment of debts in order to secure access to future credit.

### 3 Research Hypotheses

The purpose of the study is to examine the determinants of strategic default. As such, we set out to compare strategically defaulted firms to non-defaulted firms in order to reveal the differences between firms that have exercised the option to strategically default and those that did not. In addition, we compare strategically defaulted firms to defaulted firms that are not identified as strategic in order to highlight the differences between financially healthy but defaulted firms and financially distressed firms.

The value of the firm's shareholder's option to strategically default increases during periods of high economic uncertainty, since the benefits from walking away from the obligation will surpass the costs. By contrast, the percentage of strategic defaulters among the defaulted firms is expected to be negatively correlated to economic uncertainty as the number of financial distressed defaulters (i.e. the denominator of the ratio) will increase due to the deteriorating economic conditions. Hence, our first hypothesis (*H1*) is that *strategic default risk is positively related to economic uncertainty, but the percentage of strategic defaulters among defaulters is negatively related to economic uncertainty.*

In addition to the prevailing economic and financial conditions, there is substantial cross-firm variation in strategic default, which implies that there exist firm-specific characteristics that exacerbate, or mitigate, the phenomenon. In particular, strategic default risk is related to the size and the age of the firm in a complicated way. Very small and newly founded (e.g. start-ups) firms are financially dependent on their bank as they display higher information opacity (Petersen and Rajan 1994). The high bank switching costs in the sense of Sharp (1990) means that these firms will prefer to avoid actions that could impair their relationship with the lender. This phenomenon is known in the literature as the hold-up effect and effectively mitigates the moral hazard. At the other end of the distribution, very large and established firms have built a strong reputation, which helps them to secure lower financing costs (Diamond 1989) and therefore they will also be reluctant to engage in actions that will tarnish this reputation and increase financing costs. Combining the two countervailing effects yields that the empirical relationship of strategic default risk with size and with age is expected to be non-linear. In particular, our second hypothesis (*H2*) is that *very small (newly founded) and very large (established) sized borrowers will have lower strategic default risk compared to medium-sized (aged) borrowers.* However, size and age are not expected to have any discriminatory power to strategic defaulters from non-strategic defaulters due to the effect of size and age on the denominator of the ratio, that is, on the financial distressed defaulters.

Another important factor that influences the decision to strategically default is the borrower's outstanding debt. In investment, the phenomenon of debt overhang (Myers 1977) predicts that companies with large

outstanding debt are more likely to pass profitable projects since the gains will primarily accrue to the debtholders. It follows that highly leveraged firms will find the option of strategic default more profitable. Our third hypothesis (*H3*) is that borrowers with larger outstanding debt are more likely to strategically default. Outstanding debt, on the other hand, is also high for financially distressed (non-strategic) defaulters and hence we do not expect it to have any discriminatory power among defaulted firms.

The literature recognizes that the collateral pledged to the loan provides an effective incentive to the borrower to remain solvent by increasing the cost of the option to strategic default (Deng et al. 2000). Similarly, among defaulted firms, those with high collateral are less likely to be strategic defaulters. Hence, our fourth hypothesis (*H4*) is that a higher percentage of loan value secured by collateral will reduce the strategic default risk and will distinguish strategic defaulters from financial distressed defaulters.

Finally, we would expect that the strategic defaulters, compared to financial distressed defaulters, have some alternative source of funding that will help them to operate their business without external financing for a significant period of time following default. Firms' primary source of funding is retained earnings; hence, we expect that among defaulted firms, those with high profitability are more likely to be strategic defaulters. On the other hand, for reasons related to reputation and access to low-cost funding, profitable firms are expected to avoid becoming strategic defaulters. Hence, our fifth hypothesis (*H5*) is that profitability reduces strategic default risk, but defaulters with strong profitability are more likely to be strategic defaulters.

## 4 Sample and Methodology

### 4.1 Data and Variables

For our empirical analysis, we use a unique database of business loans, based on data submitted by commercial banks to the Bank of Greece. This database was combined with information retrieved from ICAP's database, a Greek business information provider, regarding company-specific

information such as financial variables, geographical location, years of operation and so on. For confidentiality purposes, the creation of the database was conducted by the Bank of Greece, and any borrowers' identification tags were removed prior to the econometric analysis.

The loan database contains annual data over the period 2008 to 2015 on outstanding corporate loans that exceed 1 million euro in total<sup>2</sup> for companies domiciled in Greece, as well as information related to the servicing of these exposures (i.e. performing or 90 days past due), the value of associated collateral and the credit rating assigned by the banks for the respective borrower. For the purposes of the analysis, off-balance sheet items, such as letters of guarantee, are excluded. When the exposure of a borrower drops below 1 million euro, banks stop providing information on the borrower.

Finally, from the initial data set with all the reported exposures, we exclude those that are reported by non-banking financial institutions (leasing, factoring, etc.) or subsidiaries. Hence the final data set consists of 70,390 firm-year observations that correspond to 13,070 unique firms.<sup>3</sup> In terms of coverage, our sample accounts for about 60% of total outstanding corporate loans in the Greek economy. The econometric analysis for the strategic default determinants is, nevertheless, performed on the sub-sample of firms with available financial information.

We define a loan as non-performing if its payment is delinquent for more than 90 days. In that case the total exposure of the borrower to the bank is assumed as non-performing, and the borrower is considered as a defaulter. To mitigate the possibility of incorrect submission or potential overestimation of delinquent payments, if the non-performing exposure of the bank to a company is relatively small in comparison to the total exposure of the borrower (i.e. less than 3%), we assume that the whole exposure is performing.

Regarding firms' financial data, we measure the *size* of the company by the logarithm of total assets, *age* is measured from the year of establishment, *outstanding debt* is defined as the ratio of loan exposure to total assets, *collateral* is the ratio of the reported collateral value to the loan exposure and profitability is measured by the firm's *return on assets* (ROA). Moreover, we control for the financial strength of the firm using *interest coverage ratio*, measured by the ratio of the firm's EBITDA to interest

expenses, and *liquidity ratio*, measured by the ratio of current assets to current liabilities. We control for access to equity markets using a dummy variable for the firms that are listed in the Athens Stock Exchange.

## 4.2 Identification of Strategic Defaulters

Because strategic default is an unobservable event—in contrast to default, which is observable—the distinction between strategic defaulters and defaulters facing veritable financial distress is not straightforward. Therefore, a rigorous process is required in order to identify among the defaulters those who have the financial capacity to service their obligations but are not willing to do so.

A variety of different identification strategies have appeared in the literature. In consumer credit markets, existing studies have linked strategic default to the value of the house with respect to the outstanding mortgage debt (Deng et al. 2000), or they have utilized the choice of consumers to selectively service other loan obligations (Morse and Tsoutsoura 2013) and consumers' *payment behavior* in general (Elul et al. 2010). Similarly, studies from the corporate literature have used exogenous variables to assess the *financial capacity* of firms (Giroud et al. 2012) and in this way to group the defaulters into financially constrained (non-strategic) defaulters and financially unconstrained (strategic) defaulters.

In this study, we propose a novel identification process to distinguish between the financially distressed (non-strategic) defaulters and financially sound (strategic) defaulters, combining approaches from the consumer and corporate literature. In particular, the firm's financial capacity to service its debt is measured using the banks' internal credit evaluation scale. Since each bank follows its own credit scoring policy, a common credit evaluation scale is created that is divided into two buckets: a top tier one in which firms are highly rated and a lower tier in which firms are classified as highly risky or financially unable to repay their obligations. Note that in between these two tiers, there is some gray area with some firms for which the internal evaluation is inconclusive as to which tier they belong to.

For the purpose of the study, a defaulted firm is characterized as a strategic defaulter if it is classified in the top tier bucket.<sup>4</sup> In order to avoid issues related to the timing of the banks' internal evaluation, as it is often the case that credit evaluations are updated with a lapse of time, we take into account the classification of the firms in the credit buckets both at the beginning and at the end of the year during which the firm defaulted on its loan. If the firm maintains a high quality internal score after its decision to default, this suggests that for some reason (e.g. deposits within the bank) the bank recognizes that the financial ability of the firm has not been significantly impaired and therefore the decision to default could be attributed to strategic choice.

In addition, for firms with loans from more than one bank whose average creditworthiness score is inconclusive (i.e. classified in the middle of the two tiers), we utilize an identification process similar to the one used in consumer credit market studies. In particular, we use the borrower's payment behavior towards all banks as additional information: if the borrower has two or more loans with different banks of which at least one of the loans is reported as performing, then we assume that his/her decision to default is less likely to be due to financial distress and more likely to be a strategic decision.

To ensure that the credit buckets used in the proposed strategic default definition capture the financial capacity of the firms, we compared the key financial ratios of firms assigned to the top and low buckets. We found significant difference in the interest coverage, leverage and profitability ratios between these two groups, which supports the use of banks' internal evaluation as an indicator of financial soundness.

Finally, in order to test the robustness of our identification process, we replaced the banks' internal creditworthiness scores with the interest expense coverage ratio and used a threshold of 1.1 to identify strategic defaulters—that is, defaulted firms with an interest expense coverage ratio above this threshold were characterized as strategic defaulters.<sup>5</sup> We confirmed that the findings discussed below remain qualitatively equivalent. We therefore conclude that the identification process discussed above is robust to alternative specifications.



### 4.3 Methodology

Using the aforementioned definition of strategic default, we categorize the borrowers into three groups: strategic defaulters, financially distressed (non-strategic) defaulters and non-defaulters. We then define two binary dependent variables, one to compare the strategic defaulters to non-defaulters and the second to compare the strategic defaulters to (non-strategic) financial distressed defaulters.

Given the binary nature of the dependent variables, we apply the probit regression model. In particular, the probability of observing a strategic default vs the reference group in year  $t$  by firm  $i$ ,  $P(\cdot)$  is the score of the annual economic uncertainty (which is captured by the *Year* dummies), *Size*, *Age*, *Outstanding Debt*, *Collateral*, profitability (measured by *ROA*), *Interest Coverage*, *Liquidity* and a dummy variable for listed companies (*Listed*):

$$\begin{aligned}
 P(DV_{i,t} = 1) = & \Phi(\beta_0 + \beta_1 Year_t + \beta_2 Size_{i,t-1} + \beta_3 Size_{i,t-1}^2 + \beta_4 Age_{i,t-1} + \\
 & \beta_5 Age_{i,t-1}^2 + \beta_6 Out.Debt_{i,t-1} + \beta_7 Collateral_{i,t-1} + \\
 & \beta_8 ROA_{i,t-1} + \beta_9 Int.Coverage_{i,t-1} \\
 & + \beta_{10} Liquidity_{i,t-1} + \beta_{11} Listed_{i,t-1} + R_i + I_i + \varepsilon_{i,t}) \quad (1)
 \end{aligned}$$

where  $\Phi(\cdot)$  is the cumulative normal distribution function. All financial ratios are lagged to one year to ease the concern of simultaneity bias. In addition to the firm level variables, taking into account that strategic default shows heterogeneity across sectors and regions, we account for any unobservable industry factor using industry effects,  $I_i$ , and for any unobservable regional factor using regional effects,  $R_i$ . Year dummies are used to capture the economy-wide uncertainty that has increased from the outset of the crisis and thereafter. We use robust clustered estimates of errors  $\varepsilon_{i,t}$  (Wooldridge 2002) to curb possible biases of error heteroscedasticity and intra-firm correlation. Note that, to curb the impact of spurious extreme values on our findings, we winsorize the data at the 1st and 99th percentile.

Finally, we calculate the marginal effects that summarize how the change in the independent variable is related to the change in the dependent variable. In simple linear models, this effect is the estimated slope from the regression line. For non-linear models like probit regression, however, marginal effects are estimated as the change in probability when the independent variable increases by one unit. The marginal effects are estimated for the mean value of the independent variable holding all other covariates at their mean values.

## 5 Empirical Evidence

### 5.1 Preliminary Findings

Table 10.1 reports the descriptive statistics for the loan data along with the company information available. The “average” firm with available financial data in the sample has total assets of 30 million euro, total liabilities of 19 million, annual sales of 17.7 million and bank debt of 7.5 million, of which 1.2 million is non-performing, across the observation period.

Table 10.2 presents the descriptive statistics for the loan exposures data sample over time. Total exposure for 2015 amounts to 56.8 billion euro, 18.7 billion of which are classified as non-performing, implying an NPL ratio of 32.9%. The total amount of loans is down by 20% from the peak of 71.6 billion in 2010, while the non-performing loans in 2010 were 5.8%. This implies an NPL-ratio growth of 440% for the period 2010 to 2015.

Table 10.3 reports the loan distribution in terms of size of the loans. The data suggest an inverse U-shaped relationship between the size of the loan and the NPL ratio: small loans (less than EUR 1 million) and large loans (more than EUR 50 million) have low NPL ratios, whereas medium-sized loans have high NPL ratios.

Table 10.4 reports annual summary statistics of our estimates of strategic defaulters. The ratio of strategic defaulters to total borrowers has consistently increased during the Greek crisis. However, the ratio of strategic

defaulters to total defaulters has slightly declined over the same period, from 21% in 2009 to 16% in 2015. This was not due to the decline in the number of strategic defaults but due to the deep recession and the liquidity crunch of the Greek economy that has led to the soaring of defaults due to liquidity constraints.

Table 10.5 reports estimates of the sectoral distribution of strategic defaulters. Sectors such as construction, manufacturing and information and communication have the highest percentage of strategic defaulters among all borrowers. In addition to these sectors, real estate and administrative and support services have the highest percentage of strategic defaulters among all defaulters. We also estimated the regional distribution. Modest variation was observed and for parsimony the results are not reported.

## 5.2 Determinants of Strategic Defaulters

Specifications (1) and (2) in Table 10.6 report the findings that characterize the strategic defaulters from the non-defaulters and from the non-strategic defaulters, respectively.

*H1: Strategic default risk is positively related to economic uncertainty, but the percentage of strategic defaulters among defaulters is negatively related to economic uncertainty.*

Using 2008 as the reference year with the lowest economic uncertainty in Greece (the economic conditions in Greece in that year were not affected significantly by the subprime crisis in the USA), the year effects capture the impact of increasing economic uncertainty in subsequent years. The coefficients from 2011 and onwards are positive and significant at the 1% level so there is evidence in support of the hypothesis that financial uncertainty increases the probability of strategic default.<sup>6</sup> In comparison to the non-strategic defaulters (specification 2), some year coefficients are negative and significant at the 1% level so there is partial evidence that the percentage of strategic defaulters among all defaulters decreases with economic uncertainty. As the strain on the firms' financial

positions grows due to the economic uncertainty and the credit rationing, more firms will default due to financial distress (non-strategic defaulters) rather than as a strategic decision.

*H2: Very small-sized (newly founded) and very large-sized (established) borrowers will have lower strategic default risk compared to medium-sized (aged) borrowers.*

The coefficients of the first-order ( $\beta_2=1.167$ ) and second-order ( $\beta_3=-0.029$ ) effects of size are positive and negative, respectively, and both are statistically significant at the 1% level. The signs of these effects provide empirical evidence for a non-monotonic relationship between size and likelihood of strategic default. In particular, smaller and larger firms have lower probability to strategically default compared to their medium-sized peers, assuming all else equal. This result is in line with the inverse U-shaped relationship between size of the loan and NPL ratio observed in the data (see Table 10.3). Similarly, the coefficients of the first-order ( $\beta_4=0.0192$ ) and second-order ( $\beta_5=-0.0003$ ) effects of age are positive and negative, respectively, and both are statistically significant at the 1% level. Likewise, the signs of these effects provide empirical evidence of a non-monotonic relationship between age and likelihood of strategic default. Equivalently, start-ups and well-established firms have a lower probability to strategically default compared to their peers, assuming all else equal. Overall, our findings on the relationship of size and age with the probability of strategic default support the second hypothesis.

In contrast, we find no evidence that size or age distinguishes strategic defaulters from non-strategic defaulters. Equivalently, strategic defaulters do not differ from financial distressed defaulters in terms of size or age.

*H3: Borrowers with larger outstanding debt are more likely to strategically default.*

The coefficient on outstanding debt ( $\beta_6=0.935$ ) is positive and significant at the 1% level, providing empirical evidence in support of the third hypothesis that outstanding debt increases the probability of strategic default since the benefits from strategic default are more likely to exceed

the implied costs. In contrast, we find no evidence that strategic defaulters differ from financial distressed defaulters on outstanding debt.

*H4: Higher percentage of loan secured by collateral will reduce the strategic default risk and will distinguish strategic defaulters from financial distressed defaulters.*

The coefficients on collateral ( $\beta_7 = -0.0534$  and  $\beta_7 = -0.0677$ ) in specifications (1) and (2), respectively, are negative and significant at 1%. Hence, there is empirical evidence in support of the fourth hypothesis regarding the role of collateral as a risk mitigating mechanism, a finding that corroborates the negative effect of collateral on moral hazard documented in literature.

*H5: Profitability reduces strategic default risk but defaulters with strong profitability are more likely to be strategic defaulters.*

The coefficient on ROA ( $\beta_8 = -1.91$ ) in specification (1) confirms that profitability reduces strategic default risk. Strategic defaulters, however, differ from non-strategic defaulters in profitability since the coefficient of ROA ( $\beta_8 = 1.92$ ) in specification (2) is positive and significant at 1%. This finding implies that defaulted firms with non-performing loans that report positive profits are more likely to be strategic defaulters compared to defaulted firms reporting losses. Since retained earnings provide an internal funding source, profitable companies will be able to operate for longer without external financing.

Finally, no differentiation was identified between listed and non-listed firms.

As argued earlier, the coefficient estimates from the probit regression model are not the direct effects due to the non-linear form of the model. The estimates in Table 10.7 Panel A are the marginal effects of the probit regression model of strategic defaulters vs non-defaulters. In particular, one unit increase in outstanding debt will increase the probability of strategic default by 4.8%, while a one unit increase in collateral will yield a 0.28% decrease in the probability of strategic default. Similarly, derived from the 2011 to 2014 year effects, economic uncer-

tainty increases the probability of strategic default by about 4%. Finally, the non-monotonic marginal effects at different values of size and age are presented in Figs. 10.2 and 10.3, respectively. A middle-sized firm has approximately 30% higher probability of strategic default compared to a small or large firm, all else equal. Similarly, a middle-aged firm has approximately 0.60% higher probability of strategic default compared to the newly founded and 0.30% compared to old companies, all else equal. Note that a direct comparison between the absolute value of marginal effects of different factors is not possible as the units between those factors differ.

Similarly, from the estimates of the marginal effects in Table 10.7 Panel B for the probit regression model of strategic defaulters vs defaulters, we find that profitability increases the percentage of strategic defaults among defaulters by 62%, whereas one unit increase in collateral is related to a 2.2% decrease in the percentage of strategic defaults among defaulters. Finally, economic uncertainty reduces the percentage of strategic defaults among defaulters by 11%.

## 6 Conclusions

Using loan payment data of Greek firms during the recent economic crisis, we propose a process that identifies strategic defaulters from financial distressed (non-strategic) defaulters. This distinction is crucial given the increased costs from non-performing loans incurred by banks' stockholders and by the government that provided additional capital in an effort to stabilize the banking system. We find that one out of six firms with non-performing loans is a strategic defaulter and that in absolute terms, the number of strategic defaulters has grown considerably from the outset of crisis, though the percentage of strategic defaulters among all defaulters has declined. In addition, we report significant sectoral variation of strategic default with construction, manufacturing and information and communication sectors displaying the highest percentages of strategic defaulters among all borrowers and real estate and administrative and support services also displaying high percentage of strategic defaulters among the defaulters.

Furthermore, we find evidence of a positive relationship between strategic default and outstanding debt and economic uncertainty and a negative relationship with the value of collateral. Very small and newly founded firms face high bank switching costs and therefore are less likely to strategically default, due to the impact that this decision will have on their relationship with the lenders. Similarly, very large and established firms are less likely to strategically default, because of the impact that this decision will have on their reputation. Finally, among defaulted firms, profitability and collateral can be used to distinguish the strategic defaulters from the financial distressed defaulters.

## Notes

1. For the case of Greece, the Bank of Greece has identified a strong relationship between the macroeconomic environment and the level of NPLs (see Annual Report of the Bank of Greece for Year 2014, pp. 169–172).
2. Banks report total exposures per customer provided that they exceed 1 million euro. There are also cases where the exposure is less than 1 million euro. These include the exposures of connected borrowers, as defined in the relevant Bank of Greece's Governor Acts, irrespective of the size of exposure, when at least one of these borrowers has an exposure higher than 1 million euro.
3. Our panel data set is unbalanced as some firms do not appear at the entire time period. Given the unbalanced data structure, direct annual comparisons require some caution.
4. For borrowers with loans from different banks and different creditworthiness scores, the average score is taken into account for the credit rating classification.
5. This threshold for interest expense coverage ratio was used as minimum impairment trigger for IAS 39 loss events in Phase 2 of the Asset Quality Review (AQR) of Greek banks.
6. In unreported results, we replaced the year effects with the annual volatility of the Athens Stock Index and found a positive and statistically significant effect that corroborates our hypothesis on the relationship of uncertainty and strategic default.

## Appendix

**Table 10.1** Annual aggregate descriptive statistics of loan, financial and commercial data

Variable	Observations	Mean	Std. dev.	Min	Max
Total assets ('000 euro)	49,408	30,300	292,000	3.218	16,200,000
Total liabilities ('000 euro)	49,354	19,400	183,000	0.289	11,800,000
Sales ('000 euro)	47,988	17,600	169,000	0	9,900,000
EBITDA ('000 euro)	49,345	1177	20,000	-1,250,000	1,670,000
Outstanding debt (% assets)	49,408	0.477	4.404	0	850.49
Interest coverage	45,733	-11.74	1143.42	-229,775.00	100.80
Liquidity	49,312	1.922	3.186	0	25.320
ROA (%)	49,327	-0.010	0.776	-164.645	28.093
Age	50,584	20	15	0	186
Total loans ('000 euro)	70,390	7444	42,059	1	3,398,540
Total NPL ('000 euro)	70,390	1243	7672	0	568,494
Total collateral ('000 euro)	70,390	2406	19,741	0	2,611,972

**Table 10.2** Annual aggregated statistics of loan sample data

	(1)	(2)	(3) = (2)/(1)
Year	Total loans ('000)	Total NPL ('000)	NPL ratio (%)
2008	70,800,000	1,682,000	2.37
2009	68,300,000	3,369,000	4.93
2010	71,600,000	4,179,000	5.84
2011	70,300,000	7,939,000	11.29
2012	65,200,000	14,800,000	22.64
2013	63,000,000	18,500,000	29.34
2014	57,900,000	18,400,000	31.78
2015	56,800,000	18,700,000	32.88

Sources: Data collected from Bank of Greece



**Table 10.3** Summary statistics of aggregated loan data by exposure size (2008–2015)

Loan amount	% frequency <sup>a</sup>	NPL ratio (%)
≤ 1 m	26.52%	10.52
1 m < ≤ 5 m	49.30%	23.16
5 m < ≤ 20 m	17.69%	20.92
20 m < ≤ 50 m	4.37%	17.77
50 m <	2.12%	11.92
Total	70,390	16.72

Sources: Data collected from Bank of Greece

<sup>a</sup>Measures the % share in total loans in each bucket

**Table 10.4** Annual summary statistics of default and strategic default rate

	(1)	(2)	(3) = (2)/(1)
Year	All defaults (% of all borrowers)	Strategic defaults (% of all borrowers)	Strategic defaults (% of all defaults)
2008	4.19	0.98	23
2009	7.89	1.66	21
2010	10.48	1.78	17
2011	19.90	2.68	13
2012	31.05	5.49	18
2013	35.11	6.10	17
2014	39.42	5.39	14
2015	38.63	6.06	16

Sources: Data collected from Bank of Greece

**Table 10.5** Summary statistics of default and strategic default rate per sector (NACE rev2 classification)

	(1)	(2)	(3) = (2)/(1)
Sector	All defaults (% of all borrowers)	Strategic defaults (% of all borrowers)	Strategic defaults (% of all defaults)
Agriculture, forestry and fishing	24.51	3.11	12.68
Mining and quarrying	24.53	2.83	11.54
Manufacturing	25.26	4.30	17.01
Electricity, gas, steam and air-conditioning supply	3.91	0.34	8.62
Water supply; sewerage, waste management and remediation activities	16.43	2.14	13.04

(continued)

Table 10.5 (continued)

Sector	(1) All defaults (% of all borrowers)	(2) Strategic defaults (% of all borrowers)	(3) = (2)/(1) Strategic defaults (% of all defaults)
Construction	28.09	5.06	18.02
Wholesale and retail trade; repair of motor vehicles and motorcycles	21.96	3.44	15.67
Transportation and storage	16.60	2.58	15.53
Accommodation and food service activities	19.54	2.93	15.01
Information and communication	21.91	4.10	18.72
Financial and insurance activities	13.47	1.39	10.29
Real estate activities	13.57	2.44	17.98
Professional, scientific and technical activities	20.81	2.00	9.62
Administrative and support service activities	18.32	3.87	21.11
Public administration and defense; compulsory social security	16.67	2.22	13.33
Education	20.60	3.27	15.85
Human health and social work activities	18.70	3.16	16.91
Arts, entertainment and recreation	17.08	2.92	17.07
Other service activities	18.99	1.68	8.86
Activities of households as employers; undifferentiated goods and services	7.23	0.00	0.00
Activities of extraterritorial organizations and bodies	100.00	1.39	1.39

Sources: Data collected from Bank of Greece

**Table 10.6** Probit regression model: maximum likelihood estimates of probability of (1) strategic defaulters vs non-defaulters and (2) strategic defaulters vs non-strategic defaulters

	(1)	(2)
Variables	Strategic default vs non-defaults	Strategic default vs default
Size	1.167*** (0.311)	0.242 (0.483)
Size*size	-0.0285*** (0.00933)	0.00306 (0.0147)
Age	0.0192*** (0.00369)	0.00293 (0.00546)
age*age	0.0003*** (5.55e-05)	-3.83e-05 (7.89e-05)
Outstanding debt	0.935*** (0.0673)	-0.00467 (0.0972)
Collateral to debt	-0.0534*** (0.0117)	-0.0677*** (0.0221)
Int. coverage	-0.00756*** (0.00268)	-0.00109 (0.00140)
Liquidity	-0.0295*** (0.00814)	0.0144 (0.00988)
Profitability (ROA)	-1.910*** (0.266)	1.918*** (0.400)
Listed	0.0829 (0.0971)	-0.159 (0.148)
2009	0.281*** (0.103)	0.0348 (0.210)
2010	0.240** (0.101)	-0.348* (0.192)
2011	0.501*** (0.0952)	-0.458** (0.179)
2012	0.985*** (0.0912)	-0.162 (0.174)
2013	1.012*** (0.0908)	-0.271 (0.173)
2014	0.988*** (0.0921)	-0.353** (0.174)
Constant	-14.50*** (2.601)	-5.242 (3.968)
Sector effects	yes	yes
Region effects	yes	yes

(continued)

**Table 10.6** (continued)

	(1)	(2)
Variables	Strategic default vs non-defaults	Strategic default vs default
Observations	21,802	3,359

The table reports estimates of probit regression Eq. (1). Definitions of strategic defaulter and independent variables are presented in Sects. 4.1 and 4.2. Robust standard errors in parentheses

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

**Table 10.7** Average marginal effects for strategic defaulters

	dy/dx	Std. err.	<i>p</i> -value	[95% conf. interval]	
Panel A—average marginal effects estimates for strategic defaulters to non-defaulters					
Size	0.0602	0.0156	0.000	0.0295	0.0908
Size <sup>2</sup>	-0.0015	0.0005	0.002	-0.0024	-0.0005
Age	0.0010	0.0002	0.000	0.0006	0.0014
Age <sup>2</sup>	0.00001	0.000002	0.000	0.0000	0.0000
Collateral	-0.0028	0.0006	0.000	-0.0040	-0.0015
Outstanding debt	0.0482	0.0035	0.000	0.0414	0.0551
ROA	-0.0985	0.0140	0.000	-0.1259	-0.0712
2009	0.0056	0.0020	0.006	0.0016	0.0095
2010	0.0045	0.0018	0.013	0.0009	0.0080
2011	0.0133	0.0023	0.000	0.0087	0.0179
2012	0.0487	0.0041	0.000	0.0406	0.0568
2013	0.0518	0.0042	0.000	0.0436	0.0600
2014	0.0490	0.0044	0.000	0.0404	0.0577
Panel B—average marginal effects estimates for strategic defaulters to non-strategic defaulters					
Collateral	-0.0221	0.0072	0.002	-0.0363	-0.0080
ROA	0.6262	0.1303	0.000	0.3707	0.8816
2009	0.0131	0.0790	0.868	-0.1417	0.1680
2010	-0.1204	0.0692	0.082	-0.2560	0.0152
2011	-0.1536	0.0653	0.019	-0.2816	-0.0257
2012	-0.0590	0.0650	0.364	-0.1863	0.0684
2013	-0.0959	0.0643	0.136	-0.2220	0.0302
2014	-0.1222	0.0643	0.057	-0.2482	0.0038

Derivatives of responses are average changes in the dependent variable for a change in the specified covariate, reported as elasticity. Standard errors are obtained by the delta method

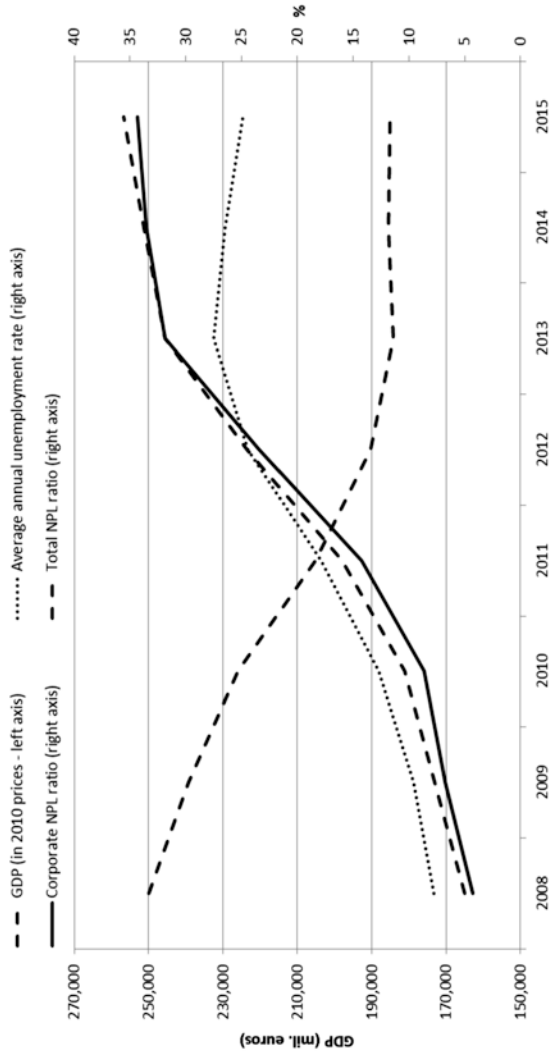
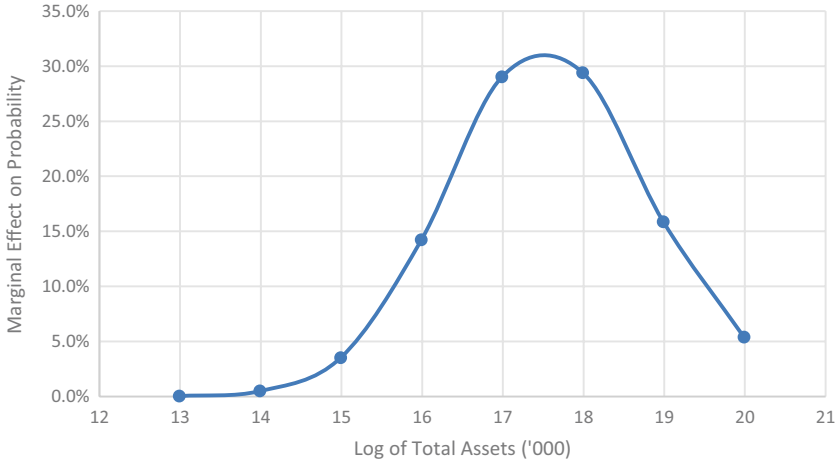
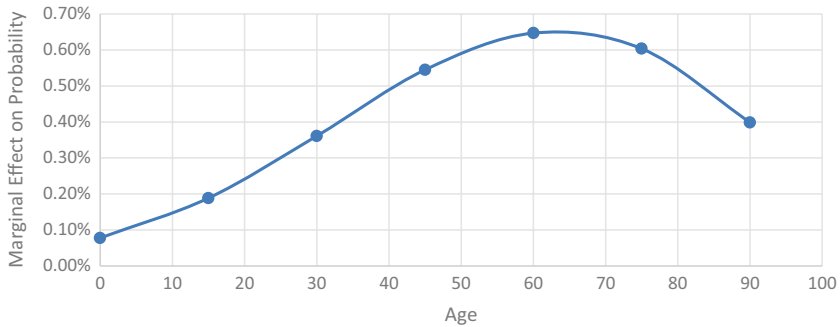


Fig. 10.1 Real GDP, unemployment rate and NPL ratios



**Fig. 10.2** Marginal effect of firm size on probability of strategic default



**Fig. 10.3** Marginal effect of firm age on probability of strategic default

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# 11

## Financial Distress, Moral Hazard Aspects and NPL Formation Under a Long- Lasting Recession: Empirical Evidence from the Greek Crisis

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and Kalliopi-Maria Zekente

### 1 Introduction<sup>1</sup>

Since 2009, the Greek economy underwent an unprecedented economic crisis, both in terms of duration and magnitude, marked by a cumulative loss of approximately one quarter of its Gross Domestic Product. Unemployment almost tripled from 9.6% of total labor force in 2009 to the historically high levels of 27.5% in 2013. The fiscal consolidation efforts that took place over this period weighed heavily on households' disposable income. As recession deepened, the level of non-performing loans (NPLs) rose sharply, reaching historically high levels across all main loan categories. In the effort to address private sector over-indebtedness, a wave of institutional reforms in the insolvency framework were enacted.

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Given that the case of Greece may be viewed as an ideal laboratory to study both recession-induced effects and moral hazard aspects, the present study focuses on jointly exploring the effects upon the formation of NPL arising from either the “inability to pay” or the “unwillingness to pay” behavior of obligors. The paper employs Vector Autoregression (VAR) and Vector Error Correction (VEC) techniques using aggregate macro data along with features of the legal and regulatory framework as the temporary suspension of foreclosures to capture the aforementioned determinants. The results suggest evidence that the unprecedented NPL formation was determined by the severe increase in unemployment, the recessionary shocks reflected in the time path of GDP, as well as some micro-behavioral impact related to strategic and tactical default. Also, business NPL is the most responsive to the phase of the cycle.

The remainder of this chapter is structured as follows: Sect. 2 concisely presents a short inspection of the consequences of the prolonged recession in Greece on the banking portfolios, while Sect. 3 discusses in brief the existing literature linking the macroeconomic environment to the NPL formation, with particular interest to empirical studies on the Greek case. In Sect. 4, we try to trace and model micro-behavioral factors which may possibly imply evidence of strategic defaulting and/or free riding behavior. Section 5 presents and discusses the empirical methodology and the results obtained and Sect. 6 concludes.

## **2 Long-Lasting Recessionary Shock and Viability of Loan Contracts’ Stock: Some Stylized Facts**

The Greek banking system in the pre-crisis period was mainly characterized by a considerable acceleration of credit growth, limited NPL formation and low-scale debt-restructuring activity. From 2001 and up until the end of 2009, the level and composition of total loans outstanding in the domestic banking system changed notably. During

this period, the share of consumer and mortgage loans to total loans rose from 8.5% and 15.5%, in 2001, to 12.2% and 26.2%, respectively, in 2009. Conversely, the share of business loans to total loans declined from 76% in 2001 to 61.6% in 2009. The ratio of NPL over total loans remained rather low and broadly stable across all main categories, while restructured loans constituted only a small fraction of total loans.

Since its peak in the first semester of 2010, total loans remained on a declining trend throughout the crisis, decreasing cumulatively by 20.7% from the first semester of 2010 and up until the end of 2015. Credit portfolio quality deteriorated sharply, with the total NPL ratio in the domestic banking system skyrocketing from 5.0% at the end of 2008 to 35.6% at the end of 2015, while with the inclusion of restructured loans, the total NPL ratio reached 43.5% at the end of 2015.<sup>2</sup>

The progressive escalation of the NPL ratio was primarily driven by the massive rise in the NPL volume, rising cumulatively by approximately 500%, from €13.5 billion in the fourth quarter of 2008 to €80.5 billion at the end of 2015. In particular, among the three main categories, the highest NPL ratio over time is recorded in consumer loans standing at 54.0% at the end of 2015, while the NPL ratio for business and mortgage loans reached 34.3% and 31.5%, respectively.<sup>3</sup> As shown in Fig. 11.1, the highest annual NPL growth was recorded in 2009 and was accompanied by intensified loan restructuring efforts to facilitate households and firms to service their debt obligations. It is evident that restructured loans almost tripled during 2009, driven mainly by intensified restructuring activity in mortgage and consumer loans. At the end of 2015, restructured loans amounted to €17.8 billion from €0.9 billion at the end of 2008.

In particular, the NPL ratio (including restructured loans) for consumer loans rose from 10.6% at the beginning of 2009 to 62.6% at the end of 2015. Similarly, the NPL ratio (including restructured loans) for mortgage and business loans also increased sharply during this period, from 6.5% and 5.5%, respectively, at the beginning of 2009, to 42.1% and 40.8%, respectively, at the end of 2015.

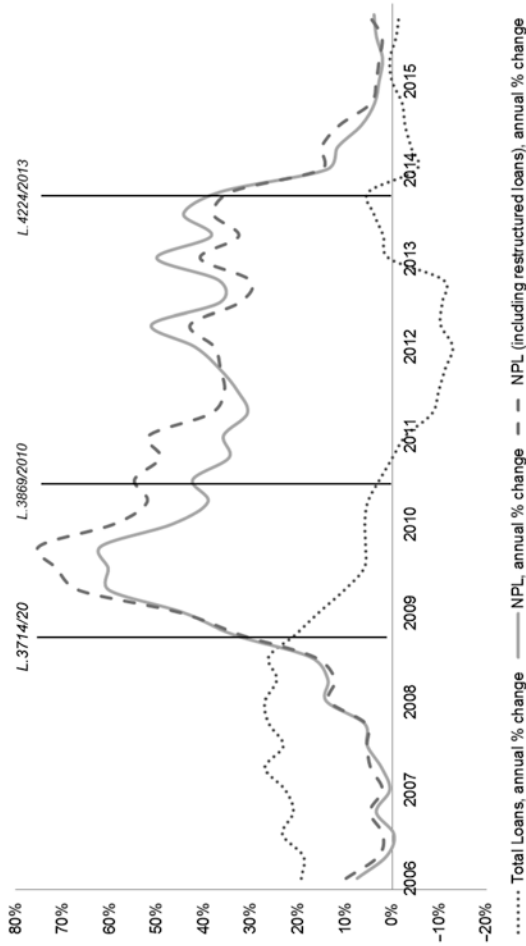


Fig. 11.1 Greek banking system: Credit growth, NPL formation and loans restructuring activity. Source: Bank of Greece

### 3 Macro-Determinants of Banks' Loan Quality: Received Literature and Evidence in Brief

Over the past years, a rich empirical literature has studied the determinants of loan portfolio quality, usually measured through the ratio of nonperforming loans over total loans (see, e.g., Castro (2013); Nkusu (2011); Bofondi and Ropele (2011); Espinoza and Prasad (2010); Fofack (2005); Jimenez and Saurina (2005); Rajan and Dhal (2003); and Salas and Saurina (2002)). Most of these studies, ranging within a variation of diverse assumptions, sample of countries, modelling and data selection methodologies, typically entail, either separately or jointly, two broad types of determinants of NPL. The first category pertains to systemic factors emanating from the macroeconomic environment, including, among others, real GDP growth, unemployment rate, inflation, nominal and real interest rates and exchange rates. The second set of factors involves bank-specific determinants of loan portfolio performance, including *inter alia*, bank size, solvency ratio, operating efficiency and market power.

Furthermore to the above systemic and idiosyncratic factors, several studies have identified and analyzed the impact of specific aspects of the institutional and supervisory framework on credit risk indicators (see, e.g., Kauko (2014); Goel and Hasan (2011) and Babihuga (2007)). The vast majority of the empirical studies reached consensus on the dependence of credit quality indicators on macroeconomic performance, confirming the expected nature of the relation as dictated by the theoretical rationale. However, the magnitude of the impact may differ across economies, given the significant cross-country heterogeneity as a result of the different structure and characteristics of the financial system, the diverse economic fundamentals and the period under consideration.

For the Greek banking system, the first empirical study to extensively explore the effects of the macroeconomic environment, as well as bank-specific variables on NPL for the three distinct loan segments, namely, business, mortgage and consumer loans, is provided by Louzis et al. (2012). By employing a sample of nine banks during the pre-crisis period

from 2003Q1 to 2009Q3, the study confirmed the strong impact of macroeconomic fundamentals on NPL, emphasizing, however, the different sensitivity of each loan type to macroeconomic factors. In particular, the effect of real GDP growth and unemployment rate tends to be higher in the case of business NPL, real lending rates have a stronger impact on consumer NPL, while mortgage NPL exhibits the least dependence to macroeconomic developments. In addition, their evidence suggests that low-cost efficiency is also significant in explaining NPL, with similar quantitative impact across the different loan categories. More recently, Monokroussos et al. (2016), based on an extended sample covering the period before and after the crisis (2005–2015), broadly confirmed the findings of earlier studies. Their evidence documented that the sharp rise in NPL during the crisis can be mainly attributed to the contraction of domestic economic activity and the increase in unemployment.

#### **4 Are Micro-Behavioral Factors Activated? Payment Morale, Strategic Defaulting and Free Riding**

In addition to the macroeconomic environment, reflecting, in principle, the ability of households and firms to service their debt obligations, specific features of the institutional and legal framework may distort obligors' payment morale, giving rise to strategic default or/and free riding behavior. Strategic default may be in general viewed as a situation where the borrower defaults on loan payments even though he affords to continue to repay his loan (Seiler (2015)).

The existing literature provides two broad definitions of strategic default (Bhutta et al. (2010)). Under the first, "generic" definition, strategic default is triggered by negative equity, that is, when the market value of the house falls below a certain threshold amount of the outstanding balance of the mortgage loan, even when the borrower can still service his mortgage obligations. Negative equity may thus be considered as the necessary condition to trigger strategic default, since in the opposite case, the borrower may simply choose to sell the house and repay the loan.

Bhutta et al. (2010) conducted a study of strategic defaulting in the US housing market. The sample of the study included borrowers from both recourse (Florida, Nevada) and non-recourse states<sup>4</sup> (Arizona, California) who purchased houses in 2006 with 100% financing while 78% of which defaulted by the end of the sample period (September 2009). Their evidence showed that the “pure” negative equity condition triggered half of the borrowers to default when equity declines below  $-50\%$ .

Among the forerunners in the literature on strategic default, Foote et al. (2008) highlighted that the negative equity constitutes a necessary but not a sufficient condition to trigger default. In the presence of transaction and reputation costs, including moving/relocation costs, rental prices, access to future credit, recourse-loan considerations, etc., negative equity is a significant contributing factor but may not stand as the sufficient condition for a borrower to exercise the default option. In addition to transaction and reputation costs, the effects of social, sentimental and moral considerations influence significantly the decision of a borrower to default. According to White (2010), the emotional constraints related to foreclosures such as shame, guilt and fear play a critical role in the default decision of underwater homeowners. In a survey-based study on US households by Guiso et al. (2013, p. 1498), “[...] 82.3% of respondents state that it is immoral to walk away from a mortgage if one can afford to pay it”, while persons who consider strategic default as being immoral are less willing to default.

Taking into consideration the above, under the second definition, strategic default may not be triggered solely by the negative equity condition but should be combined, in parallel, with the realization of additional factors (“*double trigger hypothesis*”) as, for example, an income shock or a life event. Bhutta et al. (2010) showed that under the second definition, one half of defaulters are strategic when equity is above  $-10\%$  when combined with a negative liquidity shock or a life event. However, when a borrower defaults on his mortgage payments, it becomes less than straightforward to make the distinction between strategic default and economic default.

While the strategic default behavior involves in principle the negative equity condition, free riding behavior which may also pertain to other loan categories, that is, consumer loans or credit cards, may be

considered to be mainly driven by specific features of the institutional and legal framework as, for example, the suspension of foreclosures or other personal insolvency legislative arrangements. On economic terms, widespread foreclosure sales are associated with depressed house prices (Immergluck and Smith (2006a)) while on social terms may contribute to higher rates of crime (Immergluck and Smith (2006b)). Thus, a foreclosure moratorium may ease the negative spillover effects on house prices but may provide an incentive towards free riding behavior (Andritzky (2014)). In particular, expected delays in the foreclosure process are found to have a significant impact on the borrower default behavior (Zhu and Pace (2015)).

Over the past years, a number of amendments in Greek legislation took place regarding debt arrangements, indicated also in Fig. 11.1. In particular, restrictions in auctions for sole residence were enacted with Law 3714/2008 (07.11.2008), for debts to credit institutions related to credit cards and consumer loans if the total loan amount did not exceed €20.000 and the debtor had a proven inability to service his contractual obligation. Order 181/ 16.09.2009 (ratified by Law 3814/2010) involved the suspension of foreclosures for debt obligations to credit institutions not exceeding €200.000, which was further extended by successive pieces of legislations in the following years.

The Law 3869/2010 filled the gap in Greek legislation on personal insolvency arrangements. It introduced a legal framework which allowed over-indebted persons (not merchants), with proven, non-fraudulent and continuing inability to service their past due obligations, to take advantage of the possibility to proceed to restructure their debt obligations with more favorable terms. It also allowed to obtain a debt relief in case the current and expected income is not enough or there are no assets available for debt repayment. In the context of this personal bankruptcy law, under special conditions, the debtors may request the protection of their primary residence.<sup>5</sup> The Law 4224/2013 continued to provide protection from auctions of primary residence with value less than €250.000, specifying eligibility criteria regarding the debtor's annual income and the total value of movable and immovable property. Although the foreclosure ban remained in effect through Law 4224/2013 till the end of 2014, it continued during 2015 mostly in the context of an informal moratorium.



## 5 Modeling Strategic Default and Free Riding Behavior Along with Macro-Aggregates: Econometric Specification

Following the above, the traditional econometric specification, that links asset quality indicators to macroeconomic determinants, reflecting the “inability to pay” behavior, is further augmented in order to capture possible “unwillingness to pay” behavior (such as strategic default and/or free riding). Figure 11.2 presents in brief this modelling approach.

Without undermining the fundamental limitations that arise in the effort to approximate the “unwillingness to pay” behavior based on aggregate rather than on micro level data, in the case of mortgage loans, we approximate the strategic default behavior by using jointly the index of residential property prices and a dummy variable, representing the suspension of foreclosures.<sup>6</sup>

Residential property prices, according to the Bank of Greece new index of apartment prices, recorded a cumulative decline of 40% since 2008. Following the breakdown of the index by geographical area and age, it is evident that the cumulative drop in apartment prices over this period was broadly similar for both new, that is, up to five years old (−38.3%) and old apartments (−41.0%). Urban areas, mostly Athens (−42.5%) and Thessaloniki (−43.5%), experienced stronger cumulative declines than

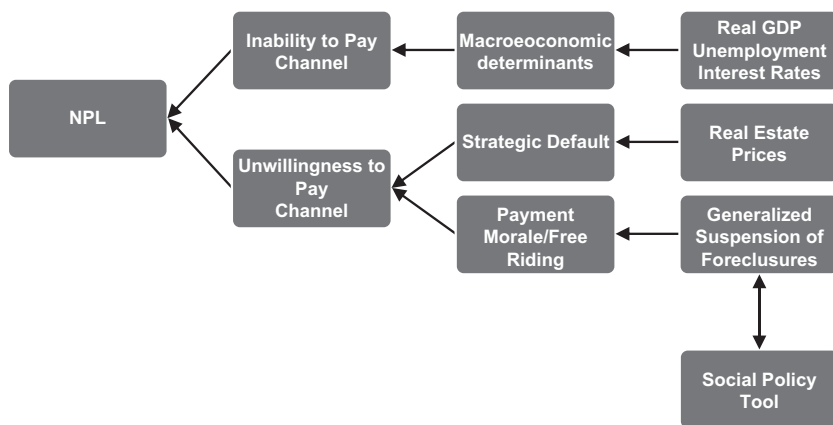


Fig. 11.2 Decomposition of NPL determinants in the Greek banking system

other regions ( $-35.4\%$ ). The combined effect of the strong decline in residential property prices during the crisis along with the suspension of foreclosures since the end of 2008 may incentivize strategic default or free riding behavior. In the case of consumer loans, “unwillingness to pay”, which reflects mainly free riding behavior, is captured through the suspension of foreclosures dummy.

The sample consists of 45 quarterly observations spanning the period from the fourth quarter of 2004 to the fourth quarter of 2015. The set of variables includes the outstanding amount of NPL in € billion (without the inclusion of restructured loans) for the three main loan types, namely, mortgage, consumer and business loans, the number of unemployed persons in million (UN), the real gross domestic product in € billion (GDP), lending interest rates per loan category (LR), the index of prices of dwellings (RE) and a dummy variable, intending to reflect the suspension of foreclosures (FS), taking the value of one from the fourth quarter of 2008 onwards and zero in all previous quarters. The data on the NPL outstanding per loan category, nominal lending rates and the index of residential property prices are provided by the Bank of Greece. The number of unemployed persons and real GDP are drawn from the Hellenic Statistical Authority. Taking into account that the type of borrower may exhibit different sensitivity to macroeconomic developments (see Louzis et al. (2012)), we separately explore the three main loan categories.

In line with the theoretical models and the vast majority of earlier empirical studies, discussed in brief in Sect. 3, loan quality is negatively linked to the economic cycle. Economic upturns are usually associated with low level of NPL, given that households and firms are endowed with sufficient stream of income to service their debt obligations. On the contrary, during the recessionary phase, the debt-servicing capacity of both households and firms is eroded, as a result of shrinking disposable income and lower profitability. The relationship between economic activity and NPL formation can be twofold though, as banks, due to increased NPL in their balance sheets, reduce credit supply, contributing negatively to economic growth. Klein (2013), through an empirical study of 16 Central and Eastern and South-Eastern Europe (CESEE) economies over the period 1998–2011, provided evidence on the feedback effects from the banking sector to the real economy, showing that an increase in NPL

has a significant impact on unemployment, real GDP growth and credit-to-GDP ratio. As a second indicator of the general state of the economy, we use unemployment which is expected to be positively linked to NPL formation. In line with the above, for consumer loans, we employ the number of unemployed persons as a proxy of macroeconomic performance, while for business and mortgage loans the real GDP.

In addition to the above, the set of systematic macroeconomic factors also includes lending rates per loan segment, as an indicator of debt-servicing cost. NPLs are expected to be positively related to interest rates, given that a rise in interest rates weakens the debt-servicing ability of borrowers. Finally, residential property prices are expected to be negatively linked to NPL formation.

To capture the short- and long-run dynamics among variables, that is, NPL and their determinants, we rely on Vector Autoregression (VAR) and Vector Error Correction (VEC) models. Both models allow for each variable to have an equation explaining its evolution based on its own lags and lags of the other variables of the system (endogenous or exogenous). VEC models, though, have the advantage of estimating also the long-run relationship (if that exists) between the endogenous variables, than just their short-term dynamics. VEC models constitute the most appropriate specification when the endogenous variables of the system are found to be cointegrated,<sup>7</sup> since it includes an error correction term measuring deviations from the estimated long-run relationship that influences their short-run dynamics.

To select the appropriate model specification, we test for unit roots by implementing standard augmented Dickey-Fuller (ADF) (Dickey and Fuller (1981)) tests. We find that all variables are integrated of order one,  $I(1)$ . In addition, Johansen (1991, 1995) cointegration tests indicate the existence of long-run equilibrium relationship among selected variables of interest to answer specific questions about NPL formation.<sup>8</sup> The VEC model results for the three loan categories are presented in Table 11.1. A number of tests have been performed to check the models' adequacy. For the optimal lag length, Akaike's information criterion (Akaike (1973, 1974)) and Schwarz (or Rissanen) criterion (Schwarz (1978); Rissanen (1978)) are used. In addition, residual diagnostics for autocorrelation (LM test (see Johansen (1995))), heteroskedasticity (White test for systems

**Table 11.1** Model estimates on strategic default and free riding behavior on NPL

	Mortgage NPL	Consumer NPL	Business NPL
	Long-run equilibrium relationship of log(NPL) with	Long-run equilibrium relationship of log(NPL) with	Long-run equilibrium relationship of log(NPL) with
LOG(UN)		0.62 (0.13) [4.63]	
LOG(GDP)	-1.27 (0.58) [-2.20]		-5.81 (0.25) [-23.51]
LR(%)	0.17 (0.07) [2.26]	0.01 (0.06) [0.18]	0.11 (0.05) [2.00]
@Trend(04Q4)	0.04 (0.007) [5.50]	0.03 (0.01) [4.07]	
C	31.54	1.01	25.33
<i>Speed of adjustment (<math>\alpha</math>)</i>	-0.16 (0.04) [-4.27]	-0.42 (0.10) [-4.02]	-0.15 (0.05) [-2.81]
<i>Exogenous variables</i>			
FS	0.09 (0.04) [ 2.17]	0.14 (0.04) [ 3.37]	
$\Delta$ (RE)	-0.007 (0.002) [-2.81]		
<i>VECM statistics and residual diagnostics</i>			
R-squared	0.46	0.59	0.58
Adj. R-squared	0.37	0.37	0.38
Akaike AIC	-8.95	-4.77	-7.01

(continued)

Table 11.1 (continued)

	Mortgage NPL	Consumer NPL	Business NPL
Schwarz SC	-7.92	-2.70	-5.11
Autocorrelation	0.51	0.07	0.65
Heteroskedasticity	0.24	0.23	0.90
Normality	0.98	0.82	0.06

Notes: Standard errors appear in parenthesis () while the corresponding t-statistics in square brackets []. Error correction term, *R*-squared and adjusted *R*-squared values refer to  $\Delta \log(\text{NPL})$  equation of the system, which is omitted due to space limitations. Optimal lag length is chosen based on VECM's AIC and SC. Autocorrelation, heteroskedasticity and normality tests on residuals appear in their corresponding *p*-values

of equations (see Kelejian (1982)) and normality (multivariate extension of the Jarque and Bera (1987) test) are presented for each model.

For the macroeconomic variables reflecting the general state of the economy, namely, GDP and unemployment, the estimated long-run coefficients are statistically significant, have the expected sign according to theory and are in accordance to earlier empirical studies. In particular, real GDP has a statistically significant negative impact on mortgage and business NPL, with the estimated long-run coefficients  $-1.27$  and  $-5.81$ , respectively. This result suggests that the long-run effect of the level of real GDP is of greater magnitude (in absolute terms) for business NPL compared to mortgage NPL. This result is in line with empirical findings by Louzis et al. (2012) for the pre-crisis period. Unemployment has also a significantly positive effect on consumer NPL with estimated long-run coefficient of  $0.62$ . The coefficients for nominal lending rates are positive across all loan types, albeit statistically significant for mortgage and business NPL. For consumer NPL, lending rates are found to be insignificant in the long run.

In addition to the “inability to pay” channel, captured through the above-mentioned macroeconomic factors, the “unwillingness to pay” channel, assumed to be captured through residential property prices and the suspension of foreclosures dummy, is also found to be statistically significant in explaining NPL formation. The status of foreclosure ban

is positively related with mortgage NPL, while the change in residential property prices is negatively related to NPL. This joint effect of both factors may suggest a possible existence of strategic default behavior. The suspension of foreclosures is also significantly positive for consumer NPL which may also provide indication of free riding behavior. In addition, the empirical evidence suggests that consumer NPL exhibits greater sensitivity to the suspension of foreclosures compared to mortgages, with the corresponding coefficient being higher (0.14 and 0.09, respectively).

In order to deep dive further into the short-run dynamics of the models presented in Table 11.1, a VAR model has been implemented for all loan types. Figure 11.3 illustrates the accumulated generalized<sup>9</sup> impulse-response functions (IRFs) extracted from the VAR in order to trace the accumulated response of each NPL type to each macroeconomic variable one year after their impulse (shock).

The uncovered IRFs are very informative and intuitive regarding the dynamic interactions among NPL rate of change and their determinants. The main findings are summarized below<sup>10</sup>:

- A positive shock in the real GDP rate of change decreases cumulatively mortgage NPL rate of change by 4% by the end of the first year. An increase in residential property prices decreases mortgage NPL rate of change by 1.6% in the same period.
- A negative shock (increase) in the rate of change of unemployed persons cumulatively increases the rate of change of consumer NPL by 4.4% at the end of the first year. In addition, a rise in consumer lending rate increases consumer NPL rate of change by 3.4%.
- A positive shock in real GDP growth leads to a 7.4% cumulative decline after one year in business NPL growth. An increase in business lending rates leads to a 1.9% cumulative increase in the formation of business NPL by the end of the first year.
- Business NPL seems to have the highest sensitivity (7.4%) to changes in macroeconomic indicators.
- The responses of NPL rate of change across all loan types to macroeconomic indicators are found to be statistically significant for all four quarters. On the contrary, their responses on residential property prices and lending rates are statistically significant only for the first semester.

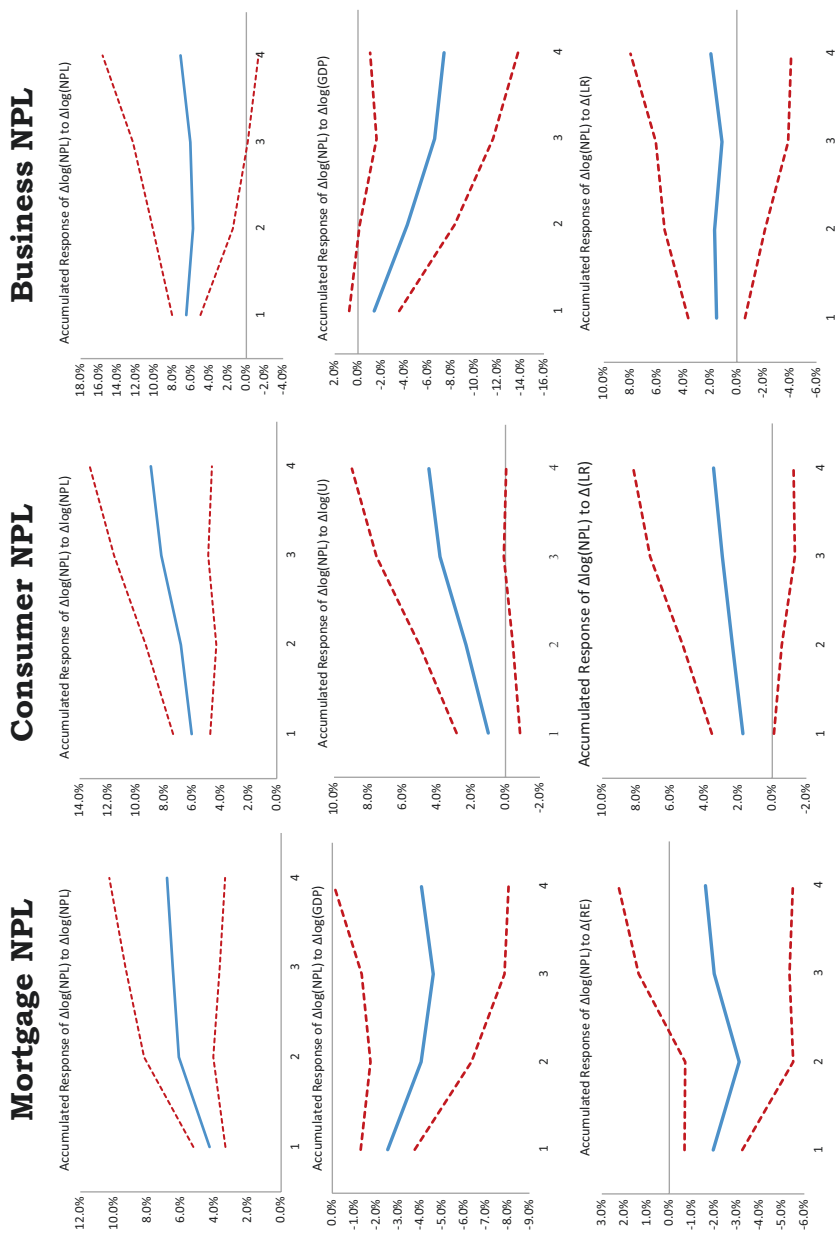


Fig. 11.3 Impulse response functions of NPL formation. Accumulated response to generalized one S.D. Innovations  $\pm 2S.E.$

## 6 Concluding Remarks

After the Greek sovereign crisis in 2010, the severe contractionary fiscal policy pursued in conjunction with the rapid “internal devaluation” led to an unprecedented fall in incomes domestically. As a consequence, a dramatic increase in the NPL ratio took place, ending up to a corresponding increase in loan loss provisions for bad debts for both corporate and retail portfolios.

In this paper, we try to decompose the overall effect of the economic crisis on the viability of loan contracts’ stock into three parts: firstly, the impact of the deterioration in debt service payments-to-income ratio on materialized credit risk (and on the efficiency of restructuring loan programs), secondly, the loan outstanding-to-collateral value ratio on the incentives for strategic default behavior and thirdly, the damage caused to payment culture, increasing significantly the moral hazard in the lender/borrower relationship.

Greek households have been shocked by the internal devaluation policy pursued in the private sector and the draconian income policy in the public sector, especially in the early stages of fiscal consolidation. These developments, captured by the GDP growth and unemployment moody dynamics, had a direct strong increasing effect on NPL of the retail banking portfolio (consumer and housing loans). NPL formation of corporate banking portfolios was also affected positively because of the huge decline in domestic demand.

Our findings provide evidence that the macroeconomic factors, reflecting “inability to pay”, are associated with NPL formation in a long-term equilibrium as the VEC models suggest. Our empirical findings also suggest that both the relaxation of institutional framework regarding foreclosure and the decline in the value of residential property prices, intending to approximate the “unwillingness to pay” behavior, increase NPL formation. The IRFs of NPL formation to macroeconomic factors suggest that their impact on NPL is not transitory since they don’t fade out before the first year. On the other hand, the change in residential property prices seems to be transitory, since it fades out at the second quarter. Finally, the business sector seems to be more sensitive to the phase of the cycle compared to the retail portfolio.



## Notes

1. The views and opinions expressed herein are those of the authors and do not necessarily represent or reflect the views of Alpha Bank. The responsibility for any errors or omissions rests solely with the authors.
2. The European Banking Authority, in the context of providing a harmonized and comparable basis of asset quality across the EU, has recently developed two definitions on forbearance and non-performing exposures (NPEs) (EBA 2014). Compared to the narrow NPL definition that was previously employed, non-performing exposures also include exposures, regardless of the existence of any past due amount, which are unlikely to be paid in full without realization of collateral (Bank of Greece (2015)).
3. The corresponding NPL ratios at the end of 2008 stood at 8.2%, 4.3% and 5.3% for consumer, business and mortgage loans, respectively.
4. The feature of recourse and non-recourse in residential mortgages relates to the assets the lender can collect at default. Based on loan data for US house market, Ghent and Kudlyak (2010) showed that the probability of default is higher in non-recourse states when the borrower is likely to be under a negative equity condition, conditional on the appraised value of the mortgage property.
5. Opinion of the ECB (April 2010).
6. A word of caution is warranted here given that the latter variable may be also reflecting the overall state of the economy, indicating the crisis period against normal times. In our model, the expansionary/contractionary state of the economy is assumed to be adequately captured by GDP performance and unemployment dynamics.
7. Variables that are individually nonstationary with common trends (see e.g., consumption and income), and their partial difference is stable around a fixed mean forming a nonstationary path, are said to be cointegrated.
8. Unit root and cointegration tests are not reported due to space limitations, both are available upon request.
9. Generalized impulses serve the purpose of the analysis (see also Nkusu (2011)), since unlike the traditional impulse responses, this

approach is invariant to the ordering of the variables' shocks (Pesaran and Shin (1998)).

10. All shocks are expressed as accumulated responses to generalized one standard deviation innovations of the corresponding variable.

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# 12

## Non-performing Loans in the Greek Banking System: Navigating Through the “Perfect Storm”

Paul Mylonas and Nikos S. Magginas

### 1 Introduction

The share of non-performing loans (NPLs) (+90 dpd) in gross loans (NPL ratio) reached extremely high levels in Greece against a backdrop of very adverse macroeconomic conditions, raising questions as to when they will stop rising, at what level they will peak, and their repercussions for financial sector stability and the economy’s prospects for recovery. The share of non-performing to total loans increased by 30.6 pps to 35.6% of gross loans at the end of Q4:2015 from 5% at the end of Q4:2005, with their absolute amount exceeding €80 billion or 45% of GDP. Including restructured loans—that is, loans for which there were modifications in their terms with a view to helping the borrower—the non-performing

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exposure (NPE) ratio increased to 44.3% at the end of 2015 (60% of GDP), an unprecedented level in the history of EU banking, which is only surpassed by Cyprus. The above figures exemplify the overwhelming size of the problem and the enormous challenges for the banking system. Investigating the main drivers of this deterioration is significant for assessing the potential for a reversal of NPL trends during the prospective turnaround of economic activity and gauging near-term risks—as the Greek economy remains in recession.

It should be noted that this dramatic deterioration in asset quality occurred despite the relatively favorable starting point, as the leverage of Greek households was relatively low at the beginning of the crisis, while real estate prices—which account for the dominant part of banks' loan collateral—had not exceeded levels explained by macroeconomic fundamentals, as in other euro area countries where booms in the real estate market had occurred. Moreover, the supportive ECB stance during the crisis through the provision of sufficient liquidity—under concessional terms—to compensate for the sizeable liquidity gap of the banking system due to the intense capital flight during the crisis, dampened the transmission of the sovereign stress to lending rates and a potential further deterioration of the quality of bank portfolios.

In view of the severity of the crisis, the analysis focuses mainly on the macroeconomic drivers of the deterioration in non-performing loans at an economy-wide level, as well as the two larger loan categories of Greek banks' portfolios, that is, mortgage and corporate loans. In fact, a set of core variables, which are considered to be closely related to borrowers' debt servicing capacity, showed a sharp deterioration in the period 2008–2015: Real GDP contracted by 26% cumulatively, unemployment increased by 17 pps to 27.5% of the labor force in 2013, residential real estate prices declined by 41%. In addition to the above variables usually employed in the empirical modeling of NPLs, this analysis attempts to assess additional idiosyncratic aspects of the Greek crisis which also have played a significant role in NPL formation, such as the extremely high uncertainty related, *inter alia*, to Grexit fears, the sizeable fiscal pressure and the protracted liquidity squeeze. The former can be seen as indicative of the dominance of macroeconomic shocks (see among others, Bofondi and Ropele 2011; Pesola 2005) over bank-specific factors, with

the latter holding a key place in the relevant empirical literature (see, among others, Babouček and Jančar 2005, Louzis et al. 2012 and Beck et al. 2013). The measure of non-performing loans used in the analysis is provided by the Bank of Greece and corresponds to sum of the NPLs (+90 dpd) with restructured loans (mostly in the form of maturity extensions). This measure is conceptually close to the EBA definition for NPEs and, thus, is referred as NPE\* in the rest of this analysis. By the end of 2015, this measure stood at 43.5% of gross loans compared with 44.3% for the NPE ratio and 35.6% for the NPL ratio.

The empirical analysis follows a two-staged approach: (i) single equations are specified and estimated with a view to identifying statistically significant relations between the aggregate NPE\* ratio and the NPE\* ratios for corporate and mortgage loans, with macroeconomic and financial variables, and (ii) these variables are then used for specifying three VAR systems which are appropriate for investigating the relative role of shocks and their passthrough to NPE\* ratios.

The results indicate that the collapse of economic activity and the sharp increase in unemployment, as expected, were the main factors underlying the sharp deterioration in loan quality. However, the empirical evidence is supportive of the existence of other distinct factors that affected non-performing loan generation, related to the extremely procyclical fiscal policy, the protracted liquidity squeeze and the high uncertainty related, *inter alia*, to Greece's euro area membership status. Related evidence based on dynamic system estimates (variance decompositions from VAR systems) suggests that the relative impact of shocks to GDP, unemployment, uncertainty, fiscal and liquidity conditions, on NPE\* trends varies significantly in terms of the impact size and the transmission lags, with fiscal, liquidity and uncertainty factors having more immediate impacts compared with the unemployment rate, real GDP growth and lending rates, with the latter being the dominant drivers of NPEs\* in horizons longer than two years. The fact that these variables jointly explain around 60–76% of the movement in NPE\*s, with a higher shortfall for the mortgage portfolio, suggests that moral hazard has likely played a significant role in NPE\* creation, and any changes to the institutional framework to reduce these phenomena would facilitate the workout process of non-performing loans.

## 2 A “Perfect Storm” Led the NPL Ratio to 36% at the End of 2015

*The sharp deterioration in loan quality predominantly reflects the explosive combination of a dramatic fall in economic activity, and heightened fears of exit from the monetary union in mid-2012*

The Greek banking system appeared to have relatively sound fundamentals at the start of the crisis. It was characterized by a relatively low level of private sector leverage, with the share of bank credit to households and firms equivalent to 52% and 56% of GDP, respectively, in 2008—the year the recession began—compared with 60% and 77% for the euro area, and an arithmetic average of 71% and 93% for Portugal and Ireland. Similarly, the share of Greek firms and households that had some form of bank loan at the beginning of the crisis was less than 38% of households and 46% of micro firms in 2008 compared with 47% and 58%, respectively, for the euro area (Tzamourani 2013 and authors’ estimates). Moreover, household borrowing was skewed toward the medium-to-high-income bracket, with only 7% of loans to households (value terms) in the lower-income bracket, and most income brackets underleveraged based on debt-service-to-income ratios (pre-crisis 2009). Indeed, according to the authors’ estimates, the median level of debt servicing cost as a per cent of household disposable income was slightly higher than the euro area average only in the case of low household-income percentiles (35% of the average annual income for households earning less than €17,000 per annum, compared with 27% for the euro area average in the respective income category), while it was in line with the euro average for medium-income households (21% for households with annual incomes between €18,000 and €40,000 versus 22% for the euro area average).

In an environment of apparently solid real GDP growth (4% on average in 2000–2007), declining unemployment (cumulative decline in unemployment rate of 3.4 pps between 2000 and 2007) and rapid credit expansion to the private sector (+22% y-o-y, on average, in the same period), the aggregate NPL ratio declined to 4.5% in Q4:2007 from 8.1% in 2001, and quarterly NPL formation, in absolute terms, showed no signs of acceleration until Q3:2008. Moreover, house prices in Greece



increased by 66% in nominal terms in the period 2001–2008 compared with a cumulative growth of 59% in nominal GDP, significantly less than the real estate price rallies of +104.6% and 135.7%, respectively, in Ireland and Spain in the previous decade, despite the significantly larger “permanent” drop in interest rates in Greece arising from euro entry (c. 9 pps between 1998 and 2002 vs 3.7 pps, on average, in Ireland and Spain in 1996–2000). This fact, combined with the relatively conservative bank lending policies—average LTV ratio less than 80% in 2000–2009 (Bank of Greece 2014), and little use of “interest only” or other products which pushed payments to the outer years of the loan—did not raise significant concerns about the quality of bank lending. Finally, the Greek banking system was relatively liquid, with a gross loan-to-deposit ratio of 106% at the end of 2008—versus 122% for the euro area average—and with little access to wholesale markets (less than 8% of bank liabilities in 2008).

The eruption of Greece’s economic crisis, which had its origins in the long-lasting fiscal and external imbalances, which were subsequently magnified by the significant slowdown in economic activity in 2008—the first GDP contraction in 14 years—and the dramatic reassessment of country risk that followed the international financial crisis, resulted in an NPL crisis. Against a backdrop of rapidly declining incomes and severe uncertainty, Greek banks’ loan quality suffered the most intense and protracted deterioration ever registered in a European economy.

The NPL ratio increased by 30.6 pps in 8 years, reaching 35.6% of gross loans by the end of 2015 (43.5% including loan restructurings) from a trough of 4.5% in Q4:2007, deteriorating by more than 3.8 pps per year—a very high level even by historical comparisons, including experiences from emerging markets. The increase is large, especially if we take into account the absence of excess leverage and the supportive stance of the ECB, which, along with the funding from financial support programs from the EU and the IMF, managed to provide sufficient liquidity to offset the dramatic capital flight, thus preventing a transmission of sharply increasing country-risk premia to bank lending rates.

In response to the sharply deteriorating trends, banks increased their provisions for potential loan losses by 612% or €40 billion to c. 25% of their loan portfolio in 2015, pushing up their coverage ratio (ratio of provisions to NPLs) to around 60–70% in 2015 from 55% in 2008

and 48% in 2011—the highest in the euro area. At the same time, banks attempted to provide some breathing space to a large number of borrowers hit by the economic crisis, offering more concessional debt servicing terms to a significant number of borrowers. However, these concessions have proved, in several cases, insufficient to counteract the continuing deterioration in borrowers' debt servicing capacity.

The sharp contraction in economic activity, which had been translated into a large decline in employment, wages and corporate profits, is the natural starting point for investigating the drivers of the NPL crisis (see, among others, Arpa et al. 2001). Activity variables and interest rates are traditionally the focus of the empirical literature on the NPL formation. Indeed, GDP contracted by 26% in real terms and by about 27% in nominal terms between 2008 and 2015. The GDP decline reflected an underlying decline of 29% in real private sector disposable income, on the back of cumulative declines in employment and nominal wages of 21.8% and 21.5%, respectively, in conjunction with a fall in corporate profitability approximated by the economy-wide gross operating surplus of about 21% in 2008–2015. In this vein, the unemployment rate has more than tripled in five years, reaching 27.5% in 2013 from 7.8% in 2008. More importantly, the unemployment rate of heads of household, which historically has been less sensitive to economic fluctuations and is considered more relevant for assessing the capacity of households, small enterprises and individual entrepreneurs to service their loans, has increased by 15 pps between 2008 and 2015 (from 3.2% to 18.1%).

Residential real estate prices declined by 41% during the same period, weighing further on the behavior of private sector debt servicing through negative wealth, income and sentiment effects. Moreover, falling real estate valuations undermined borrowers' capacity to refinance their debt and amplified deleveraging pressures on the banking system, along with pressure on banks to increase aggressively their stock of provisions for problematic loans.

*A major difference with other crises is the high uncertainty which, compounded by a strongly procyclical fiscal policy and prolonged liquidity squeeze, led to a further weakening of the borrower's position and had the side effect of increasing tactical defaults and moral hazard*

Along with the above set of core macroeconomic variables, we also attempt to assess additional idiosyncratic aspects of the Greek crisis, which could also have played a significant role in NPL formation. Indeed, despite their significant role in shaping loan-quality trends, developments in economic activity and real estate prices appear insufficient to describe in full the extremely rapid pace of NPL deterioration in recent years, suggesting that there were additional factors which affected loan quality. In fact, the NPL ratio increased by about 1.2 pps for each percentage point of decline in real GDP compared with less than 0.7 pps in other program countries, indicating a higher sensitivity of NPL formation to the deterioration in activity.

Uncertainty has been high for several years, clearly weighing on economic outcomes and private-debt servicing conditions. In this regard, the notable acceleration in NPL formation in periods when fears of an imminent sovereign default are high—which could also trigger the exit of Greece from the monetary union (e.g. in late 2011 and H1:2012 as well as in H1:2015)—is indicative of the impact of uncertainty on the quality of bank portfolios. In an attempt to investigate empirically the role of uncertainty in NPL formation, a measure of economic sentiment based on the respective survey results published by the EU Commission on a monthly basis is also included in the empirical specifications when it is statistically significant (in the form of the aggregate indicator of economic sentiment and/or its sub-components corresponding to the consumer and industrial confidence). Specifically, the part of the quarterly change in economic sentiment index, which is unrelated (orthogonal) to contemporaneous and lagged changes in activity and the fiscal stance, is used to approximate the impact of uncertainty on borrowers' behavior.

Moral hazard considerations, which are difficult to track empirically, as they typically involve, along with elevated uncertainty, a sizeable drop in collateral value—to significantly below the residual value of the loan—in conjunction with other strategic considerations as regards the lender's reaction function and the perverse incentives created by the legal framework. In this respect, long-lasting deficiencies and bottlenecks in the judicial system typically tend to be closely related to moral hazard phenomena. Accordingly, the characteristics of the legislation for protecting distressed borrowers against foreclosures, along with debtor-friendly

characteristics in corporate and household bankruptcy laws and a very slow-moving judicial system, have likely given rise to moral hazard considerations by a number of non-distressed borrowers. This phenomenon is exacerbated when the threat of repossession of real estate property by banks is considered a remote risk compared with the more pressing needs for other payments, especially when there exist significant delays in the court procedures.

Moreover, the high speed of fiscal adjustment is among the factors which surely amplified the pressures on the private sector's financial position. Against a backdrop of sizeable macroeconomic imbalances, Greece has undertaken a very challenging fiscal adjustment—the most ambitious ever by a European country. The cumulative improvement in the cyclically adjusted primary government balance reached 17% of GDP between 2009 and 2015, on the back of the implementation of almost 20% of GDP of new fiscal measures (net basis). About half of these measures corresponded to new/higher taxation, which clearly exerted a direct drag on private sector income and liquidity. Moreover, the periodic reviews of economic programs were usually completed with considerable delay, resulting, on several occasions, in liquidity shortages for the Greek state. A typical reaction by the state to this pressing situation was to defer payments to the private sector in order to maintain sufficient cash buffers to finance its more inelastic obligations (wages, pensions and debt service payments) and thus transmitted part of the pressure to the private sector. In fact, government arrears to the private sector increased by about 3 pps of GDP between 2008 and 2013, peaking at 4.6% of GDP in 2013, then receded to 1.7% in 2014 and increased again to 2.9% of GDP in H2:2015. In our empirical analysis, we attempt to take into account the impact of this behavior by introducing as an explanatory variable in the NPE\* equations the sum of the quarterly change in government tax revenue with the net increase in government arrears to the private sector as a per cent of GDP. This variable conveys useful information regarding the direct impact of fiscal policy on the financial and liquidity position of borrowers, which is additional to the effective impact of fiscal measures on final demand and activity.

In fact, financially stretched borrowers (individuals and firms), facing pressures to finance basic consumption needs as well as tax obligations,

have chosen in periods of high uncertainty—such as Q2:2012 and Q2:2015—to prioritize more pressing obligations, such as taxes and payments to suppliers and public utility bills at the expense of bank loan servicing. Indeed, the policies implemented under the program have promoted the seniority of obligations related to tax and social security payments—in view of the increasingly credible threat in recent years of confiscation of private property in the event of fiscal or social security arrears—in contrast to the effective constraints to foreclosure on private debt (especially primary residences) in an effort to support social cohesion.

In this environment of scarce liquidity and high uncertainty, the private sector had to cope not only with the impairment of its financial position due to unemployment, diminishing incomes and wealth valuations, but also with imminent liquidity constraints. During the crisis, households and firms had to increasingly draw on their stocks of financial wealth—mostly held in the form of bank deposits—to cover the most inelastic parts of spending. In this environment, it is likely that a significant number of borrowers faced significant constraints in servicing their loans due to liquidity shortfalls, which had become more binding in the face of the sizeable capital flight and of precautionary withdrawal of liquidity, reflecting fears of a potential exit of the country from the euro area and the related risk of deposit redenomination. In this respect, liquidity constraints acted as a distinct propagation mechanism of the pressures on bank portfolio quality, albeit related to uncertainty and the fiscal drag. In the empirical analysis that follows, the changes in household and corporate deposits, which cannot be explained by economic fundamentals (changes in GDP and unemployment), are used to approximate the role of liquidity on borrowers' behavior.

Indeed, between the end of 2009 and mid-2015, private sector deposits (including nonresidents) experienced a dramatic decline, by almost 52%, equal to approximately €130 billion. According to authors estimates (National Bank of Greece 2011 and updated authors' estimates on the basis of data as of the end of 2015), about 60% of the decline in private sector deposits (or €78 billion) reflected uncertainty-driven capital flight (including cash withdrawals for hoarding). The remainder can be mostly attributed to “cash burn” as Greek households and firms accessed the most liquid part of their wealth to finance the inelastic part of their

spending—including fiscal obligations as the pressure for higher compliance intensified (i.e. it is the decline that can be explained by economic fundamentals).

### 3 Empirical Models Specification and Results

We first attempt to identify some key empirical relations connecting developments in non-performing loans with macroeconomic and financial variables. Our modeling approach is based on estimating single-equation time series regressions of the total NPE\* ratio, as well as of the NPE\* ratio for mortgage and corporate loans, on a set of macroeconomic and financial variables which are considered to convey important information about the conditions in the Greek economy (as described above). The estimated models deliver a good empirical fit and the preferred specifications include only statistically significant variables.

The dependent variable in each equation corresponds to the quarterly change of the relevant NPE\* ratio which is defined as the ratio of the flow of new non-performing loans (including restructured loans) to the total stock loans, for each loan category. Each equation is estimated by ordinary least squares (OLS), with the preferred specification passing the basic tests of statistical adequacy (see Appendix).

#### 3.1 Key Findings from Single-Equation Specifications

The main results from *the equation describing the changes in the aggregate NPE\* ratio* (see Table 12.1) as a function of macroeconomic, fiscal and financial variables are as follows:

- First, in line with analogous studies, the quarterly change in the aggregate NPE\* ratio is strongly positively correlated to the quarterly change in the unemployment rate for the heads of households and the real effective lending rate on outstanding loans, and inversely related to

Table 12.1 Total NPE\*<sub>t</sub>

Total NPE* <sub>t</sub>	Unemployment rate <sub>t</sub>	GDP growth <sub>t</sub>	Fiscal <sub>t-1</sub>	Uncertainty <sub>t-1</sub>	Liquidity <sub>t</sub>
Coefficient	0.49	-0.20	0.28	-0.53	-0.35
<i>t</i> -statistic	3.54	-2.49	2.85	-3.51	-2.15

$R^2 = 0.76$ ,  $DW = 1.92$

real GDP growth. More specifically a 1 pp increase in the unemployment rate for the heads of households raises the aggregate NPE\* ratio by 0.5 pps, an increase in the effective lending rate of 1 pp is estimated to lead to a 0.2 pps increase in this ratio, while a 1% contraction in real GDP adds 0.2 pps to the aggregate NPE\* ratio

- As regards the identification of the impact of the “idiosyncratic factors” related to the adverse fiscal and liquidity conditions and high uncertainty, the empirical results are very revealing. Specifically, the empirical measure of the fiscal drag, that corresponds to the quarterly change in the ratio of tax revenue and government arrears accumulation to GDP, is statistically significant, suggesting that the increasing tax pressure and the “crowding out” of the private sector weighed further on its debt servicing capacity. According to the estimated model coefficient, a 1 pp increase in the ratio of tax revenue and government arrears to GDP translates into a 0.28 pp increase in the NPE\* ratio in the following quarter.
- Similarly, the empirical measure of liquidity conditions—corresponding to the residual of the regression of private sector deposits on the contemporaneous values and two lags of GDP growth, the change in unemployment rate and the aggregate economic sentiment index—is also statistically significant and inversely related to NPE\* formation, indicating that liquidity constraints had a significant negative impact on private-debt servicing during the sample period. A 1% reduction in the liquidity measure adds 0.35 pps to the aggregate NPE\* ratio.
- Finally, exogenous fluctuations in economic sentiment, approximated by the residual of the regression of the economy-wide economic sentiment index on current and lagged values of GDP growth and the unemployment rate, result in a simultaneous change in the NPE\* ratio with a theoretically consistent negative sign. The significance of this

variable is the high level of NPE\* formation when Grexit and/or sovereign default fears peaked. In fact, a 1% increase in this uncertainty measure leads to a deterioration in the NPE\* ratio of 0.53 pps in the following quarter.

*The equation for NPE\* in the mortgage segment* (see Table 12.2) describes the quarterly growth in the respective NPE\* ratio as a function of:

- The residual from the regression of the quarterly change in the unemployment rate for the heads of households on the simultaneous value and three lags of GDP growth. The estimated impact of an “exogenous” increase of 1 pp in the unemployment rate on the NPE\* ratio for mortgages is particularly strong (+0.8 pps in the NPE\* ratio).
- Real GDP growth: A decline in real GDP of 1% adds 0.2 pp in the mortgage NPE\* ratio in the following quarter.
- The change in the measure of fiscal pressure: A tightening of 1% in this measure leads the respective NPE\* ratio 0.2 pps higher.
- A measure of uncertainty based on the quarterly change in consumer confidence. This variable is not statistically significant but has a theoretically consistent negative sign and is maintained in the specification to cope with high serial correlation of equation residuals.
- The mortgage lending rate has strong explanatory power and affects significantly NPE\* ratio trends in this segment with a 1 pp increase in the nominal lending rate on mortgages translating into an increase of 0.42 pps in the respective NPE\* ratio.
- The quarterly change in house prices corresponds to a significant driver of the NPE\* ratio in the mortgage segment with 1% reduction in house prices leading to a 1 pp increase in the NPE\* ratio.

Overall, the above variables are statistically significant, with theoretically consistent signs. It is notable that the unemployment variable—even when derived as the residual of the regression of the unemployment rate on GDP growth—remains the key explanatory factor of NPEs in this category. GDP growth is inversely related to the change in NPE\*s, while the fiscal pressure again emerges as a significant driver of loan portfolio quality. The lending rate on mortgages is strongly significant,



Table 12.2 Mortgage  $NPE^*_t$ 

Mortgage $NPE^*_t$	Unemployment rate <sub>t</sub>	GDP growth <sub>t-1</sub>	Fiscal <sub>t-2</sub>	Uncertainty <sub>t-1</sub>	Liquidity <sub>t</sub>	Lending rate <sub>t</sub>	House prices <sub>t-1</sub>
Coefficient	0.83	-0.22	0.23	-0.06	0.12	0.42	-0.99
t-statistic	4.70	-2.72	2.15	-1.66	0.79	5.66	-2.13

$R^2 = 0.60$ ,  $DW = 1.52$

exemplifying the important role of low and declining lending rates on mortgages, on the back of the supportive ECB stance, in preventing a further deterioration of loan quality in this segment.

In contrast to the results from the aggregate NPE\* equation, house prices are statistically significant in the equation describing NPE\* formation in the mortgage segment, indicating that wealth, sentiment and collateral valuation effects from changes in property prices affect loan servicing trends and are likely to have given rise to strategic default motives in this segment.

The variables related to liquidity constraints and uncertainty are not statistically significant in this specification. Indeed, the residual from the regression of the quarterly change in consumer confidence on contemporaneous values of activity variables is used to account for the potential impact on households' behavior of sudden swings in uncertainty. This variable is not statistically significant, albeit having a theoretically consistent sign, indicating that information included in activity variables, house prices, interest rates and the indicator of fiscal pressure are sufficient to describe adequately the NPE\* dynamics in this segment. Similarly, near-term liquidity conditions do not appear to affect borrowers' behavior in this segment, as indicated by the statistical insignificance of the term related to the liquidity indicator which corresponds to the part of the quarterly change in household deposits, which is unrelated to changes in economic activity, and consumer sentiment. In this case, it is likely that the information included in the variable related to the fiscal pressure along with the statistically significant impact of house price changes effectively account for the role of liquidity pressures in this portfolio segment.

The results from the *equation that describes NPE drivers in the corporate segment* (see Table 12.3) clearly underline the dominant role of GDP growth in describing the performance of corporate loan portfolios.

**Table 12.3** Corporate NPE\*<sub>t</sub>

Corporate NPE* <sub>t</sub>	GDP growth <sub>t</sub>	Fiscal <sub>t-3</sub>	Uncertainty <sub>t-1</sub>	Liquidity <sub>t</sub>	Lending rate <sub>t-2</sub>	Dummy <sub>t</sub>
Coefficient	-0.55	0.09	-0.04	-0.15	0.12	-0.03
<i>t</i> -statistic	-7.53	0.66	-2.29	-2.02	1.86	-1.77

$R^2 = 0.64$ ,  $DW = 1.99$

- Real GDP is the key driver of NPE\* formation in the corporate segment: A 1% contraction in real GDP increases the NPE\* ratio for corporate loans by 0.55 pp.
- The uncertainty variable for this segment, which corresponds to the residual from the regression of the industrial confidence index on current and lagged values of GDP, is statistically significant with the expected negative sign indicating an inverse relation between improving confidence and corporate NPE formation. However, the effect of exogenous changes in uncertainty is relatively small in this segment: An increase of 1% in the uncertainty measure leads to a 0.1 pps increase in the corporate NPE\* ratio.
- The measure of liquidity conditions, which is derived on the basis of the quarterly change in corporate deposits which is unrelated to activity trends, is significant, with a theoretically consistent negative sign which signifies a material positive impact in NPE formation of deteriorating liquidity conditions. More specifically, the corporate NPE\* ratio increases by 0.15 pps for each percentage point of deterioration in the measure of liquidity.
- The lending rate on corporate loans has the correct sign, but is marginally non-significant, while its coefficient is considerably lower than the respective coefficient of the interest variable in the mortgages equation.
- The indicator of fiscal pressure is not statistically significant. This result could possibly reflect the strongly procyclical behavior of corporate taxes in a strongly recessionary period in comparison with taxes on personal income and the indirect taxes which are the main drivers of tax revenue—accounting for more than 79% of total tax revenue—which effectively weakens the relation between NPE trends and corporate taxation.
- As regards the insignificance of the unemployment rate in the empirical specification, this estimate is likely to reflect the fact that GDP is a more encompassing measure of activity trends for corporates, as it directly accounts for developments in net export activity which is an important determinant of the corporate performance. Similarly, GDP figures are more closely related to the corporate performance as they effectively account for the impact of consumption smoothing by the private sector which is not captured by the unemployment rate variable.

Overall, single-equation estimates not only provide supportive evidence of the significant role of activity and interest rate variables in NPE formation but also highlight the importance of a number of idiosyncratic factors of the Greek crisis in explaining the sharp deterioration in Greek banks' asset quality in recent years.

In fact, the idiosyncratic factors explain a significant part of the NPE\* build up (an estimated 30% in the period 2008–2015), suggesting that the weak program(s) implementation along with deficiencies in their design—which were potentially avoidable—combined with the correction of economic imbalances, which was not avoidable, were the key sources of non-performing loans buildup (Tables 12.4 and 12.5). It must be also noted that the effective impact of idiosyncratic factors on NPE formation is likely to be higher than the above estimates suggest since fiscal, liquidity conditions and uncertainty also affected the path of the conventional macroeconomic determinants of NPEs.

## 4 Vector Autoregressive Models and Variance Decomposition of NPE Dynamics

In this section, we complement the—more straightforward and easily interpretable—single-equation analysis, with a dynamic multivariate analysis based on vector autoregressive (VAR) models. The use of these models is motivated by the strong correlations among some of the explanatory variables over different time horizons. VAR models are particularly suitable for capturing dynamic interdependencies and conducting analyses in terms of “shocks,” that is, modeling the responsiveness of each variable (in terms of time and size of response) to the “orthogonalised innovations” in the other explanatory variables. VARs are generally considered to provide a coherent and credible framework to data description, forecasting, structural inference and policy analysis (see, among others, Gambera 2000; Stock and Watson 2001; Brissimis and Magginas 2005, 2006; Guarda and Jeanfils 2012).

Specifically, three vector autoregressive (VAR) models are specified with a view to describing the dynamics of NPE\* formation in the total loan

Table 12.4 Developments in key explanatory variables for NPE\* formation

<i>Period</i>	<i>Variable (cumulative change)</i>						
	<b>Unemployment rate</b> (heads of households)	<b>GDP</b> (2010 prices)	<b>Fiscal (change in tax revenue &amp; arrears as % of GDP)</b>	<b>Priv. sector deposits (change in outstanding bal.)</b>	<b>Effective Lending rate</b>	<b>House prices</b>	<b>Uncertainty (%)</b> deviation of economic sentiment from 20-y average)
2008–2015	+15.0 pps	-26.1%	+3.0%	-48%	-1.9 pps	-39.1%	-16%
2016–2019 <i>f</i>	-4.5 pps	+7.5%	-2.3%	+18%	-1.8 pps	+6.6%	+11%

*Source:* ELSTAT, EU Commission, IMF and NBS Econ. Analysis estimates

Table 12.5 Estimated contribution of explanatory variables in the total NPE\* ratio

<i>period</i> <b>2008–2015</b>	<i>Variable (cumulative change)</i>						
	<b>Unemployment rate</b> (heads of hous/ lds)	<b>GDP</b> (2010 prices)	<b>Fiscal</b> (change in tax revenue & arrears% GDP)	<b>Liquidity</b> measure (change in outstanding bal.)	<b>Effective Lending rate</b>	<b>Uncertainty</b> (% dev. of economic sentiment from 20-y average)	<b>Total contribution to NPE* in pps</b>
Change in variable	+15.0 pps	-26.1%	+3.0%	-48%	-1.9 pps	-16%	...
<b>Contribution to NPE* ratio (pps)</b>	<b>+12.3</b>	<b>+10.1</b>	<b>+3.3</b>	<b>+1.9</b>	<b>-3.9</b>	<b>+4.1</b>	<b>+27.8</b>

Source: ELSTAT, EU Commission, IMF and NBS Econ. Analysis estimates

portfolio and in the corporate and mortgage segments, respectively. The models are comprised of the same set of variables used in the specification of the respective equations presented in the previous section. Explanatory variables, which have been proved marginally statistically insignificant with consistent signs in the single-equation specification, are included in the VAR systems. The detailed specification of these VARs and the assumptions underlying their identification, along with relevant system and variable-specific statistical tests, are presented in the appendix.

Figure 12.1 (in Appendix I) reports the variance decomposition (FEVD, in per cent) of the change in the NPE\* ratio, which can be attributed to shocks to the other variables in each of the three systems, over a 16-quarter horizon. The main findings are the following:

- Most notably, shocks in economic sentiment, liquidity and other idiosyncratic shocks explain more than 75% of the variation in aggregate NPE\* growth in the first two quarters following the initial shock. The impact of shocks in the unemployment rate and GDP growth, although initially very small, gains an importance relatively rapidly, accounting for more than 40% of NPE\* variation by the third quarter, with these two factors becoming the dominant drivers of NPE\* formation over the two- to four-year horizon. The impact of the fiscal shock starts to become more evident with a three-year lag and remains broadly stable across the forecasting horizon accounting for almost 15% of the forecast variance of the NPE\* ratio. The shocks in the real lending rate appear to have relatively limited explanatory power in the near term, but gain importance after about 9 quarters, accounting for around 10% of the aggregate NPE variability in quarters 10 through 16.

Based on this analysis, the aggregate NPE\* ratio is expected to become increasingly responsive to the continuing improvement in labor market conditions that started in H2:2014 and gained strength in 2015 and is expected to increasingly feed into the NPE\* outcomes in 2016 and especially in 2017. However, the pace of improvement is expected to be weaker in 2016 and 2017, from the negative effect of fiscal drag and the lagged impact of the continuing, though moderate, GDP contraction in

result demonstrates that the continuing adjustment in house prices is likely to weigh further on NPE\* formation for several quarters ahead, weakening the favorable impetus from the continuing decline in the unemployment rate.

Evidence from the VAR system as regards the impact of shocks in consumer confidence and liquidity—two variables that had been insignificant in the respective single-equation estimates—indicates that uncertainty and liquidity factors affect the NPE\* variance in the medium-to-longer term (statistically significant between 6 and 16 quarters ahead). In this respect, albeit the initial impact of tactical default and liquidity constraints on NPE\* variance is weaker than in aggregate NPE\* equation, it tends to be more persistent in the mortgage segment, potentially underlining the more debtor-friendly household bankruptcy law compared with the corporate one.

- Mortgage lending rates also appear to play a significant and broadly stable role in shaping NPE\* dynamics on horizons from 3 to 16 quarters. As a result, the supportive effect from improving macroeconomic conditions is expected to have its full impact from 2018 onward in the mortgage segment.
- Finally, the results for the corporate NPE\* segment highlight the key role of GDP shocks in driving the NPE\* ratio for this portfolio category. The impact of GDP shocks starts to become particularly significant within the first year and emerges as the dominant driver of the corporate NPE\* variance in horizons over more than one year. In this respect, the corporate sector will benefit rapidly from the pickup in activity, with positive effects being significant by 2017. Again, uncertainty and liquidity shocks play an important role—especially on a one-year horizon—and are expected to hold back the pace of NPE\* improvement in 2016 due to the persistent of these effects, but being gradually overpowered by more favorable activity trends in 2017.

It must be noted that the forecast error variance decompositions cannot explain about 40% of the total and corporate NPE\* formation and 48% of the mortgage NPE\* variance. Similarly, in the single-equation



estimates, the adjusted  $R^2$  ranges from 60% for the equation for NPE\* growth in the mortgage segment to 76% for the equation referring to total NPE\* formation. In this respect, non-modeled or partially modeled factors, and particularly moral hazard-related effects, could be a key driver of NPE dynamics and thus could act as a catalyst in accelerating NPE resolution in the event that these effects are timely and efficiently addressed.

*The prospective turnaround in economic activity, along with the ongoing improvement in labor market conditions, and economic sentiment lay the groundwork for an imminent stabilization and subsequent sustainable reduction in NPEs in the following years*

Model-based estimates (based on the latest available forecasts of the path of the relevant explanatory variables for the years 2016–2019) indicate that the quality of Greek banks' portfolios is approaching an inflection point. In this respect, certain important sources of NPE\* creation, such as unemployment and uncertainty, have already started to show significant improvements (the unemployment rate declined by 2.8 pps between Q1:2014 and Q1:2016), while others—such as economic activity, fiscal and liquidity conditions, as well as house prices—are expected to improve, albeit at a slower pace.

Under our baseline macroeconomic projections, which are broadly in line with those published by the EU Commission and the IMF in Q2:2016 (EU Commission, Spring 2016 forecasts and IMF World Economic Outlook, April 2016), new arrears formation is estimated to slow further in the coming quarters, with the aggregate NPE\* ratio (including restructured loans) peaking at 46% of gross loans during H2:2016 (from 44% at the end of Q4:2015). New formation is estimated to turn negative by early 2017, with the NPE\* ratio declining by about 18 pps by the end of 2019 to below 28% (excluding write-offs). NPLs are expected to drop, at least, by an equivalent amount, to around 19% by the end of 2019. These estimates take into account only the VAR model-based responsiveness of NPEs to the macroeconomic conditions, as well as to the idiosyncratic factors related to uncertainty, fiscal and liquidity conditions. For simplicity, the outstanding amount of loans to the private sector used as denominator in the calculation of the NPE\* ratio is assumed

to remain flat in 2016–2019, with net lending being approximately equal to the sum of amortization and loan write-offs in this period.

More specifically, these forecasts are conditioned on the following assumptions as regards the future path of explanatory variables:

- The unemployment rate for heads of households is expected to decline further by 4.5 pps in 2016–2019, in line with the forecasted decline in the total unemployment rate (based on IMF and EU Commission, spring 2016 estimates) from 24.7% to 20.2%.
- Economic activity is expected to pick up during H2:2016, with real GDP increasing by 2%, on average, in 2016–2019 (+7.5% cumulatively).
- Fiscal pressure is expected to ease moderately in 2017—mainly due to the completion of the clearance of government arrears to the private sector—and decline further in 2018–2019 when the additional fiscal adjustment will be primarily supported by the cyclical recovery.
- We assume a cumulative increase in house prices of 6.6% in 2016–2019, in line with the EBA assumptions for EU-wide stress test for 2016–2018 (+2.8% in the period 2016–2018 according to EBA and +3.8% y-o-y in 2019 according to NBG internal forecasts).
- Economic sentiment is expected to converge gradually to its 20-year average by the end of 2017 from 11% below in Q1:2016 and remain at this level in 2018–2019.
- The real effective lending rate on outstanding loans is expected to decline to its average of the 2001–2007 period (3.1% from 4.9% currently), with the passthrough on lending rates of declining funding costs due to falling risk premia and the still accommodative stance of the ECB compounded by accelerating inflation, as the economic recovery gains traction.
- With a view to maintaining a conservative stance regarding the pace of normalization in liquidity conditions, we assume that the banking system is able to restore only 50% of the cumulative deposit losses of 2015, until the end of 2019 (approximately €27 billion).

Our model projections for an aggregate NPE\* ratio of 28% at the end of 2019 (corresponding to an NPL ratio of about 19%), in a scenario

of broadly healthy macroeconomic recovery, underline the considerable challenges facing Greek banks. It is important to note that these estimates are based on relatively conservative assumptions as regards the future path of variables most closely related to moral hazard such as house prices and uncertainty. Moreover, there is no explicit modeling of the potential impact of improvements in the legal environment and of potential returns from the implementation of Greek banks' active NPE management strategies in the following years.

## 5 Conclusion

The analysis attempts to shed some light on the key drivers of NPE formation in the Greek banking system during the crisis, focusing on the macroeconomic and financial aspects of NPL/NPE deterioration at an economy-wide level, as well as the two larger loan categories of Greek banks' portfolios, that is, mortgage and corporate loans. The empirical analysis that combines information from single-equation and VAR models demonstrates that macroeconomic and financial factors played a significant role in weakening borrowers' debt servicing capacity over the past eight years, in view of the extremely deep recession and the joint deterioration of a broad set of relevant economic and financial variables.

However, in addition to the above variables, the analysis provides evidence supportive to the important role of idiosyncratic aspects of the Greek crisis in NPE formation related to the extremely high uncertainty, the sizeable fiscal pressure due to the very intensive fiscal adjustment effort and the protracted liquidity squeeze.

In fact the idiosyncratic factors are estimated to explain a significant part of the NPE\* buildup (accounting for almost one-third of the total buildup in the period 2008–2015).

More specifically, the results of the dynamic analysis are broadly consistent with results obtained from single equations as regards longer time horizons. In this respect, at longer time horizons (beyond two years) traditional factors such as GDP growth, the change in the unemployment rate and the lending rate, explain most of the NPE variation in the VAR

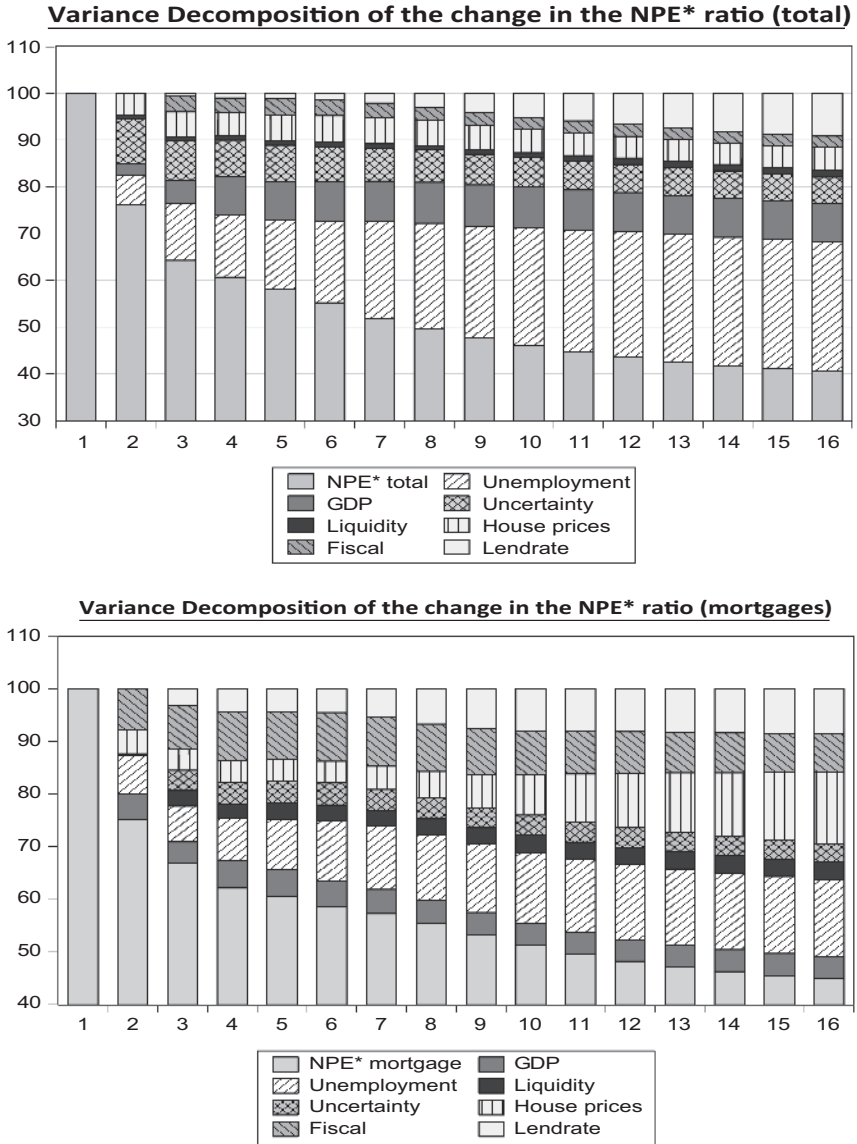
context. Moreover, in shorter horizons (especially less than one year), idiosyncratic factors related to fiscal, liquidity conditions and uncertainty are estimated to play a more important role accounting for nearly half of the total NPE\* variance explained by all model variables.

The estimated empirical relations (in a single equation and in system form) provide a consistent framework for describing historical NPE trends in Greece and assessing near-term risks and the potential responsiveness of the NPE ratio to the prospective cyclical recovery of the economy. In view of the persistent nature of existing shocks and the considerable time lags in the transmission of the cyclical improvement to the NPE dynamics, the timely restoration of economic confidence and the resolution of factors that give rise to moral hazard and tactical defaults, as well as other idiosyncratic sources of variance which are simultaneously unrelated to macroeconomic factors, is a prerequisite for a stabilization and gradual reduction in the NPE\* ratio in the coming quarters and for achieving a sufficiently steep and sustainable declining path of NPEs in the following years.

According to model estimates, the projected improvement in macroeconomic and idiosyncratic factors is estimated to lead to a cumulative reduction in the NPE\* ratio of 17 pps until the end of 2019 (excluding write-offs). Moreover, by successfully addressing factors related to moral hazard—which could explain up to 40% cent of NPE\* variance which cannot be attributed to the other explanatory variables—a decisive push could be provided to the pace of improvement of loan portfolio quality. Indeed, this process is expected to gain traction on longer time horizons, as supportive macroeconomic effects will kick in and constraints related to liquidity conditions and fiscal drag will gradually fade and compounded by the increasingly supportive impact of active management strategies of non-performing loans and potential changes to the institutional and legal framework.

# Appendices

## Appendix I



**Fig. 12.1** Variance decompositions of the quarterly change in the NPE\* ratios from VAR models

**Variance Decomposition of the change in the NPE\* ratio (corporate)**

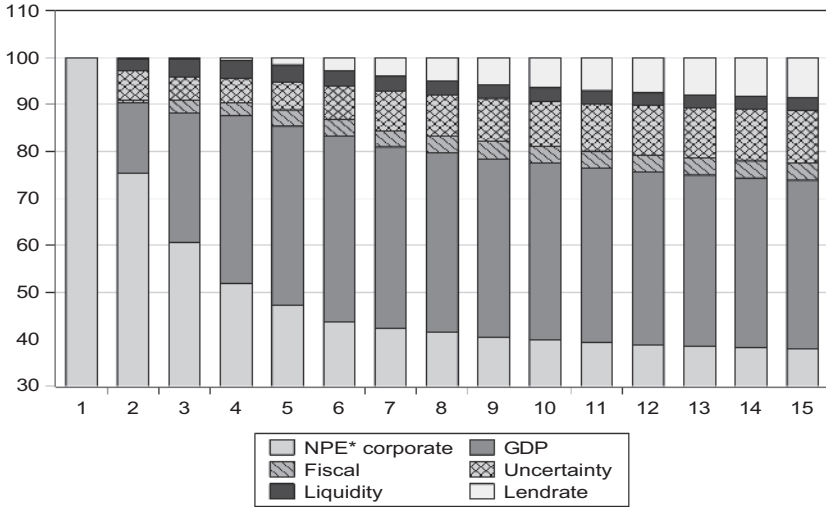


Fig. 12.1 (Continued)

**Appendix II: Single-Equation Estimates and Variable Description**

$$\begin{aligned}
 NPE_t^{*total} &= 0.49 \cdot UNEM_t - 0.20 \cdot GDP_t + 0.28 \cdot Fiscal_{t-1} \\
 &\quad - 0.53 \cdot Uncert_{t-1} - 0.35 \cdot Liquid_t \\
 &\quad + 0.18 \cdot lendrate_t \quad (R^2 = 0.76, \quad DW = 1.92) \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 NPE_t^{*mort} &= 0.83 \cdot UNEM_t - 0.22 \cdot GDP_{t-1} + 0.23 \cdot Fiscal_{t-2} \\
 &\quad - 0.06 \cdot Uncert_{t-1} + 0.12 \cdot Liquid_t + 0.42 \cdot lendrate_t \\
 &\quad - 0.99 \cdot Housepr_{t-1} \quad (R^2 = 0.60, \quad DW = 1.52) \quad (2)
 \end{aligned}$$

$$\begin{aligned}
 NPE_t^{*corp} = & -0.03 \cdot Dummy_t - 0.55 \cdot GDP_t + 0.09 \cdot Fiscal_{t-3} \\
 & \quad \quad \quad (-1.77) \quad \quad \quad (-7.53) \quad \quad \quad (0.66) \\
 & -0.04 \cdot Uncert_{t-1} - 0.15 \cdot Liquid_t \\
 & \quad \quad \quad (-2.29) \quad \quad \quad (-2.02) \\
 & + 0.12 \cdot lendrate_{t-2} \quad \left( R^2 = 0.64, \quad DW = 1.99 \right) \quad (3) \\
 & \quad \quad \quad (1.86)
 \end{aligned}$$

(*t*-statistics in parentheses)

The variables utilized in the single-equation analysis are the following:

- $NPE_t^{*total}$ : The quarterly change in the ratio of the aggregate stock of non-performing loans in the Greek banking system (including restructured loans) to the outstanding stock of loans provided by Greek banks (Source of original data: Bank of Greece).
- $NPE_t^{*corp}$ : The quarterly change in the ratio of the stock of non-performing corporate loans (including restructured loans in this category) to the outstanding stock of corporate loans provided by Greek banks (Source of original data: Bank of Greece).
- $NPE_t^{*mort}$ : The quarterly change in the ratio of the stock of non-performing mortgage loans (including restructured loans in this category) to the outstanding stock of mortgage loans provided by Greek banks (Source of original data: Bank of Greece).
- $UNEM$ : The residual from the regression of the quarterly change in the unemployment rate for the heads of households (males aged between 30 and 64 years) on the simultaneous value and three lags of GDP growth (Source of original data: EL.STAT.).
- $GDP$ : Real GDP growth, quarterly change, chain-linked volumes 2010 (Source of original data: EL.STAT.).

- Fiscal:* The sum of the quarterly change in government tax revenue with the net increase in government arrears to the private sector as a per cent of GDP (Source of original data: Ministry of Finance of the Hellenic Republic).
- Uncert:* An empirical measure of the role of uncertainty in the formation of NPEs at an aggregate as well as in the corporate and mortgage segments, approximated by the residual of the regression of the EU Commission's indicators of economic sentiment, industrial and consumer confidence, respectively, on current and lagged values of GDP growth and the unemployment rate (Source of original data: EU Commission, IOBE EL.STAT and EU Commission).
- Liquid:* An empirical measure of liquidity conditions at an economy-wide level, as well as for corporates and households which correspond to the part of the quarterly change in total private, corporate and household deposits, respectively, which are unrelated to changes in economic activity, and economic sentiment (Source of original data: Bank of Greece, EL.STAT and EU Commission).
- Housepr:* The quarterly change in house prices, country total (Source of original data: Bank of Greece).
- Lendrate:* Corresponds to the effective lending rate on outstanding balances of total loans, corporate loans and mortgage loans, all deflated by the GDP deflator (Source of original data: Bank of Greece, EL.STAT.).
- Dummy:* A dummy variable taking the value 1 in Q4:2007 and H1:2009 and accounts for the role of extraordinary swings in the corporate NPE\* ratio in these quarters.

The analysis is based on seasonally adjusted quarterly data for the period 2005:Q1-2015:Q4. Unit root tests have been conducted to investigate the stationarity of the data series: Augmented Dickey-Fuller (ADF) with various lag length selection criteria (Akaike, Schwarz), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. Most of the tests were supportive of the stationarity of all variables except for lending rates and house prices. Johansen's multivariate co-integration tests did



not identify any co-integrating vectors and the null of no co-integration was not rejected.

### Appendix III: VAR Identification and Variance Decomposition Derivations

The multivariate empirical analysis is based on reduced-form VARs that express each variable as a linear function of its own past values, the past values of the other explanatory variables, and a serially uncorrelated error term. This analysis is used to investigate the relative importance of shocks in explaining the NPE\* formation in each VAR model.

A Cholesky decomposition that imposes a recursive structure in the contemporaneous interactions among the model variables provides the basis for identifying the respective economic shocks and conducting the respective forecast-error variance decomposition (FEVD) analysis. This analysis is used to investigate the relative importance of shocks in explaining the NPE\* formation in each VAR model. In fact, the derived sets of FEVDs represent the fraction of the forecast error variance of the NPE\* growth (total, corporate, mortgages) that is attributable to the respective shock in each of the explanatory variables in the system which is, by construction, orthogonal (i.e. unrelated) to all other shocks.

The empirical analysis is based on the following equation that is assumed to describe the structural relation among the model variables:

$$G(L)y_t = e_t \quad (1)$$

where  $G(L)$  is a matrix polynomial in the lag operator  $L$ ,  $y_t$  is an  $n \times 1$  data vector and  $e_t$  is an  $n \times 1$  structural disturbance vector.<sup>1</sup>  $e_t$  is serially uncorrelated and  $\text{var}(e_t) = \Lambda$ .  $\Lambda$  is a diagonal matrix where its diagonal elements are the variances of structural disturbances, while structural disturbances are assumed to be mutually uncorrelated.

We can estimate a reduced-form equation (VAR)

$$y_t = B(L)y_{t-1} + u_t \quad (2)$$

where  $B(L)$  is a matrix polynomial in lag operator  $L$  and  $\text{var}(u_t) = \Sigma$  with matrix  $\Sigma$  containing the variances of model residuals corresponding to the reduced-form model.

There are several ways of recovering the parameters in the structural-form equation from the estimated parameters in the reduced-form equation. Our identification scheme imposes restrictions on contemporaneous structural parameters only along the lines of Sims (1980, 1986). Let  $G_0$  be the contemporaneous coefficient matrix in the structural form, and let  $G^0(L)$  be the coefficient matrix in  $G(L)$  without the contemporaneous coefficient  $G_0$ . That is,

$$G(L) = G_0 + G^0(L). \quad (3)$$

Then, the relation of the parameters in the structural-form equation with those in the reduced-form equation has the following form:

$$B(L) = -G_0^{-1} G^0(L), \quad (4)$$

Accordingly, the structural disturbances and the reduced-form residuals are related by the following equation

$$e_t = G_0 u_t, \quad (5)$$

which implies

$$\Sigma = G_0^{-1} \Lambda G_0^{-1}. \quad (6)$$

Along the line of the seminal work of Sims (1980, 1986), identification is achieved on the basis of the so called Cholesky decomposition of the reduced-form residuals,  $\Lambda$ . In this case,  $G_0$  becomes triangular so that a recursive structure (Wold-causal chain) is assumed. In this vein, the VAR models are identified following a standard recursive ordering procedure. The variables in each of the three systems are ordered as follows:

VAR | NPE\* ratio | Total loans: [ $NPE^*_t$ ,  $UNEM_t$ ,  $GDP_t$ ,  $Housepr_t$ ,  $Fiscal_t$ ,  $Liquid_t$ ,  $Uncert_t$ ,  $Lendrate_t$ ]

VAR | NPE\* ratio | Mortgages: [ $NPE^*_t$ ,  $UNEM_t$ ,  $GDP_t$ ,  $Housepr_t$ ,  $Fiscal_t$ ,  $Liquid_t$ ,  $Uncert_t$ ,  $Lendrate_t$ ]

VAR | NPE\* ratio | Corporate: [ $NPE^*_t$ ,  $GDP_t$ ,  $Fiscal_t$ ,  $Liquid_t$ ,  $Uncert_t$ ,  $Lendrate_t$ ]

As a robustness check, we change the ordering of all variables except of GDP and unemployment—for which there is a strong theoretical case for non-contemporaneous responsiveness to the shocks in other variables—without obtaining materially different results in terms of the estimated impulse responses and the respective error variance decompositions.

## Note

1. The vector related to constant terms is omitted for simplicity. Alternatively, we can regard each variable as a deviation from its steady state.

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# 13

## Characteristics and Possible Solutions to Problems Related to Loans to SMEs in Greece

Nikolaos Vettas, Sophia Stavraki, and Michalis Vassiliadis

### 1 Introduction

The Greek banking system has faced very significant challenges in recent years. Yet, it did not suffer the immediate capital losses recorded in other countries as a result of the 2007–2008 global financial crisis, as Greek banks did not possess significant amounts of mortgage-backed securities (MBS)

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or collateralized debt obligations (CDOs), which were at the epicenter of the US subprime mortgage market collapse. In contrast, the Greek economy was gradually affected by the secondary effects of the financial crisis, as international investors became more cautious in assessing all relevant risks. This resulted in a gradual downgrading of Greece's credit rating. In addition to the country's increasing difficulty since mid-2009 to service its sovereign debt through funding from the global financial markets, the cost of capital for domestic banks also increased. With Greece without access to the wholesale funding markets since May 2010 there was also loss of market access for the domestic banks, whose liquidity became increasingly dependent on funding from the Eurosystem.

Greek banks suffered significant capital losses since early 2012. These started in March 2012, with the restructuring of privately held Greek sovereign debt (PSI+ program), to which the four core banks participated with a bond portfolio of total notional value of €36.2bn.

The lack of market access for Greek banks after May 2010 and the developments since 2012 that affected their capital adequacy have, in turn, significantly constrained lending to the domestic private sector. This is one of the main causes of the severe contraction in business investment since 2009. The decreased access of businesses to bank financing, in combination with the prolonged recession, limited significantly their ability to service their debts and undermined their viability. The tight liquidity conditions greatly affected domestic small- and medium-sized enterprises (SMEs), whose non-performing loans increased sharply. The importance of this development is reinforced by the vital role of SMEs in the Greek economy; although the share of businesses of this size (<250 employees) to the business population in Greece does not significantly defer from the EU average ( $\approx 99.8\%$ ), their contribution to employment and GDP is higher, over 72% and 86%, respectively, compared to 57% and 67% in the EU-28.<sup>1</sup>

The more dominant role of SMEs in the Greek economy in comparison to other EU economies highlights the urgent need to support their operation. In this context, their debt service could be facilitated, especially for past due loans.<sup>2</sup> For such loans, emergency support from a refinancing mechanism could be provided for a certain period, depending on prevailing conditions in the Greek economy and the domestic banking system. In view of the continuing difficulties faced by banks in Greece, such a refinancing mechanism could be developed based on

a financial engineering tool supported by EU Structural Funds. In this context, the terms and conditions for financing from the EU Structural Funds should be carefully taken into consideration.

The remainder of this paper is structured as follows: Sect. 2 highlights the major developments in the domestic banking system over the period 2008–2015 and presents an estimate of the outstanding amount of SMEs' non-performing loans. Section 3 provides an outline of the provisions for possible funding from the EU Structural Funds, including certain exceptional funding regimes. A description of a financial engineering mechanism for the conditional refinancing of past due loans of Greek SMEs follows in Sect. 4. Eligibility criteria for deriving funding from this facility are also presented. The chapter concludes with a summary of the key findings.

## **2 Borrowing Conditions of SMEs in Greece and Trends in Past Due Loans and NPLs**

### **2.1 Developments in the Greek Banking System Over the Period 2008–2015**

In the aftermath of the global financial crisis, the Greek banking system experienced significant challenges, mainly due to policy measures aiming to restore the sustainability of public debt (e.g. PSI+) and the unprecedented economic recession. Yet, it did not suffer the immediate capital losses recorded in other EU countries (Ireland, Spain, Iceland, France) in the aftermath of the global financial crisis, as Greek banks did not possess any significant amounts of mortgage-backed securities (MBS) and collateralized debt obligations (CDOs).

However, the secondary effects of the global crisis progressively affected the financing conditions of the Greek economy. International investors became much more cautious in assessing risk, monitoring more closely sovereign borrowers featuring significant macro imbalances reflected in, for example, their public deficit and debt levels and their net international investment position. Because of Greece's poor performance in these and other metrics, its credit ratings were gradually downgraded, with the yield differentials of Greek government bonds increasing markedly since January 2009. In addition to the country's difficulty in servicing its sovereign debt

in a sustainable manner through the wholesale funding markets, the cost of raising capital for banks embarked on an upward trajectory. Greece's lack of access to the sovereign debt markets since May 2010 also led to the loss of market access for domestic credit institutions. The fact that their liquidity position was not overly affected by these developments can be explained by their growing dependence on ECB funding especially following the latter's decision in May 2010 to accept Greek government debt or other State-guaranteed liabilities as collateral, regardless of its rating (waiver).

Regarding debt servicing by the private sector, domestic credit tightening and the hefty GDP losses recorded after the outbreak of the global financial crisis increased non-performing loans. However, up to the start of fiscal consolidation, the ratio of NPLs over the total of outstanding loans remained low.<sup>3</sup> The steep recession that persisted up to 2013 and the inability of the domestic economy to perform any material recovery over the period 2014–2015 severely hampered the private sector's debt service capacity. In turn, these developments affected the banking system's capital adequacy, as will be shown in the brief chronicle of events presented below.

The first severe hit on the domestic banks' capital adequacy was dealt by the so-called private sector involvement program (PSI+), which was implemented in March 2012. According to 2011 balance sheet data from Greece's four systemic banks (NBG, Piraeus Bank, Eurobank and Alpha Bank), which included the impact from the PSI+ program, these banks incurred total losses of €28.3bn, approximately €26bn of which were due to the PSI+. Furthermore, the Greek government's debt buyback in December 2012, to which the four systemic banks participated with bonds of a total notional value of €14.1bn, led to further capital losses to the tune of €9.3bn.<sup>4</sup>

Besides the impact of public debt restructuring on the capital adequacy of the Greek banks, the severe domestic recession prompted a further significant increase in NPLs, with the corresponding ratio to total gross loans reaching 24.5% in Q4-2012, a level almost three times higher than that in Q1-2010.<sup>5</sup> Furthermore, from December 2009 to December 2012, the deposits of domestic residents to domestic monetary financial institutions (MFIs) excluding the Greek central bank fell by €67.5bn (–27.5%). This triggered a sharp increase in the dependence of Greek credit institutions on Eurosystem financing (ECB and Bank of Greece). The outstanding amount of borrowing from the Eurosystem increased from €51bn at the



end of 2009 to €124bn in July 2012.<sup>6</sup> As a result of the aforementioned developments, the adequacy of banks' available capital for preserving a necessary level of liquidity and reserves was sharply diminished.

In the second quarter of 2013, domestic banks' capital needs were addressed on the basis of a relevant evaluation conducted by the Bank of Greece.<sup>7</sup> As per the said evaluation, some €27.5bn would be required for the recapitalization of the four systemic banks. Following the necessary capital share increases, some €24.5bn were covered by the HFSF. Another €13bn were allocated for the clearance of nine other domestic banks.

Following the completion of this recapitalization, the Bank of Greece conducted in association with BlackRock a follow-up stress test, to reassess banks' capital needs. Results were released in March 2014 showing that another €6.4bn were required for restoring the capital adequacy of the banking system, €5.8bn of which concerned the capital needs of the four systemic banks. However, for the first time after the outburst of the Greek fiscal crisis in late 2009/early 2010, capital raising from the private sector, through equity increase, adequately covered the four banks' capital needs, a sign of improved investor perceptions regarding the prospects of the Greek economy. On the other hand, the diagnostic study on the banks' loan portfolio in the context of the stress test revealed that NPLs and restructured loans had reached 40% of total loans by end-2013. Given also the fact that collateral values were rapidly declining, the private sector's ability to service its debt deteriorated significantly.

The results of the EU-wide stress test by the European Banking Authority (henceforth EBA), released in end-October 2014, verified the capital adequacy of the four systemic banks after the spring 2014 capital increases.<sup>8</sup> Nonetheless, conditions in the domestic banking system deteriorated anew after the failure of the Hellenic Parliament to elect a new President of the Republic and the general election notice in December 2014, which heightened political uncertainty. During the preelection period, the deposits of the private sector declined by €16.3bn. The deposit withdrawal continued after the January 2015 elections, reaching €25.8bn from February 2015 to end-June 2015, when the negotiations with the Eurozone partners were interrupted and a referendum was proclaimed. As a result of the ECB's decision in February 2015 to lift the waiver of minimum credit rating requirements for marketable instruments issued

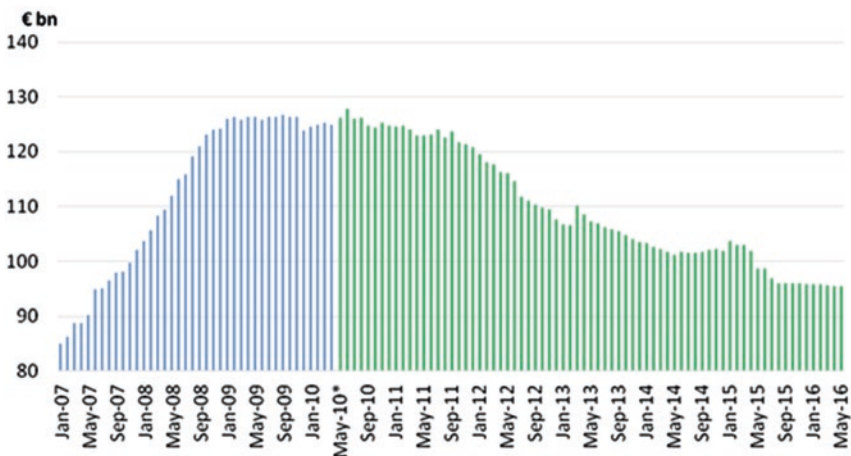
or guaranteed by the Hellenic Republic, the liquidity needs of domestic banks could only be covered by the ELA mechanism. Accordingly, the use of ELA by the Greek commercial banks increased from zero in December 2014 to €78bn at end-May 2015. Regarding debt servicing by the private sector, expectations about favorable changes in the legislation concerning holders of non-performing loans after the January 2015 elections led to a further increase of NPLs. By the end of Q1-2015, 36% of total loans were classified as non-performing and 8% were classified as restructured.<sup>9</sup>

After the referendum proclamation, the Governing Council of the ECB decided to maintain the ELA ceiling for the Greek banking sector at an unchanged level. In the same day, a bank holiday and capital controls were imposed on Greek banks. The liquidity from the ELA was allowed to increase anew only after the Eurosummit agreement of July 12, 2015. The bank holiday ended on July 20, but capital controls remained in place and have been gradually relaxed ever since. In the MoU of the new (third) bailout program that was signed a month earlier, a buffer up to €25bn (out of total program commitments up to €86bn) was envisaged to address potential bank recapitalization needs of viable banks and resolution costs of nonviable banks. The results of a new EBA stress test exclusively for the four systemic banks, published in October 2015, identified a capital shortfall of €4.4bn in the baseline scenario, and €14.4bn in the adverse scenario, which were covered soon afterward. In addition, the asset quality review (henceforth AQR), implemented in the context of this stress test, showed that core banks' non-performing exposures (NPEs) had increased within one year, since the previous EBA stress test, by €7.0bn, boosting the NPE ratio across portfolios examined in the AQR from 45.1% to 48.6%.<sup>10</sup> Nonetheless, given the very tense political and economic environment in Greece during the first half of 2015, this increase was rather moderate.

The aforementioned events caused significant fluctuations in the capital reserves of the banking system in Greece and affected negatively its capacity to finance domestic businesses and households. In combination with the prolonged economic recession, businesses' ability to implement their investment plans and to service their loans was hampered. The adverse effects of the severe economic downturn on the ability of the private sector to meet its liabilities toward the banking system were estimated by

Monokroussos et al. (2016). Given that SMEs have fewer alternative financing options than big businesses and the fact that in Greece their degree of extraversion is low, rendering them more dependent on domestic demand, their access to operating capital and investment funds was severely affected. The combined effects of the aforementioned factors on bank capital supply are depicted in the trend of credit to businesses (Fig. 13.1.)

Another factor incommoding businesses in Greece to service their loans is the relatively high interest rate charge, regardless of the type and characteristics of the credit demanded. Indicatively, during 2008–2009, the average interest rate for new corporate loans with maturity higher than five years exceeded by 1.18 pp. the average interest rate in the Eurozone for loans with the same duration. The exclusion of the Greek State and the domestic banks from the international funding markets in May 2010 and the ensuing fiscal consolidation increased uncertainty about the prospects of the Greek economy. As a result, the financing risk of Greek banks increased sharply, affecting their cost of capital. Since May 2010 and up to December 2015, the average interest rate for new corporate loans in Greece with maturity higher than five years exceeded by 2.34 pp. the respective interest rate in the Eurozone.



**Fig. 13.1** Credit to non-financial businesses (outstanding amounts, end of period). *Source:* Bank of Greece

The above analysis shed light on the main factors that influenced domestic banks' capital reserves, credit demand and supply dynamics, as well as the serviceability of corporate loans over the period 2008–2015. In the next section, we present an approach to calculate the amount of past due loans of SMEs, so as to form a view on the overall amount of loans that could potentially be eligible for refinancing by the proposed financial engineering instrument.

## 2.2 SMEs' Past Due Loans

In this section, we focus on past due loans of SMEs, that is, loans whose payments have usually fallen behind for *at least* one month but *no more* than three months. This category of business loans was primarily selected because it does not include NPLs, so that there is a higher probability that they become serviceable again at some point in the future. Doing otherwise would seriously question the adequacy of capital resources under the proposed mechanism. Loans with delays in payments for a period of up to 29 days were not considered either, given the fact that such delays do not necessarily imply servicing difficulties.

Data on past due loans of SMEs are publicly available in the quarterly balance sheet statements of the banks. However, these data concern past due loans during the quarter covered by the balance sheets. Consequently, in order to avoid multiple counting, a loan that falls within this category two or more times within a year must be counted only once. Also, past due loans that subsequently became non-performing must be excluded from the former category. In order to proceed with our calculations, data have been requested from the Hellenic Bank Association data about SMEs' past due loans for the four systemic banks that would satisfy the above specifications. Understandably, because of the aforementioned steps in the counting of past due loans, the relevant procedure is time-consuming and must be implemented with great attention.<sup>11</sup>

One of the four systemic banks was able to provide the requested data for 2012 and 2013. The data correspond to year-end outstanding amounts of SMEs' past due loans, regardless of when during each year

these loans fell within the past due category. Given the size and structure of this bank's loan portfolio, as well as similarities in the size and scope of activities of the four Greek systemic banks post the recent restructurings, the portfolio under examination was considered representative for the structure of SMEs' loan portfolios of the rest of the big banks. In order to proceed with the calculation of the amount of SMEs' past due loans in the portfolios of the other systemic banks, balance sheet data on their year-end amounts of SMEs' past due loans were compared with those provided by that one bank. From this exercise, estimates per bank on the amount of loans to SMEs with at least one payment delay of 30–59 or 60–89 days throughout the years 2012 and 2013 were produced (Table 13.1). Due to the aforementioned limitations in the estimation of SMEs' past due loans and the necessary simplifying assumptions we made in order to implement the whole procedure (e.g. representativeness of the SMEs' loan portfolio of the bank that provided the relevant data), the resulting figures should be considered as merely indicative of the amount of SMEs' past due loans in the Greek banking system.

According to the outcome of this exercise, in only one of the four systemic banks, there was an increase in the outstanding amount of

**Table 13.1** Amount of SMEs' past due loans (30–89 days delay) at the end of years 2012 and 2013 (in €)

	Year	30–59 days	60–89 days	Total
Alpha Bank	2013	172,154,628	154,327,755	326,482,383
	2012	127,974,955	259,428,878	387,403,833
NBG	2013	230,628,068	250,774,086	481,402,154
	2012	159,394,754	107,134,420	266,529,174
Eurobank	2013	585,795,293	856,976,011	1,442,771,304
	2012	685,159,540	860,531,310	1,545,690,849
Piraeus Bank	2013	976,576,104	636,909,903	1,613,486,007
	2012	594,160,599	1,385,131,701	1,979,292,300
Total	2013	1,965,154,093	1,898,987,755	3,864,141,848
	2012	1,566,689,848	2,612,226,309	4,178,916,157
	2013–2012 (%)	+20.3	–37.6	–8.1

Sources: Hellenic Bank Association, Banks' Balance Sheets, Calculations: IOBE

loans to SMEs with at least one payment delay of 30–89 days in 2013 relative to the prior year (Alpha Bank). In contrast, SMEs' past due loans in NBG, Piraeus Bank and Eurobank loan portfolios decreased in 2013. The overall decline recorded by these banks exceeded the increase in Alpha Bank. Thus, the total amount of past due loans held by the four systemic banks in Greece was 8.1% lower in 2013 compared to the respective figure of the previous year, c. €3.87bn. This amount corresponds to 9.96% of the outstanding amount of these banks' loans to SMEs at end-2013.

From the disaggregated estimations for delays of 30–59 days and 60–89 days, it emerges that the decline of SMEs' past due loans in 2013 came from significantly fewer arrears in the latter category (–37.6%). Their outstanding amount decreased mainly in the portfolios of Piraeus Bank and Alpha Bank, whereas it more than doubled in the portfolio of NBG. Concerning past due loans for 30–59 days, their total amount was 20.3% higher in 2013, exhibiting an increase in the portfolios of all systemic banks except Eurobank.

These estimations about SMEs' bank arrears of 30–89 days indicate a declining trend in 2013. However, the above outcomes must be interpreted cautiously. They must not lead to conclusions regarding the evolution of the overall loan arrears of SMEs. According to balance sheet data of the four systemic banks for 2012 and 2013 not satisfying the aforementioned specifications, non-performing loans of SMEs, that is, loans with past due payments of 90 days or more, increased considerably in 2013, by 51.5% y-o-y (from c. €1.4bn in 2012 to c. €1.9bn). This increase probably accounts for a big part of the estimated decline in past due loans for 60–89 days.

As regards SMEs' past due loans in the years after 2013, the lack of appropriate data that would satisfy our specifications does not allow us to derive any reliable calculations of their outstanding amounts throughout a calendar year. Thus, no reliable estimates of the trend of SMEs' past due loans during the period 2014–2015 could be made.

In any case, the figures estimated and presented provide some information on the amount of SMEs' past due loans in recent years. In the following section, a financial engineering tool in the context of available EU funding is proposed.

### **3 Regulatory Framework of EU Structural Funds: Constraints and Adaptation Possibilities for Refinancing Healthy SMEs**

This section focuses on the presentation of the regulations about financial aid from the EU Funds. We discuss the financial aid options and the existing limitations in the relevant regulatory framework. Then, we present a proposal for the regulatory framework of a potential financial engineering mechanism to possibly refinance SMEs' past due loans.

#### **3.1 Overview of EU Treaties' Provisions About Competition and State Aid**

Regulations focusing on safeguarding the competitive functioning of its internal market are a key part of the EU regulatory framework. These regulations also affect the European legislation related to financial aid. Specifically, according to Article 101 of the EU Treaties (2016), all agreements between undertakings, decisions by associations of undertakings and concerted practices which may affect trade between Member States and which have as their object or effect the prevention, restriction or distortion of competition within the internal market shall be prohibited as incompatible with the internal market. Any agreements or decisions prohibited are automatically void.

In line with the provisions for preserving competition, in those concerning any aid granted by a Member State or through State resources in any form whatsoever, it is referred that "in case it distorts or threatens to distort competition by favoring 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" (Article 107 (1)–(2)). This provision is considered prohibitory to the refinancing of SMEs' loans in the EU, as such an action would favor businesses of this size against bigger businesses. On the other hand, loan refinancing is not explicitly excluded from possible aid categories. Furthermore, it is explicitly mentioned in Article 107 (3) of the EU Treaties (2016) that certain categories

of aid may be considered to be compatible with the internal market. Among these categories, “aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State” is included.

Thus, according to Article 107(3), in case of a serious disturbance in the economy of a Member State, granting of State aid for addressing it could possibly be approved by the Council, in derogation from the general EU Treaties’ (2016) provisions about preserving competition in the EU, laid out in Article 107 (1)–(2).

### 3.2 Overview of EU Legislation About Aid Exemptions from Notification

With Council Regulation (EC) No 994/98, the Commission decided on which categories of aid compatible with the common market shall not be subject to the requirements for Commission notification defined by the Treaty Establishing the EEC (1957). Small- and medium-sized enterprises were exempted from notification, a fact that facilitates granting aid to them. With Commission Regulation (EU) No 651/2014, about declaring certain categories of aid compatible with the internal market, the categories of aid compatible with internal market and therefore exempted from notification were refined. Especially as regards SMEs, for certain categories of aid (to the primary agricultural sector, for investment, consultancy, innovation, etc.), limitations to non-notification of the Council were set, mainly with respect to the amount of the aid. As regards refinancing of loans, no reference about whether it is a type of aid compatible or not compatible with internal market was included in the regulation.

Besides the above and other, concerning regional investment, specifications about SMEs’ investment notification thresholds, investment duration, eligible costs and aid intensity, another significant provision of this regulation concerned the exclusion of aid granted to undertakings in difficulty from its scope, regardless of the type, the magnitude of aid, the size, activity and so on of the undertaking. It was enacted that such aid should be assessed under the Community guidelines on State



aid for rescuing and restructuring “firms in difficulty”,<sup>12</sup> as prolonged by the Commission communication concerning the prolongation of the application of the Community guidelines on State aid for rescuing and restructuring firms in difficulty<sup>13</sup> and their successor guidelines.<sup>14</sup> Since it is not unlikely that after a prolonged period of recession in Greece, many SMEs in Greece would fall under the Regulation (EU) No 651/2014 definition for “firms in difficulty”, an assessment of aid to them in the context of a potential loan refinancing mechanism would be made under the relevant Community guidelines.

### 3.3 Overview of EU Regulation Concerning Aid During the Programming Period 2014–2020

The general regulatory framework about the European Structural and Investment Funds for the 2014–2020 Programming Period, enacted with Regulation (EU) No 1303/2013, established common provisions for the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund, the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). Importantly, this regulation establishes the conditions for SMEs’ debt financing from financial instruments in the context of activities of the ERDF and the EAFRD. According to Article 39 of the regulation, SMEs’ debt finance could comprise loans, leasing and guarantees. Member States may use the ERDF and EAFRD to provide a financial contribution to financial instruments set up at Union level, managed directly or indirectly by the Commission, with implementation tasks entrusted to the EIB, in respect of the following activities:

- (a) Uncapped guarantees providing capital relief to financial intermediaries for new portfolios of debt finance to eligible SMEs
- (b) Securitization of existing portfolios of debt finance to SMEs and other enterprises with less than 500 employees

Each Member State intending to participate in such financial instruments shall contribute an amount which is in line with SMEs’ debt

financing needs in that Member State and the estimated demand for such SMEs' debt finance, as well as of new portfolios of debt finance to SMEs, taking into account an ex ante assessment at Union level carried out by the European Investment Bank and the Commission. In any case, these financing needs shall not be higher than 7% of the allocation from the ERDF and EAFRD to the Member State. The aggregate ERDF and EAFRD contribution by all participating Member States shall be subject to a global ceiling of €8.5bn (in 2011 prices). Thus, ceilings on each Member State's contribution and on eligible financing needs by the relevant financial instrument, both at country and at EU level, have been defined by the regulation.

Nonetheless, the enactment of SMEs' debt financing in the context of the regulatory framework about the European Structural and Investment Funds for the 2014–2020 Programming Period provides the basis for developing a financial engineering tool for addressing the loan refinancing needs of healthy SMEs in Greece. From the combination of the provisions of the Regulation (EU) No 1303/2013, with those of the EU Treaties (2016) and other, already presented regulations, as well as with the characteristics of a financial engineering mechanism that was adopted during the previous Programming Period, an indicative financing tool for the refinancing of the loans of SMEs will be developed in the following subsection.

## **4 An Indicative Financial Engineering Mechanism (FEM) for the Refinancing of Past Due Loans of SMEs in Greece**

### **4.1 Features of the Proposed FEM**

Up to this point, we have presented the unfavorable developments in the Greek economy and banking system during 2009–2015. An estimation of the amount of past due loans of SMEs in Greece in 2012 and 2013 was carried out, in order to identify the part of debt that encounters difficulties in being serviced, without necessarily having the prospect of becoming non-performing. Then, the most significant regulations concerning

granting of aid in the EU were presented, along with their conditions and limitations. The analysis highlighted that the unprecedented decline of Greek GDP since 2010 had a significant negative impact on business activity as well as on domestic banks' liquidity and capital adequacy. Evidently, these conditions inhibited domestic SMEs' ability to service their loans. Despite this fact, a large proportion of these debts to the four systemic banks are regularly serviced, whereas loans whose payments have fallen behind at least one time for 30 to 89 days did not exceed 10% of total loans to SMEs in 2013, as was shown in Sect. 2.2. These facts highlight that the provision of financial aid to viable SMEs with past due loans could significantly strengthen their ability to navigate through the economic crisis and improve their growth prospects.

For this purpose, a loan refinancing mechanism for SMEs could be developed, in the context of the provisions of the regulation concerning aid from the European Structural and Investment Funds during the Programming Period 2014–2020. Given that the main goal is to address the effects of the economic crisis on the SMEs' ability to service their loans, the modalities of the said mechanism should be well adapted to prevailing economic realities in Greece and be regularly monitored to ensure its relevance and continuity. In order to support SMEs with sound growth prospects, certain criteria for the evaluation of businesses that will apply for refinancing are proposed in the following subsection.

Their prospects could be further improved if financial aid would not only aim to assist them in meeting their debt obligations but also to support viable investment plans. On the other hand, support concerning both loan arrears and investment could create an incentive for certain undertakings that are not actually in need of debt financing aid and have alternative funding sources for their investment to apply to the proposed financial engineering instrument. Such a situation would increase moral hazard incentives. Furthermore, as the budget of every EU country is fixed, if such businesses were eligible for receiving support, then other candidates with a greater need for debt financing aid might be excluded, a development that would distort competition and be incompatible with the internal market. It is also possible that businesses encountering bigger delays and higher difficulty in servicing their debts might not be willing to increase their liabilities by, for example, receiving a loan for investment purposes.

As an indicative basis for the proposed refinancing tool, a financial engineering instrument for the previous Programming Period could be used, namely, the First Loss Portfolio Guarantee (FLPG). FLPG was created to support loan provision to SMEs, by providing credit risk protection in the form of a first loss portfolio capped financial guarantee.<sup>15</sup> The guarantee was issued by the European Investment Fund, acting through the JEREMIE Holding Fund for the benefit of a financial intermediary (usually a bank). Each guarantee agreement provided for a commitment by the intermediary bank to offer its loans on better terms compared to non-JEREMIE supported financing (reduced collateral requirements, interest rate and associated fees and taxes). The origination, due diligence, documentation and so on of the loans were performed by the financial intermediary in accordance with its standard relevant procedures, without any intervention from State or EU services. This managerial scheme could also apply to the proposed loan refinancing mechanism, under the eligibility criteria defined in the following subsection.

Regarding the characteristics of the guarantee granted by the FLPG, it partly covered the credit risk associated with new or extended eligible loans to SMEs that were in the guaranteed portfolio. Thus, not only new but also existing loans that were being extended could be supported by the FLPG. “Firms in difficulty”<sup>16</sup> were excluded from the potential beneficiaries. The guarantee concerned losses deriving from principal and unpaid interest at the time of the default of an undertaking, whereas its degree of coverage per loan (guarantee rate) varied between 50–80% of the losses covered in the countries where the FLPG operated. Guarantees were capped, that is, their total amount for all the loans included in the portfolio could not exceed a proportion of the actual volume of that portfolio (guarantee cap rate, from 20% to 33%). The combination of a relatively low guarantee rate per loan for a loan portfolio and a high guarantee cap rate for the total amount of loans implied that potential losses from more loans could be covered by the FLPG, but loss recovery per loan would be low. With respect to the relevant provisions of the regulation about granting of aid during the 2014–2020 Programming Period, capital to financial intermediaries for new portfolios of debt finance is uncapped, enabling the coverage of more loans by the financial instruments.

In order for a financial instrument to be more effective in assisting a crisis-hit, but still viable, SME in meeting its debt obligations, emphasis should be placed on the careful selection of the beneficiaries. Based on the thorough evaluation of certain financial indicators, businesses truly hit by adverse economic conditions could be identified. In more detail, the deviation of the performance of each business from the average value of the industry where it is classified should be taken into consideration. Provided that this deviation falls between a certain upper and a lower bound, it can be assumed that it is mainly attributed to the consequences of the economic downturn and not to other factors (e.g. on firm-specific business strategies). Of course, industries were not similarly affected by the deep recession. Based on the above criteria, the deterioration of activity in some of them could lead to the rejection of the vast majority of their businesses which applied for debt refinancing, even if these merely follow the industry trend.

On the other hand, the fact that many businesses in Greece have been adversely affected by the deep recession and consequently fall under the Commission definition of “firms in difficulty” could lead to their a priori exclusion from receiving financial aid from the proposed mechanism, as was the case with the FLPG instrument. However, the provisions of Regulation (EU) No [1303/2013](#) about financial instruments providing debt finance to SMEs do not exclude “firms in difficulty”. In any case, in accordance with Article 107(3) of the EU Treaties ([2016](#)), in order to remedy a serious disturbance in the economy of a Member State, regular restrictions in the granting of State aid could be temporarily suspended. This provision could be applicable in the case of Greece, given the deep recession during 2008–2013 and the inability of the economy to show any material recovery at least up to 2015. There is another recent occasion where this provision was applied. Specifically, in an effort to alleviate the negative effects of the global financial crisis of 2007–2008, the Commission introduced temporary changes to the Community framework for State aid measures, relaxing terms of funding in order to support access to finance.<sup>17</sup> This relaxation was deemed legitimate under Article 87(3) of the EU Treaties ([2002](#)), which was renumbered to Article 107(3) in the consolidated version of the EU Treaties ([2016](#)). With Paragraph 4.2.2 of the relevant Communication, granting of a limited amount of

State aid (cash grant up to €500,000 per undertaking), to firms which were not in difficulty on July 1, 2008, but entered in difficulty thereafter, was considered compatible with the common market, on the basis of the aforementioned article. Aid under these provisions could be granted for a certain period, up until 31.12.2010. Consequently, post the global financial turmoil, not only healthy businesses but also crisis-affected firms facing significant problems could receive State aid for a specific period, an action which under the general EU Treaties (2002) and EU Treaties' (2016) provisions about State aid would not be considered compatible with the internal market.

Pursuant relaxation in the terms of State funding in the EU after the global financial crisis under Article 107 (3) of the EU Treaties, the provisions for SMEs' debt finance under Regulation (EU) No 1303/2013 could be extended over a proportion of "firms in difficulty" that satisfy the eligibility criteria. Furthermore, on the basis of the same Article, the ceiling for each Member State's participation to such financial instruments could be reviewed, if needed, in order to provide assistance to more SMEs in Greece. According to Article 39 (2) (16a) of Regulation (EU) No 1303/2013, this ceiling is currently set to 7% of the allocation from the ERDF and EAFRD to each Member State. In accordance with Article 39 (4) (a) of this regulation, an ex ante assessment of the financial needs of SMEs holding past due loans must be implemented prior to the ceiling review. In order to avoid moral hazard from, for example, beneficiaries that would intentionally fall under the "firms in difficulty" definition, a set of financial criteria for the evaluation of the eligibility of candidate undertakings should be applied for a period starting before the global financial crisis. These criteria are presented in the following subsection of this chapter. Additionally, it is proposed that a provision is included in the instrument's statute, about return of remedies received by it, in terms of principal, interest rate, collateral requirements and so on, if it is eventually proved that a beneficiary concealed that it did not meet the necessary criteria for eligibility.

Summing up, this subsection has reviewed the regulatory framework for an indicative financial instrument for SMEs' debt finance in Greece, as well as its main characteristics. It is based on an existing financial engineering tool funded by EU funds (First Loss Portfolio Guarantee)

that is adjusted to incorporate the provisions of Regulation (EU) No 1303/2013 concerning SMEs' debt finance during the Programming Period 2014–2020. In the following subsection, some indicative criteria for the evaluation of eligibility of SMEs are presented.

## 4.2 Indicative Criteria for Evaluating Eligibility for the Financial Instrument

The purpose of this section is to present some indicative criteria for evaluating SMEs that apply for debt financing aid under the proposed financial instrument that was presented in the previous subsection, as well as for determining its duration. Both qualitative and quantitative criteria should be included in the evaluation procedure. As has already been noted, in order to deter businesses from moral hazard behavior, the evaluation of a debt financing request should cover a period starting from 2007 (i.e. prior to the outburst of the domestic economic turmoil) to the latest year for which the relevant data are available. For businesses founded after 2007, all the available data and information required for the evaluation should be used.

### Qualitative Criteria

The qualitative evaluation of a debt financing request could start with tracing the current and medium-term life cycle stage of the industry to which the candidate firm belongs. According to business administration theory, the lifecycle of an industry comprises of five stages, namely: embryonic, growth, shakeout, maturity and decline.

In order for an SME to be eligible for receiving debt financing aid, the qualitative features assessed should include quality of management, quality of output and quality of production procedures. For this evaluation phase, acquired certifications related to, for example, quality management systems and environmental and energy management systems should be taken into consideration (ISO 9001, ISO 14001, ISO 16001).

Another qualitative feature that should be assessed is the firm's transactional status toward the State and its suppliers. In this respect,

a valid insurance and tax clearance or a debt settlement with the Tax Office and the Social Security Funds should be interpreted as evidence of good transactional behavior toward the State. Furthermore, information on arrears and financial credibility should be requested from TIRESIAS.<sup>18</sup> The TIRESIAS system collects data on arrears and credit behavior of businesses and individuals supplied by banks, courts of first instance, the magistrates' court, the Ministry of Finance and other entities.<sup>19</sup>

A whole range of facts and figures pertaining to the market(s) in which the undertaking operates should also be thoroughly examined. Such data may include, for example, the bargaining power of suppliers and buyers, the degree of competition in the goods or services markets in which the firm operates and the probability of strong competitors entering or leaving these markets.

### Quantitative Criteria

Most of the proposed quantitative criteria for assessing a firm's eligibility for receiving aid from the proposed instrument are financial ratios that can be calculated by utilizing data from its financial statement. These ratios provide significant information regarding the company's level of activity, capital leverage, liquidity and profitability. The proposed financial ratios may include:

- Activity ratios, which provide information about the speed of cash flow related to the sale of products or services and the payment of liabilities:

$$\text{Inventory turnover ratio} = \frac{\text{Value of inventories}}{\text{Cost of sales}} \times 365$$

$$\text{Accounts payable turnover ratio} = \frac{\text{Liabilities to suppliers} + \text{Checks} + \text{Bills payable} + \text{Buyers' advances}}{\text{Cost of sales}} \times 365$$



- Leverage ratios, which reflect the ways a business is funding its operations, its reliance on debt and its ability to pay back its debt.<sup>20,21</sup>

$$\text{Debt to equity ratio} = \frac{\text{Liabilities}}{\text{Equity}}$$

$$\text{Interest coverage} = \frac{\text{Operating income}}{\text{Net interest expenses}}$$

$$\text{Equity multiplier} = \frac{\text{Assets}}{\text{Equity}}$$

$$\text{Net Debt / EBITDA} = \frac{\text{Net debt}}{\text{Earnings before interest, taxes, depreciation and amortisation}}$$

- Liquidity ratios, which provide information on the firm's liquidity position and its ability to meet its short-term obligations.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio or acid - test ratio} = \frac{\text{Current assets} - \text{inventories}}{\text{Current liabilities}}$$

- Profitability ratios, which provide information about the ability of a business to generate earnings, profits and cash flows relative to some metric, usually investment, but also assets, equity, sales.<sup>22</sup>

$$\text{EBITDA margin} = \frac{\text{Earnings before interest, taxes, depreciation and amortisation}}{\text{Sales}} \times 100$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Equity}} \times 100$$

$$\text{Return on net assets} = \frac{\text{Net income}}{\text{Fixed assets} + \text{Net working capital}} \times 100$$

## Determinants for the Duration of the Financial Instrument

As already explained in Sect. 2.1, the deterioration of the domestic private sector's debt servicing capacity started after the initiation of the first adjustment programme for Greece. Since then, the ratio of NPLs to total loans has been on a continuous increase, reaching c. 36% at the end of Q1-2015.<sup>23</sup> This was mainly due to the deep domestic recession and the increase in the unemployment rate over the period 2010–2013, which weighed on the businesses and households' ability to service their loans. However, from the estimation of SMEs' past due loans presented in Sect. 2.2, it emerged that their trend was not in line with that of NPLs; in 2013, their end-year outstanding amount was smaller by 8.1% y-o-y, probably because of the considerable increase in the same year of loans with past due payments for at least 90 days (+51.5% y-o-y).

In any case, as the worsening of macroeconomic conditions was the main cause of the firms' difficulty to meet their liabilities toward the banking system, their projected trend should be the main determinant for the continuation or not of the financial engineering instrument providing them financial assistance. The trend in SMEs' past due loans should also be considered. Such a decision could be based on data about the current macroeconomic conditions and SMEs' debt servicing ability from the official statistical and banking authorities (EL.STAT., Bank of Greece, Hellenic Bank Association) and on the macroeconomic projections of well-known organizations (European Commission, IMF, OECD).

## 5 Conclusion

The debt servicing capacity of the domestic private sector deteriorated significantly following the eruption of the Greek sovereign debt crisis in 2010. The fact that SMEs have fewer alternative financing options than larger firms (and that their role in the Greek economy is more dominant in comparison to most other EU countries in terms of output and employment) highlights the importance of providing them support to sustain their debt. This financial aid should be granted to viable

undertakings under specific conditions, for as long as the Greek economy is not steadily moving toward a recovery path.

In this context, the features of an indicative financial instrument for the refunding of SMEs' loans via EU funds were presented. These were mainly based on the characteristics of a financial engineering instrument from the previous EU Programming Period (2007–2013) that was developed for supporting loan provision to SMEs, that is, the First Loss Portfolio Guarantee. This was funded by the European Investment Fund, through the JEREMIE Holding Fund. Furthermore, the provisions of the proposed financial instrument were aligned with those of the Regulation (EU) No [1303/2013](#), about SMEs' debt finance during the Programming Period 2014–2020.

The proposed financing tool could provide credit risk protection to the financial intermediary that would refund a portfolio of SME loans. Such protection could be in the form of a financial guarantee for the case of default of a proportion of the refinanced undertakings. The degree of guarantee coverage per loan in the countries where the FPLG has operated varied between 50% and 80% of the unpaid principal and interest at the default time of an undertaking. Guarantees were capped, that is, their total amount for all the loans included in the portfolio could not exceed a proportion of the total loan amount of the portfolio (20–33%).

With a view to propose an adequately funded financing mechanism that could assist viable SMEs with growth prospects, NPLs, that is, loans whose payments of interest and principal are past due by more than three months, were excluded from the analysis. Further, in order to ensure that such firms would receive support, certain criteria were proposed to evaluate their eligibility.

In any event, there are also other ways to assist SMEs in servicing their loans, such as loan restructuring. Provided that bank assets would increase following a significant normalization of financial conditions, domestic credit institutions could extend more loan restructurings to businesses and households with better terms for the borrowers (e.g. grace period, longer repayment period or lower interest rate). Yet, the increased proportion of SMEs' past due loans (almost 10% of the outstanding amount of loans to SMEs in end-2013), and the high probability that a significant proportion of them will eventually become non-performing,

urges for bold action by utilizing all available instruments and strategies to relax their debt service burden.

## Notes

1. 2012 figures from Eurostat, for businesses active in the business economy, except financial and insurance activities. Source: Eurostat.
2. Past due loans are loans whose payments have fallen behind for at least one month but no more than three months, regardless of the fact of whether partial reimbursement has been given or not. A loan is non-performing (henceforth NPL) when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full (IMF (2005)).
3. 8.2% in Q1-2010.
4. IMF (2013a).
5. IMF (2013b).
6. Hellenic Bank Association (2013).
7. Bank of Greece (2012).
8. European Banking Authority (2014).
9. European Commission (2015).
10. This increase of NPE was partially due to further standardization of the definition of key metrics across the EU, which has led to additional NPE and impairment recognition in the AQR (see European Central Bank (2015)).
11. Another fact that complicated this counting procedure was that, at the time of the request, the restructuring of the banking system, with mergers and acquisitions of banks, was ongoing.
12. Commission Communication (2004).
13. Commission Communication (2012).
14. Commission Communication (2014), applicable to cases of State aid provision for rescuing and restructuring non-financial undertakings in difficulty. According to it, an undertaking is considered to be in difficulty if at least one of the following circumstances occurs:

(a) In the case of a limited liability company, where more than half of its subscribed share capital has disappeared as a result of accumulated losses. This is the case when deduction of accumulated losses from reserves (and all other elements generally considered as part of the own funds of the company) leads to a negative cumulative amount that exceeds half of the subscribed share capital.

(b) In the case of a company where at least some members have unlimited liability for the debt of the company, where more than half of its capital as shown in the company accounts has disappeared as a result of accumulated losses.

(c) Where the undertaking is subject to collective insolvency proceedings or fulfills the criteria under its domes.

15. For more information, see Jeremie Bulgaria, First Loss Portfolio Guarantee webpage: <http://jeremie.bg/flpg/>
16. See footnote 14.
17. Commission Communication (2009).
18. The Bank Information Systems S.A. company was created by the Greek banks and is entrusted with the development and management of a reliable Credit Profile Databank.
19. The systems collecting this information are the Default Financial Obligations system (DFOS), the Credit Consolidation System (CCS) and the Mortgages and Prenotations to Mortgages System (MPMS).
20. Interest payments minus interest income.
21. Debt minus cash and cash equivalents.
22. Total earnings minus depreciation, interest, taxes and other expenses.
23. European Commission (2015).

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# **Part IV**

## **Dealing with Private Sector Insolvency in Greece: Legal Aspects and Institutional Perspectives**



# 14

## Existing Corporate and Household Insolvency Frameworks: Characteristics, Weaknesses and Necessary Reforms

Spyros Pagratis, Christina Lolou, and Nikolaos Vettas

### 1 Introduction

Existing legal provisions for dealing with corporate and household insolvencies in Greece are multifaceted, attempting to address a problem of systemic proportions without proper macro-prudential safeguards. They are characterized by a piecemeal approach and a diverse

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set of policy priorities that often lead to conflict of policy objectives. Legal pluralism and complexity in the insolvency framework have perpetuated the NPL problem instead of addressing it within a coherent, centralized strategic framework with clear policy priorities. Legal complexity, in conjunction with the inability of the judiciary system to cope effectively with a large volume of cases, has generated legal backlogs and other frictions, sowing the seeds of strategic default and moral hazard in the system.

Externalities affecting debt workouts cast any attempt to deal with the NPL problem captive to socially suboptimal, yet individually rational, responses by both borrowers and creditors. For example, despite the rapid deterioration in NPL figures, Greek banks are showing no signs of writing-off any significant amount of bad debts, postponing “the day of reckoning” till the cycle turns, aiming to economize on scarce capital and minimize potential losses to shareholders. But such a strategy fails to internalize broader implications of bank behavior, creating a negative feedback loop where bank credit policies weigh negatively on the macroeconomy and vice versa. Maintaining high levels of NPLs leads to diversion of scarce financial resources and monitoring capabilities towards zombie companies, to the expense of dynamic, exports-oriented segments of the economy.

The purpose of this chapter is to analyze the characteristics and weaknesses of the Greek insolvency framework, focusing on the interaction with prudential requirements for banks. This interaction has possibly contributed to the perpetuation of the NPL problem in Greece, discouraging a viable solution to the problem. We argue that was a result of an alignment of borrower incentives to apply for restructurings and creditor incentives to restructure overdue debts, regardless of the future debt-servicing capacity of borrowers. Creditor incentives to restructure were driven by the need to economize on bank capital and reduce the capital bill ahead of the large-scale recapitalization of the Greek banking sector. Recent and forthcoming reforms, such as the Capital Requirements Regulation and Directive (CRR/CRD IV), the Code of Conduct for Credit Institutions and standard IFRS 9 for accounting provisions, are in the right direction and could help mitigate perverse incentives among borrowers and creditors. That could contribute towards a viable solution to the Greek NPL problem.

The remainder of the chapter is organized as follows. Section 2 describes the main effects of the restructuring framework on borrower incentives. Section 3 focuses on creditor incentives and the interaction of the insolvency framework with loan provisioning, revenue recognition and risk-weighting of restructured loans for purposes of CT1 capital calculations. Section 4 discusses corrective actions for loan provisioning and revenue recognition under the Asset Quality Reviews (AQRs) of 2011 and 2014. Section 5 outlines forthcoming key reforms, such as the Greek Code of Conduct for Credit Institutions and accounting provisions under IFRS 9. Section 6 concludes.

## 2 Greek Insolvency Framework and Borrower Incentives

Legislative initiatives in 2010 to deal with household and SME insolvencies took a proportional approach aimed at mitigating the fallout from the Greek economic crisis while containing borrower moral hazard. But as the economic recession deepened, perpetuation of legislative initiatives on debt restructurings fueled borrower moral hazard and spread the no-pay culture further into the economy. In particular, the limited use of qualitative criteria in the insolvency framework and the statutory banning of foreclosures under Laws 3814/2010 and 4128/2013 have removed any “credible threat” from the side of financial institutions to enforce debt repayments. That has exacerbated borrower moral hazard and no-pay culture in the economy, increasing future default probabilities of restructured facilities.<sup>1</sup>

Furthermore, as solvency risks in the banking sector started crystallizing in anticipation of Greek government debt restructuring (PSI+), policy actions to deal with private sector insolvencies internalized the conflicting objective of liming the bank recapitalization bill. That led to a double-sided moral hazard—that is, also from a lender’s perspective—in dealing effectively with household and SME insolvencies, as discussed in Sect. 3. But first, we discuss the insolvency framework for large corporates, SMEs and freelancers and households.

## 2.1 Corporates

Large corporates may submit a petition to the Council of Creditors (i.e. credit institutions, suppliers, social security and tax authorities) in order to initiate conciliation and negotiation procedures for restructuring their debts. That could eventually lead to an agreement on proportional and fair reduction of amounts owed to each creditor, ratified by a judicial authority. Any agreement reached during negotiations shall be endorsed by at least 60% of creditors. It is also binding even to creditors that opted out, provided their expected loss is reduced relatively before the agreement.

Recent amendments to the corporate debt restructuring framework under Law 4336/2015 expanded the pool of eligible entities to include not only firms in liquidity problems (yet with no overdue liabilities) but also firms that show signs of potential cash-flow problems in the foreseeable future. It also eased restrictions on multiple subjections to the debt restructuring framework, which is now permitted every three years. During the negotiations and restructuring period, all jobs are fully protected. Furthermore, during the negotiation and ratification procedures, the company and its management are granted suspension of all administrative measures and criminal penalties. Suspension is provided by a simple declaration of (a relatively low) 30% of creditors that intend to participate in the negotiations. Law 4336/2015 extended the negotiation period (4–12 months), possibly to allow for longer legal protection period for the management. The key parameters of the corporate debt restructuring framework as it evolved between 2007 and 2015 are shown in Table 14.1.

## 2.2 Small Firms and Freelancers

Corporate debt restructuring under the framework implemented since 2007 requires significant legal, financial and administrative resources, possibly not available to small firms and freelancers. That problem was partly addressed by Law 3816/2010 aimed at loan facilities of up to €1mil per contract. In contrast to the debt restructuring provisions for

**Table 14.1** Evolution of Corporate Debt Restructuring Framework in Greece

	L. 3855/2007	L.4013/2011	L.4072/2012	L.4336/2015
Key parameters	If liquidity problems but no overdue liabilities	If liquidity problems but no overdue liabilities	If liquidity problems but no overdue liabilities	If indication of future cash-flow difficulties
Protection period under the law	2 years	2 years	2 years	Extended beyond 2 years
Companies may be subjected to restructuring framework	Only once	Only once	Every 5 years	Every 3 years
Suspension of enforcement measures during negotiations if consent by	>50% of creditors	>50% of creditors	>50% of creditors	>30% of creditors
Duration of negotiations should be	Up to 4 months	Up to 3 months	Up to 2 months	4–12 months

larger corporates, eligible debts under Law 3816/2010 referred to debts originated between the end of June 2007 and end of January 2010, provided they were delinquent for more than 90 days at the time of law adoption. That effectively froze the pool of eligible loans, limiting borrower moral hazard to the period prior to law adoption. Law 3816/2010 could offer extension of loan tenure by two years, where only interest is paid, provided it does not exceed seven years. Moreover, it provided forgiveness of compound and overdue interest.

In addition, since 2014, small and medium-sized enterprises (SMEs) were offered another opportunity to restructure problem debts under Law 4307/2014 for debts to credit institutions, which works in conjunction with Law 4305/2014 for overdue debts to the social security and tax authorities.<sup>2</sup> According to the provisions of Laws 4305, 4307/2014, business entities, regardless of legal form, with turnover up to €2.5mil for the fiscal year 2013, are entitled to request restructuring of their debts, provided these debts are not mortgages or consumer loans. Restructuring may involve rescheduling of debt repayments or even a haircut. In case

of a debt-haircut request (over and above any debt rescheduling), eligible debts should be at least 90 days in arrears as of the end of June 2014, or in permanent delay, or already restructured in the past.

In particular, under Laws 4305, 4307/2014, an entity may restructure its loan facilities or a part of them. In addition, a haircut up to €500,000 may apply on facilities, depending on the debtor's financial position. On top of that, a further 20% discount is granted on tax and social security debts that were restructured under Law 4305/2014. That allows banks and state authorities to share the benefits from the restructuring, thus mitigating cross-subsidization and free-rider problems among creditors.

To be subjected to the provisions of Law 4307/2014, an entity must (i) offer complete information about its financial position, (ii) not be condemned for offences against tax or state authorities, (iii) continue its normal operations—that is, not to commence bankruptcy procedures—and (iv), in case of overdue debts to tax authorities, these must be settled under Law 4305/2014.

## 2.3 Households

Household insolvencies are mainly governed by Law 3869/2010, as amended mainly by Law 4224/2013 and Laws 4336, 4346/2015. The framework covers a dynamic pool of loans for primary residence of less than 12 months in arrears from the date of the restructuring application. Therefore, it does not cover loans that became overdue before 2009. Moreover, the pool was expanded to include consumer loans, credit cards, tax and social security liabilities. Improved repayment terms may be achieved via reduction in applied interest, or extension in loan repayment (provided the new loan tenure does not exceed 20 years), or partial write-off (haircut).

The restructuring agreement is based on the assessment by the financial institutions involved of the borrower's financial capacity and can be achieved in one of the following stages:

**First Stage “Out of Court settlement”:** It is a compulsory stage undertaken by the consumer's advocate, lawyer or any consumers' official organization that verifies its success or failure.

Second Stage “Application at County Court”: An application is submitted to court, analyzing the financial position of the borrower and a proposed settlement plan.

Third Stage “Agreement in County Court”: Settlement is achieved with a consent of 51% of creditors.

Fourth Stage “Court Settlement”: The court examines the borrower’s financial position and decides if loan facilities are to be restructured.

Furthermore, under Law 3814/2010 and Law 4128/2013, a general ban on foreclosures applied for the first residence. Since the end of 2015, such a banning depends on the taxable value of the residential asset, marital status and family annual income.

### 3 Greek Insolvency Framework and Bank Incentives

A key consideration in dealing with overdue debts is the impact of loan restructurings on bank capital adequacy. A standard measure of bank capital adequacy is the ratio of core Tier 1 (CT1) capital—defined as common equity plus retained earnings—to risk-weighted assets. The restructuring framework loosened the criteria of Article 27 of Law 2076/1992, which governs the operations of credit institutions in Greece and generally restricts loan restructuring only to cases where strong evidence exists that a borrower is able to serve all due debts within a specified time frame.<sup>3</sup>

Assuming a static pool of overdue debts, the restructuring framework could have a positive one-off effect on CT1 capital by allowing banks to release loan-loss provisions for prudential supervisory purposes and increase revenue-generating assets. In addition to releasing statutory provisions and increasing loan revenue, the restructuring framework also supported CT1 capital ratio by reducing the risk-weighting of non-performing loans. That was achieved through the one-off release in provisions from restructured loans that permitted higher-provision coverage (thus lower risk-weighting) of non-performing loans. As a result, the insolvency framework may have created a double-sided moral hazard. On the one hand, borrowers were incentivized to renege on loan agreements, expanding the pool of non-performing loans; on the other hand, creditors

were encouraged to restructure loans to boost CT1 capital ratios, without necessarily ensuring loan sustainability.

In the following sections, we describe in more detail how the restructuring framework interacted with prudential requirements for credit institutions, affecting loan provisioning, revenue generation, risk-weighted assets and, as a result, CT1 capital ratio. For ease of exposition, we focus on bank incentives to restructure loan facilities assuming a static pool of overdue debts.

### 3.1 Restructuring Framework and Loan Provisioning

The insolvency framework affects loan status—such as restructuring, months in arrears and so on—and the level of loan-loss provisions. In particular, Bank of Greece Governor's Act (BGGA) 2442/1999 specifies provisioning rates by loan category depending on loan status (including loans restructured within 12 months) and level of security offered under loan agreements.<sup>4</sup> Table 14.2 summarizes provision rates by loan status (vertical) and loan security (horizontal).

Loan-loss provisions have a direct impact on bank CT1 capital. Therefore, banks could have an incentive to restructure loans to take advantage of a decrease in provisioning rates, supporting their capital position. For example, consider the case of the general loan category (i.e. first column in Table 14.2). Current loans require cumulative provisions of 1% of the loan amount. Loans of more than three months in arrears attract a provisioning rate between 10% and 100% depending on loan status. But restructured loans attract only 10% provisioning rate for the first 12 months following restructuring.<sup>5</sup> After this 12-month period, restructured loans are classified into the first three categories depending on their renewed status, attracting provisioning rate between 1% and 25%. Therefore, for loans in arrears between 6 and 12 months, loan provisioning rate is reduced from 25% (before restructuring) to 10% (after restructuring), that is, a release in provisions of 15%. By the same token, loan restructurings result in a 90% release of provisions for loans of more than three years in arrears. That could inflate CT1 capital for prudential supervisory for some time until restructured loans get sour again.



**Table 14.2** Loan-loss provisioning according to Bank of Greece's model (% of loan amount)

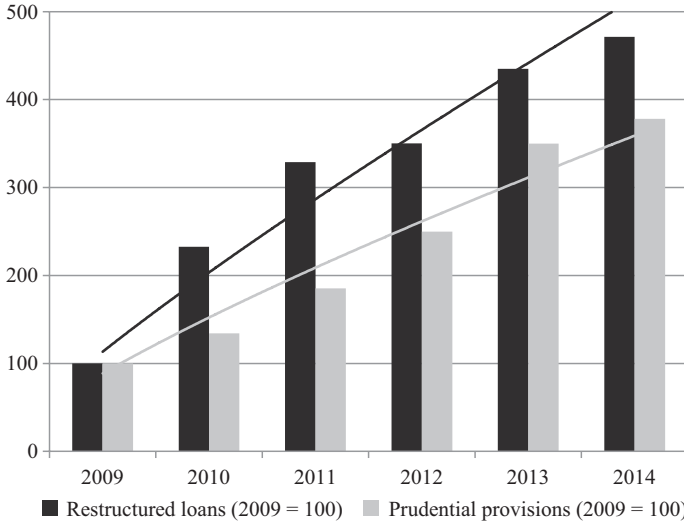
	General loans <sup>a</sup> (%)	Residential mortgages		Retail loans <sup>b</sup> (%)
		≤75% of purchase value (%)	>75% of purchase value (%)	
Current loans (0–3 months in arrears)	1.0	0.5	1.0	1.4
Delinquent (3–6 months in arrears)	10.0	7.0	10.0	14.0
Delinquent (6–12 months in arrears)	25.0	17.5	25.0	35.0
Delinquent (12+ months in arrears, denounced)	50.0	50.0	50.0	90.0
Doubtful loans	60.0	60.0	60.0	100.0
Corporates with negative equity	60.0	60.0	60.0	100.0
Loans restructured within 12 months	10.0	10.0	10.0	10.0
Delinquent (36+ months in arrears)	100.0	100.0	100.0	100.0

<sup>a</sup>Includes corporate loans, bonds, letters of guarantee and unsecured portion of loans guaranteed by central banks

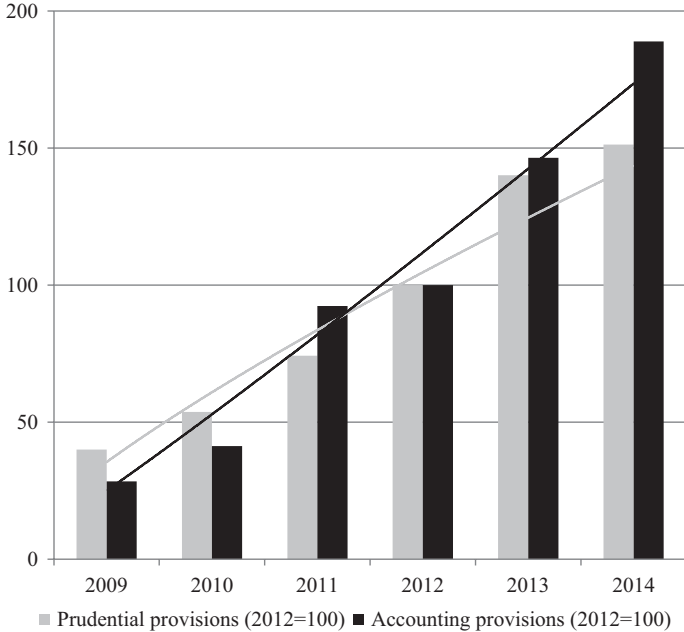
<sup>b</sup>Includes credit cards and consumer loans

Figure 14.1 shows that the new restructuring framework dissipated the acceleration of prudential provisions, as the annual increase in restructurings was significantly higher than the increase in prudential provisions. But forward-looking prudential provision anticipated loan portfolio deterioration better than accounting provisions under International Accounting Standard 39 (IAS 39). This is shown in Fig. 14.2, where the sixfold increase in accounting provision between 2009 and 2014 is in stark contrast to the (much lower) threefold increase in prudential provisions over the same period.

More specifically, the restructuring framework interacted with accounting provisions in bank financial statements, distorting headline profitability measures. IAS 39 follows an incurred loss approach, whereby banks can only provide for credit risk when there is “objective evidence” of impairment at the balance sheet date.<sup>6</sup> As a result, financial institutions are not allowed to incorporate the effects of future events occurring after the balance sheet date, even if such events are expected to occur with high possibility.



**Fig. 14.1** Restructured loans and prudential provisions of major Greek banks.  
 Source: Bank of Greece



**Fig. 14.2** Accounting and prudential provisions of major Greek banks.  
 Source: Published accounts and Bank of Greece

According to published accounts and the IMF, loan provisions recognized in financial statements (i.e. accounting provisions) remained relatively flat at around 10% of total loans, while non-performing loans (including restructurings) were exploded from 10% to 32% between 2011 and 2013.<sup>7</sup> Under IAS 39, loan-loss provisions are distorted by the restructurings, and provisions can be recognized just before default occurs. This distortion is clearly depicted into the increase of the accounting loan provisions compared to the increase of the non-performing loans including restructured loans.

### 3.2 Restructuring Framework and Loan-Revenue Recognition

In addition to lowering provisions and increasing profits, the restructuring framework improved CT1 capital ratios through loan-revenue recognition in bank financial statements, that is, by allowing banks to recognize as revenue-generating assets non-performing loans that were recently restructured.

Until the insolvency framework was gradually introduced since 2007, loan restructurings were heavily restricted—along with loan-revenue recognition—unless banks were able to offer “strong evidence” of debtors’ ability to service their debts within a given time frame. According to Article 27 of Law 2076/1992 governing the operations of credit institutions in Greece, revenue recognition seizes once a loan with pre-agreed repayment schedule (amortized) becomes more than six months in arrears, or more than three months in case of non-amortized debts, such as working capital accounts, overdrafts and credit cards.

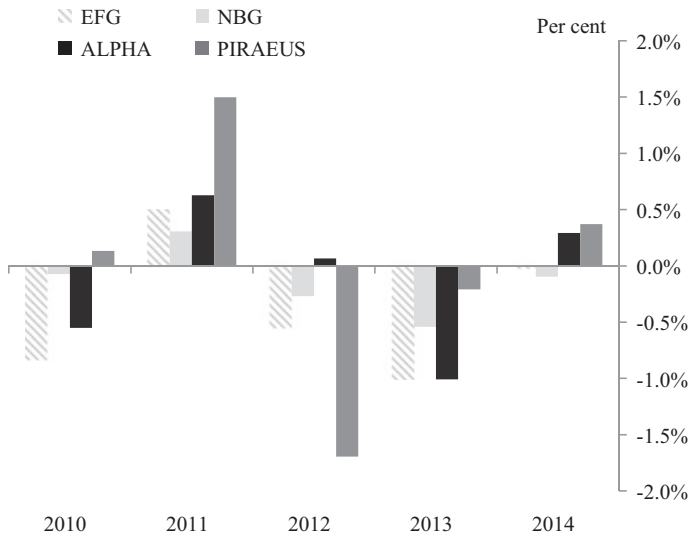
Market practice has shown that before the new restructuring framework was introduced, banks were reluctant to bear the legal risks associated with offering strong evidence of debtors’ ability to repay. But since 2007, the new framework provided legal safeguards that allowed banks to engage in loan restructurings and bypass existing restrictions in turning non-performing loans into revenue-generating assets.

Further to the recognition of restructured loans as revenue-generating assets, loan restructurings are bilateral agreements that offer financial institutions the opportunity to capitalize arrear balances (including interest) for the

period that a loan was declassified as revenue generating. But if borrowers were not *fully qualified* for restructuring their loan facilities—that is, in the spirit of Law 2076/1992, Article 27—the performance of the revenue-generating pool of loans could be distorted, affecting the quality of CT1 capital. This is documented in BlackRock’s Asset Quality Review (2011), p. 29:

[R]estructured, rescheduled, refinanced loans or loans in forbearance all appear to share a common characteristic: the practice of changing terms and conditions, often through the creation of a new loan, and thereby capitalizing the arrears balance associated with the loan and reducing loan payment terms. While this practice can be justifiable if a borrower is duly qualified, it can also distort the performance of a pool of loans if such qualification is not done to ensure the loan’s sustainability.

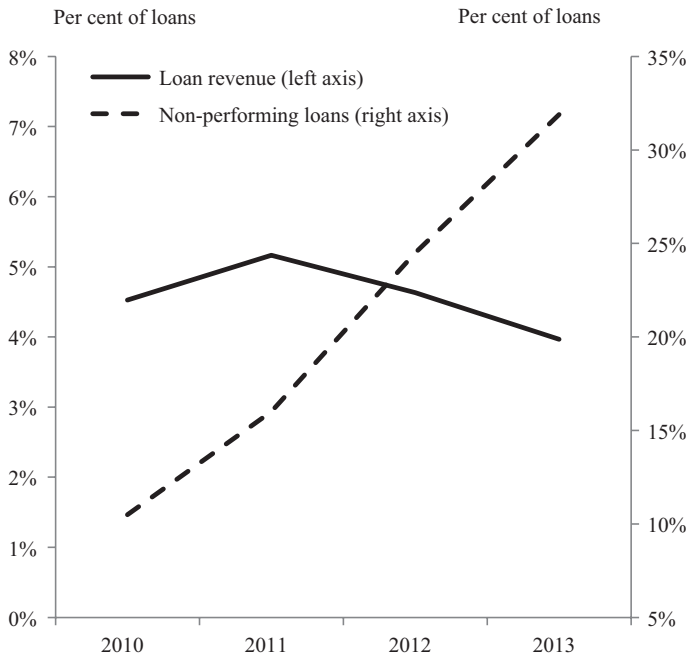
Figure 14.3 shows the annual change in the ratio of loan revenue to total loans of major Greek banks, for the period 2010–2014. Loan-revenue deterioration was strongly reversed in 2011, possibly as a result of revenue recognition from restructured loans under new restructuring provi-



**Fig. 14.3** Annual change in loan revenue to total loans of major Greek banks<sup>(a)</sup>. *Source:* Published accounts  
(a) As of end-Q4

sions introduced by Laws 3816/2010 for small business and freelancers and 3869/2010 for household insolvencies, as discussed in Sect. 2.

Such a one-off improvement in loan performance in 2011 was at odds with the rapid deterioration in the quality of the underlying pool of loans. Figure 14.4 shows that loan revenue (as a percentage of total loans) remained relatively flat at more than 4%, while non-performing loans (including restructurings) exploded from 10% to 32% between 2010 and 2013. A plausible explanation of such a paradox is the fact that the new restructuring framework aligned borrower incentives to apply for a restructuring and bank incentives to restructure in order to inflate revenues and support CT1 capital, regardless of the future debt-servicing ability of borrowers. Creditor incentives to restructure overdue debts and economize on bank capital may have been particularly strong ahead of



**Fig. 14.4** Non-performing loans and loan revenue of major Greek banks<sup>(a),(b)</sup>.

Source: Published accounts and IMF Country Report No. 14/151

(a) As of end-Q4

(b) NPLs include restructured loans

the large-scale recapitalization of the Greek banking sector that followed the restructuring of the Greek government debt (PSI) and the need to reduce the capital bill.

Next, we argue that short-term bank incentives to restructure loans could be further reinforced by an induced reduction in the risk-weighting of such loan in determining CT1 capital requirements, leading to a further improvement in the capital position of Greek banks.

### 3.3 Asset Quality Reviews' Corrective Action

The Asset Qualities Reviews of 2011 and 2014 are aimed to mitigate distortions in the revenue-generating performance of loan portfolios and loan-loss provisioning. For the ease of exposition, we focus here on the pool of residential loans that were influenced by significant legislative interference from the banning of foreclosures.

The Diagnostic Assessment of Greek Banks of 2011 (henceforth, AQR 2011) did not eliminate the release of loan-loss provisions because it adopted a mild classification of restructured, rescheduled and generally modified facilities. In particular, these facilities were classified in the lowest delinquent category of 90+ days-past-due (DPD), which attracted a low-provisioning charge. Therefore, the level of distress factor in evaluating these facilities was relatively low, falling short of eliminating distortions from loan restructurings on prudential loan-loss provisions, as discussed in Sect. 3.1.

But the Asset Quality Review and Credit Loss Projection Methodology of 2014 (henceforth, AQR 2014) adopted a more sophisticated approach on prudential provisioning, attempting classification of loan facilities according to their pre-restructuring status. As a result, transitions in credit status that occurred close to the restructuring dates were reversed and provisions were re-adjusted upwards. Data limitations do not permit exact quantification of the impact of provision re-adjustments that resulted from AQR 2014. But such re-adjustments took an extra toll on CT1 capital charge, bringing the system closer to the day of reckoning regarding the treatment of Greek NPLs.

### 3.4 Restructuring Framework and Loan Risk-Weighting

CT1 capital requirements are determined on the basis of an appropriate risk-weighting of bank assets, with less risky ones receiving lower risk-weights and vice versa. The risk-weighting of bank assets follows the “Standardized” or the “Internal Ratings Based Approach” (IRB) approach of the Basel Accord that was transposed in EU law through the Capital Requirements Directives (CRD). The Standardized approach draws on the external rating of bank assets, while the IRB relies on banks’ internal assessment by banks of asset riskiness. BGG A 2588/2007 and 2589/2007, as amended by BGG A 2631/2010, transpose the Standardized and the IRB approach for Greek banks.

Among the big-four Greek banks, National Bank of Greece and Eurobank S.A. are IRB certified by the Bank of Greece, while Piraeus and Alpha Bank follow the Standardized approach. Under the Standardized approach, risk-weighting of loan assets depends on loan credit status, level of security offered and provisioning.

The risk-weighting of current, delinquent and restructured loans is outlined in Table 14.3 depending on type of property and provision coverage. Although restructured loans do not attract a lower risk weight compared to delinquent loans, there is an indirect benefit on the risk-weighting of delinquent loans covered by residential property (category 1.3) through the release of statutory provisions. That permits the increase in provision coverage of delinquent loans, resulting in a reduction in risk-weighting from 100% (category 1.3.2.1.i) to 50% (category 1.3.2.1.ii) for the covered part of the loan and from 150% (category 1.3.2.2.i) to 100% (category 1.3.2.2.ii) for the uncovered part.

## 4 Deferred Taxation and Capital Adequacy

The recent implementation of the Capital Requirements Regulation and Directive (CRR/CRD IV) introduced various modifications regarding the quality and quantity of bank capital. Regulatory amendments

**Table 14.3** Risk-weighting of loans with property coverage (Standardized approach)<sup>a</sup>

	Loan description	Residential property	Commercial property
1.1	Current loans with total coverage from property	35%	50%
1.2	Current loans with partial coverage		
1.2.i	Covered part of the facility	35%	50%
1.2.ii	Uncovered part of the facility	General rating	General rating
1.3	Delinquent 3+ months in arrears		
1.3.1	With total coverage from property		
1.3.1.i	Provision <20% total receivable amount	100%	100%
1.3.1.ii	Provision >20% total receivable amount	50%	100%
1.3.2	With partial coverage from property		
1.3.2.1	For the covered part of the loan		
1.3.2.1.i	Provision <20% total receivable amount	100%	100%
1.3.2.1.ii	Provision >20% total receivable amount	50%	100%
1.3.2.2	For the uncovered part of the loan		
1.3.2.2.i	Provision <20% total receivable amount	150%	General rating
1.3.2.2.ii	Provision >20% total receivable amount	100%	General rating
1.4	Restructured loans		
1.4.1	Current loans		
1.4.1.i	Provision <20% total receivable amount	150%	150%
1.4.1.ii	Provision >20% total receivable amount	100%	100%
1.4.2	Delinquent 3+ months in arrears	150%	150%

Sources: BGG 2588/2007, as amended by BGG 2631/2010

<sup>a</sup>Risk weights for general rating vary from 20% (for highest credit quality) to 150% (for lowest credit quality). Unrated facilities receive 100% risk weight.



regarding the quality of bank capital interact with the insolvency framework through the exclusion from capital adequacy calculations of capital components with little or no loss-absorption capacity, such as those resulting from Deferred Tax Assets (DTAs).

Deferred Tax Assets (DTAs) are “tax” assets generated through different recognition of provisions for credit losses under accounting standard IAS 39 and for purposes of tax calculation. DTAs generally increase with the level of accounting provisions and are contingent on taxable profits, meaning they can only be realized in financial statements if a bank is expected to generate taxable profits in the future. CRR requires DTAs to be excluded from CT1 capital, subject to a phase-in transition, as they effectively have no loss-absorption capacity. They will no longer count as CT1 capital for amounts exceeding 10% of core capital by 2024.

Article 27A of Law 4172/2013 (as amended by 4302/2014 and 4340/2015) enables DTAs to be transformed into a different instrument—called Deferred Tax Credits (DTCs)—that is not contingent on future taxable profitability and may count as CT1 capital. Under this framework, DTAs that are recognized in bank financial statements until the end of June 2016 and relate to loan-loss provisions can be transformed into DTCs, namely, a final and liquidable claim against the Greek State. This claim will be offset by either future tax liabilities or, in case of no adequate tax liabilities, by cash equivalent instruments offered by the Greek State in exchange of stock options offered by the banks.

The CT1 impact of transforming DTAs into DTCs is quite significant; Alpha Bank for example, one of the big-four financial institutions in Greece, announced that with full implementation of CRR IV and the abovementioned DTC framework, its CT1 capital ratio would have been 13% as of the end of 2014, up from 8.9% if the transformation of DTAs into DTCs were to be excluded.

Given the transformation of DTAs into DTCs helps boosting bank capital and was designed to largely preserve bank shareholders’ value (for example, by limit dilution of major shareholders), financial institutions were incentivized to add extra provisions against potential loan losses to maximize the positive impact of DTCs on CT1 capital. That has significantly offset perverse incentives to capitalize on the restructuring

framework for purposes of economizing on loan-loss provisions in financial statements, as discussed in Sect. 3.1. Therefore, the new prudential standards for DTAs may have partially offset unintended consequences from the interaction of the insolvency framework with loan-loss provisioning rules.

## 5 Forthcoming Reforms

The pathogenesis of the Greek insolvency framework, the resulting borrower moral hazard and creditor perverse incentives to perpetuate, rather than drastically resolve, the NPL problems in Greece are currently addressed by two key reforms: the Code of Conduct for Credit Institutions and accounting standard IFRS 9 for reporting loan-loss provisions in bank financial statements.

### 5.1 Code of Conduct for Credit Institutions

The Code of Conduct for Credit Institutions (henceforth, the Code of Conduct) is an umbrella legislation introduced by the Bank of Greece and was enshrined into Law 4224/2013 (as amended by 4281/2014) and activated by Law 4336/2015, as specified in the Credit and Insurance Committee Decision (CICD) 148/5.10.2015.

The Code of Conduct focuses primarily on completing the contractual relationship between creditors and borrowers, clearly defining the basic parameters of the restructuring game. These parameters include among others the ex post verification and accreditation of a borrower as “cooperative”. Such criteria and parameters minimize discretion by credit officers, mitigating creditor moral hazard and preventing ad hoc categorization of borrowers. The Code of Conduct targets borrower moral hazard by focusing on empowering them, in a transparent and verifiable way, with the minimum skills and educational standards necessary to credibly interact with creditors. In particular, to enhance verifiability of actions and intentions by both sides, the Code of Conduct defines:

- *Restructuring menus*, including:
  - Five (5) short-term restructuring options: arrears capitalization, reduced payment, grace period, arrears settlements and arrears capitalization.
  - Six (6) long-term restructuring options: interest rate reduction, long-term extension, split balance in tranches, partial debt forgiveness, debt to equity swap and operational restructuring of the borrower accompanied with at least one of the other options.
  - Ten (10) final settlement options: voluntary surrender of assets, mortgage to lease, mortgage to rent, voluntary sale of property, settlement of loans, loan sale, auction-collateral repossession, auction-collateral liquidation, closure via bankruptcy and full debt write-off.
- *Treatment of borrowers in arrears*, including the initiation of communication, collection of financial information, evaluation of debt-servicing ability, consideration of restructuring options and borrower's objections.
- *Communication protocols* for the transmission of material information by borrowers relevant to the updating of their credit standing (such as a 15-day window for communicating material change in employment or remuneration status).
- *Good intentions* by borrowers in exploring, in collaboration with creditors, alternative debt restructuring solutions that best serve their mutual interests.
- *Reasonable living expenses* and procedures to determine them, based on annual data published by Hellenic Statistical Authority.

In case a borrower does not conform to the requirements of the Code of Conduct, he is characterized as “noncooperative” and hence penalized by not being able to restructure loan facilities. As a result, the Code of Conduct sets to a large extent the rules of the game between the borrowers and the creditors, aiming to implement qualitative characteristics on the borrowers and a road map of actions for the financial institutions.

## 5.2 Accounting Provisions Under IFRS 9

In this section, we discuss the International Financial Reporting Standard 9 (henceforth, IFRS 9) that aims to make accounting provisions more forward-looking, therefore bridging the gap with prudential regulatory standards. Such convergence in accounting and regulatory standards is also envisaged in the Basel Accords implementations under Capital Requirements Regulation and Directive—CRR/CRD IV that we discuss in the following section.

International Financial Reporting Standard 9 (IFRS 9) was published in July 2014, is effective for annual periods beginning on or after 1 January 2018 and will replace the International Accounting Standard 39 (IAS 39). There is a significant conceptual difference between IFRS 9 and IAS 39 as the first is a forward-looking model of estimating credit loss provisions, while the latter is an incurred loss model.

According to IFRS 9, there is a significantly broader set of information that banks are required to evaluate when quantifying their expectations about credit losses. Banks are required to incorporate information from past events, current conditions, as well as reasonable forecasts in their measurement of expected credit losses. Furthermore, IFRS 9 eliminates the threshold of “trigger event” requirement of IAS 39 for recognizing credit losses. As a result, banks always have to account for expected credit losses and periodically update their estimates. IFRS 9 quantifies credit risk in three stages:

**First stage:** Includes loans with no significant increase in credit risk since inception or facilities that are classified as low credit risk at reporting dates. For these facilities, an expected credit loss provision over the next 12 months needs to be recognized. This provision is calculated using default probability and loss-given-default estimates based on past experience and data.

**Second stage:** Includes loans with significant deterioration in credit quality since inception, but with no “objective evidence” of impairment. For these loans, a lifetime expected credit loss provision needs to be recognized. This accounting treatment is based on the idea that an economic loss rises when expected credit loss provisions significantly exceed their initial calculation. By recognizing a lifetime expected credit loss provision when there is notable increase in credit risk, such an economic loss is included in financial statements.

Third stage: Includes loan facilities with “objective evidence” indicating impairment at the reporting date. For these facilities, a lifetime expected credit loss provision also needs to be recognized as well.

Stage three facilities are similar to those deemed as individually impaired under IAS 39, while stage two essentially replaces those collectively assessed for impairment under IAS 39. For example, facilities that are disclosed under the title “Loan Receivables past due, but not impaired” in bank financial statements will now fall into stage two under IFRS 9. Therefore, the recognition of lifetime expected credit loss provisions will occur earlier than under IAS 39, that is, when there is a significant increase in credit risk (second stage), but before actual default (third stage).

As a result, IFRS 9 frames a forward-looking model that will lead to more timely recognition of provisions than IAS 39, mainly because of the earlier recognition of 12-month expected credit losses (first stage), as well as the earlier recognition of lifetime expected credit losses when credit risk significantly increases (second stage).

In contrast to IAS 39, accounting standard IFRS 9 does not include a list of “trigger events” of credit status deterioration, but uses instead the default definition as key input in expected loss calculations to assist banks classifying loans in stage one or two. But the default definition under IFRS 9 is far from clear, based on the presumption that default occurs when a loan is more than 30 days in arrears (*par 5.5.11*). Therefore, it mainly serves as a “backstop” to avoid cases where delinquent loans are unduly considered as not defaulting. Furthermore, IFRS 9 provides a list of indicators to help identifying potential loan impairments. Such indicators include cases where borrowers benefit from creditor concessions—including loan restructurings—that under normal circumstance would not have been granted. This could limit the use of the restructuring framework as a means to avoid necessary provisioning against problem loans.

## 6 Conclusion

Since the onset of the Greek economic crisis, perpetuation of legislative initiatives on debt restructurings and banning of foreclosures have fueled borrower moral hazard, spread the no-pay culture and expanded the pool

of non-performing assets in the economy. The restructuring framework also fed into creditor moral hazard by permitting the release of loan-loss provisions, a one-off increase in revenue-generating assets and a reduction in the risk-weighting of restructured loans. That may have encouraged creditors to restructure loans in order to boost CT1 capital ratios, without necessarily ensuring loan sustainability, thus perpetuating an NPL problem of systemic proportions. Such unintended consequences of the restructuring framework were partly offset by corrective actions, such as the Asset Quality Reviews of 2014. Recent and forthcoming reforms, such as the Capital Requirements Regulation and Directive (CRR/CRD IV), the Code of Conduct for Credit Institutions and standard IFRS 9 for accounting provisions, could help mitigate perverse incentives and contribute towards a viable solution to the NPL problem.

## Notes

1. See, for example, Tzavalis et al. (2015).
2. The term “problem debts” is used explicitly to refer to the superset of debts with delinquency characteristics, not necessarily qualifying for categorization under “non-performing loans” (NPLs). However, NPLs refer to the subset of problem debts in more than three months in arrears for working capital accounts, overdrafts, credit cards and other debt facilities with no pre-agreed repayment schedule (non-amortized) and to amortized facilities in more than six months in arrears. As soon as a loan facility is characterized as NPL, it is considered as non-revenue-generating asset for accounting purposes, as we discussed in Sect. 3.2.
3. The new criteria for restructuring loans to small businesses, households and professionals were firstly outlined in the Bank of Greece Governor’s Circular 13/30.7.2009 that shifted focus from evidence of loan sustainability to limiting loan losses to credit institutions.
4. Banks were also allowed to use their internal models for the calculation of prudential loan-loss provisions, provided they maintain extensive datasets. However, due to high maintenance cost of such internal

models, all major Greek banks have opted for the simplified forward-looking model of BGG 2442/1999, as amended by 2513/2003, 2557/2005, 2565/2005 and 2619/2009.

5. The provisioning rate for restructured loans was initially set at 20% according to BGG 2442/1999, before being reduced to 10% by Bank of Greece Governor's Circular 13/30.7.2009.
6. IAS 39 also provides a list of 'trigger events' as indicators of loan impairment.
7. See IMF Country Report No. 14/151.

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# 15

## Financial Inclusion: An Overview of Its Various Dimensions and Its Assistance in Reducing Private Sector Insolvency

Christos V. Gortsos and Vasilis Panagiotidis

### 1 Introductory Remarks

- (a) There is no doubt that financial inclusion presents differentiations from country to country. Some factors contribute to financial exclusion in India, for example, and other factors in Italy. This is due to the different structure of the financial system in each country and also other country-specific characteristics. Developing countries have, for example, lower levels of financial literacy.

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On a state level, besides the central government, policies of financial literacy need to be implemented also by central banks,<sup>1</sup> Ministries of Finance or other government authorities and bodies. The establishment of a dedicated agency with the objective to enhance penetration of financial services in remote areas could also be a good example in this context.

Apart from the above, in order to undertake a coordinated approach to dealing with financial exclusion, it would also be necessary to seek the involvement of nongovernmental organisations and the private sector. Furthermore, initiatives to reasonably ease the regulatory burden imposed by *Customer Due Diligence* regulations, as well as providing incentives to financial institutions to enlarge their branch-network in remote and rural areas, are also necessary.

- (b) The present working chapter provides an introduction to the topic of financial inclusion (and exclusion) in five sections:
- The main concepts and characteristics as well as some statistical data are set out in Sect. 1.
  - Section 2, on the policy aspects related to financial inclusion, deals with the interaction of financial inclusion with monetary policy, financial stability and anti-money laundering/combating terrorist financing (the AML/CFT) preventive measures.
  - In Sect. 3, the correlation between financial literacy and financial inclusion is analysed.
  - The case for coordinated efforts to enhance financial inclusion at international, the EU and national level is presented in Sect. 4.
  - Finally, Sect. 5 presents briefly the link between technology and financial inclusion.

## 2 Concepts, Main Characteristics and Data<sup>2</sup>

### 2.1 Definition and Content

- (a) Financial inclusion is defined as the process of ensuring affordable, prompt and adequate access to a wide range of financial products and services, as well as proliferation of their use in all parts of society with

a special focus on vulnerable groups, through the implementation of existing and innovative approaches, such as financial literacy programmes. A wide range of products and services can be incorporated in this definition, including savings, investment products, remittance and payment facilities, credit and insurance.<sup>3</sup>

The United Nations<sup>4</sup> defines the goals of financial inclusion as follows:

- access for all households to a full range of financial services, including savings or deposit services, payment and transfer services, credit and insurance, at a reasonable cost;
- sound and safe institutions governed by clear regulation and industry-performance standards;
- financial and institutional sustainability to ensure continuity and certainty of investment; and
- competition to ensure choice and affordability for clients.

Financial inclusion is assessed both on individual and on household level, as well as with regard to firms, especially small- and medium-sized businesses. However, while small- and medium-sized businesses often do have access to financial services, in many countries, micro- (one-person) enterprises are likelier to have more difficulty in obtaining such access.<sup>5</sup>

(b) Access to specific products can be seen as one component of financial inclusion. For example, the OECD uses:

- the term ‘unbanked’ to describe individuals without a bank account at a deposit institution and
- the term ‘unserved’ for those who rarely use their account or do not know how to use it.

The types of transactions that can be linked to an account are receiving regular (electronic) payment of funds such as wages, pensions or social assistance, converting cheques or vouchers into cash, storing money safely until it needs to be withdrawn, paying for goods and services other than in cash, paying bills electronically and making remittances.<sup>6</sup>

- (c) Conversely, the opposite of financial inclusion, that is, financial exclusion, refers to the difficulties faced by individuals or groups of the population as regards their access to the financial system. It can be either *voluntary* or *involuntary*, as financial exclusion could be either the result of circumstances that impede a person's access to the financial system or the result of personal preference due to a number of reasons.

## 2.2 Typical Indicators for the Measurement of Financial Inclusion

Financial inclusion is measured on the basis of three parameters<sup>7</sup>: level of credit institutions' outreach, level of usage of financial products and services and quality of the products and services.

- (a) Indicators depicting credit institutions' outreach (demographic and geographic penetration) include the number of branches per 1000 m<sup>2</sup>, the number of Automated Teller Machines (ATMs) per 1000 m<sup>2</sup> and the number of branches per 1000 or 1,000,000 individuals.
- (b) Indicators regarding the usage of financial services/products are the percentages of loans and deposit accounts in the population, the number of transactions per deposit account and the number of electronic payments.
- (c) Finally, indicators regarding the quality of services/products include the cost of usage and the level of financial literacy.<sup>8</sup>

However, a concrete measurement of financial inclusion is far from simple as it concerns a multidimensional phenomenon that is difficult to assess. Furthermore, there is always the risk that measurements do not accurately depict reality in such instances where, for example, an individual holds more than one account. This is a common occurrence in developed countries which, however, obscures conclusions pertaining to the level of inclusion within the general population.

## 2.3 Causes of Financial Exclusion: Involuntary and Voluntary Exclusion

- (a) According to the World Bank,<sup>9</sup> *involuntary* financial exclusion might stem from either efficiency criteria (e.g. inadequate income, high credit risk), or market or government failure (e.g. discriminatory practices, lack of information, high costs). In particular:
- **Regulatory restrictions:** it has been shown that often a new regulation benefits exclusively the existing users of financial services without further promoting financial inclusion of the remaining population.<sup>10</sup>
  - **Restrictive market practices:** quite often, providers of financial services use practices that exclude parts of the population either indirectly, by favouring specific groups, or directly, by applying special conditions to the use of a service (i.e. high minimum balances) or by setting charges for specific services (e.g. withdrawal costs). Such exclusionary practices can be sometimes attributed to providers' perception that some population groups are unprofitable or entail high risk. Furthermore, financial services are designed, as a general rule, to address the needs of the average consumer. As a result, individuals in a vulnerable position are practically excluded (e.g. unbanked, vulnerable and mobile consumers, persons with a low level of financial literacy).
  - **Insufficient infrastructure:** some groups within the population might face exclusion from the financial system due to factors such as lack of access to electricity or the Internet. In such circumstances, individuals residing in areas with insufficient infrastructures cannot obtain the necessary information in order to gain access to financial services.
- (b) On the other hand, *voluntary* financial exclusion is mainly attributed to personal reasons such as lack of resources, unemployment, economic and labour informality,<sup>11</sup> cultural and religious needs and beliefs,<sup>12</sup> a low level of financial literacy, the inability to use new technology (e.g. ATMs, Point of Sales [POS] or the Internet) and possible language barriers (e.g. in the case of migrants or persons seeking asylum). This latter category also encompasses cases where the use of financial services and, more particularly, of the banking system is

intentionally avoided in order to escape state control (thus accentuating phenomena such as tax evasion). Another common example of such practices is the choice on the part of over-indebted individuals to receive their incomes, whenever possible, in cash rather than in a dedicated bank account in order to avoid the risk of having their income withheld or seized by their creditors.

## 2.4 Statistical Data

### Level of Financial Inclusion Internationally and in the EU

- (a) Currently, it is estimated that two billion working adults worldwide do not hold an account with a credit institution. According to the World Bank database, in 2014 the global percentage of individuals over 15 years old who have an account with a bank reached 62%. Out of those, 27% have deposit accounts and 11% have taken out a loan.
- (b) In the EU, the level of financial inclusion is higher than the world-wide average, however, due to the economic crisis of the past few years, a large share of the population faces an increased risk of financial exclusion. More specifically, it has been noted that lower levels of financial inclusion (based on the number of bank accounts) are more common among countries with a lower per capita income, such as Poland or Bulgaria, and in countries confronted with a fiscal crisis, such as Greece.<sup>13</sup>

According to the results of the Household Finance and Consumption Survey for the year 2014, in the European continent, 11.6% of households do not have a credit card and 8.2% have either applied for a loan and their application was rejected or were discouraged from filling one in the first place. However, it is also worth noting that, in economically developed countries, 1.3 billion adult account holders pay their utility bills with cash instead of using their accounts (to make an electronic payment) as an easier, faster and safer means of payment.<sup>14</sup>



### **Social Groups with the Lowest Levels of Financial Inclusion (Based on Specific Criteria)**

- (a) *Income*: Lower-income segments of society do not easily have access to financial services. The same applies to unemployed individuals whose access to the financial system is rendered difficult due to a lack of financial means.
- (b) *Place of residence*: Lower levels of financial inclusion are observable in rural or isolated areas. In countries where financial service providers do not have an adequate infrastructure, individuals and firms removed from urban centres are objectively unable to make use of respective services. Furthermore, in cases where an individual is not familiar enough with technology so as to exploit electronic applications, access to financial services is rendered even more difficult.
- (c) *Sex*: Especially in developing countries, there are fewer women users of financial services than men. This observation is explained by the fact that women are generally accorded fewer rights and are usually unemployed. Worldwide, the percentage of women that hold an account with a financial institution is estimated at 58% against 65% for men.
- (d) *Place of origin*: Migrants rarely make use of financial services. Illegal immigrants, especially, cannot easily present the necessary documentation prescribed by the *Know Your Customer* (KYC) rules and procedures.
- (e) *Education*: The level of education is positively correlated with the usage of financial services (lower levels of education correspond to more restricted usage of financial services).
- (f) *Age*: Younger generations usually have a lower level of financial literacy compared to older generations and often misuse the financial means available to them. As a result, they expose themselves to a higher risk of future financial exclusion.

Furthermore, over the past few years and mainly due to the economic crisis, an increased number of young adults leave their parents' home at a later stage in their lives than in the past. For as long as these persons still

live within the family and, especially, if they are not employed, they lack the incentive to open a bank account on their own.

### 3 Policy Aspects Related to Financial Inclusion<sup>15</sup>

#### 3.1 Interaction with Monetary Policy

- (a) Undoubtedly, financial inclusion has the potential to contribute to curbing poverty and enhancing prosperity, especially in regions with a low standard of living, by making payments easier and by offering a channel for safe and legal financing, when necessary. Furthermore, financial inclusion is conducive to smooth consumption and monetary stability.

For this reason, this issue is of particular interest to central banks worldwide. More specifically, an increase in financial inclusion interacts with monetary policy in two ways:

- it helps consumers smooth their consumption over time, which may influence fundamental monetary policy choices, including the choice of targeted price index and
  - it encourages consumers to shift their savings away from physical assets and cash into deposits, which may have implications for monetary policy operations and the role of intermediate policy targets.<sup>16</sup>
- (b) Financial inclusion facilitates ‘consumption smoothing’, as households are able to adjust their saving and borrowing in response to interest rate changes and unexpected economic developments. Constraints on the ability to smooth consumption due to financial exclusion have been shown to affect monetary policy along three dimensions:
- The first concerns the size of the interest rate response to shocks. One outcome from this line of research is that the larger the share of finan-

cially excluded households, the stronger the policy response required to stabilise aggregate demand and inflation following a shock. That said, as always, this result is sensitive to assumptions about how the economy works.

- The second dimension relates to the trade-off between output and inflation volatility. Mehrotra and Yetman (2014) show that, as financial inclusion increases, the ratio of output volatility to inflation volatility should also rise if the central bank cares about both indexes and sets monetary policy to optimise their trade-off. The intuition behind this result is that financially included consumers are in a better position than excluded consumers to adjust their saving and investment decisions to partially insulate their consumption from output volatility. Thus, as the level of financial inclusion rises, central banks can focus more on stabilising inflation.
  - The third dimension along which financial inclusion can affect monetary policy is the choice of the price index used to define the inflation objective. In some economies, central banks pay attention to ‘core inflation’, a measure of price changes that excludes the most volatile components of consumer prices (typically food and energy).
- (c) Anand and Prasad (2012) argue that inflation measures excluding food prices may be a poor guide to policy for economies with low levels of financial inclusion. In part, this is because financial inclusion is often lower in rural, agriculture-dependent areas, where food products represent the main source of income. When food prices rise, financially excluded rural households, lacking access to the financial sector, do not save their extra income but rather increase consumption. This leads to higher aggregate demand and inflationary pressures. And when food prices fall, the process works in reverse. In such an economy, where the producers of food are also disproportionately financially excluded, it could be difficult for the central bank to stabilise overall inflation (and the economy more generally), if food prices are ignored. Thus, the case for focusing on headline inflation may be stronger, the lower the level of financial inclusion.
- (d) Greater financial inclusion also strengthens the case for using interest rates as the primary policy tool. When financial inclusion is low, a

large share of the money stock is typically accounted for by currency in circulation, with many households saving cash ‘under the mattress’. As inclusion increases, a growing share of broad money is likely to be made up of interest-bearing bank deposits. Furthermore, financial inclusion of a larger number of the population would correspond to a shift in the ratio of depositors and borrowers which would be conducive to a greater level of financial stability.

### 3.2 Interaction with Financial Stability

There are several reasons why increased financial inclusion may support the central bank’s task of safeguarding financial stability<sup>17</sup>:

- (a) First, consumers gaining access to the formal financial system are likely to increase aggregate savings and diversify the banks’ depositor base. An increase in savings has the potential to improve the resilience of financial institutions, given the stability of deposit funding, especially when they are backed by an effective deposit insurance scheme. Furthermore, there is evidence that aggregate balances in the accounts of low-income customers move only gradually and are not prone to sudden month-to-month swings. This resilience could be especially relevant during crises. Indeed, during the recent (2007–2009) international financial crisis,<sup>18</sup> the fall in total deposits was slighter in economies where the degree of financial inclusion was higher in terms of bank deposits, especially for middle-income countries, even after accounting for other factors.
- (b) Second, financial inclusion, by improving firms’ access to credit, can help financial institutions diversify their loan portfolios. Moreover, lending to firms that were previously financially excluded may also lower the average credit risk of loan portfolios. One study finds that an increased number of borrowers from small- and medium-sized enterprises (SMEs) are associated with a reduction in non-performing loans (NPLs) and a lower probability of default by financial institutions. However, increased financial inclusion is no guarantee of improved financial stability. If financial inclusion is associated with

excessive credit growth or the rapid expansion of unregulated parts of the financial sector, financial risks may still rise.

### 3.3 Interaction with Anti-Money Laundering and Terrorist Financing Preventive Measures

- (a) The goal of financial inclusion is to ensure fair and transparent access to financial services and, as such, it could be said that it is an objective of the 'AML/CFT' measures as well. Both of those policy objectives aim further to ensure the integrity and soundness of the financial system. Furthermore, low levels of financial inclusion would imply that consumers and firms would resort to unofficial and unregulated providers of financing. This development, in turn, renders transactional transparency, and efforts to tackle illegal activities are significantly harder to achieve. In that regard, financial inclusion is conducive to the AML endeavours as it leads to the restriction of the 'invisible finance' sector of the economy.
- (b) However, there are also areas of conflict between these two policy objectives. Particularly stringent identification requirements imposed in order to prevent money laundering, to some extent, also has become an obstacle to accessing the financial system. In the same vein, the applicable regulatory framework for the prevention of money laundering is often considered cumbersome and costly by firms, which are hence discouraged from using the regulated financial sector for their transactions.

According to relevant surveys in countries such as Kenya, Pakistan and Indonesia, the conclusion to be drawn from the above considerations is that, when the AML/CFT measures are particularly demanding, access to financial services is also affected negatively especially for financial service providers working with low-income people.<sup>19</sup> Accordingly, it is important to ensure that relevant measures are indeed proportionate and necessary to achieve their intended purpose.<sup>20</sup>

## 4 Correlation Between Financial Literacy and Financial Inclusion

### 4.1 The Objectives of Financial Literacy and Its Perimeter

- (a) Financial literacy aims to ensure that consumers of financial services and investors in capital markets understand the function of financial products, the opportunities that are made available to them through their use, as well as any potential risk that such products might involve, through the provision of proper advice, information and education.<sup>21</sup> An international survey conducted in 2011, with the participation of 301 providers of financial services, confirmed that a low level of financial literacy is considered an important obstacle to financial inclusion.

Accordingly, financial literacy plays an important part in dealing with the *causes* of financial exclusion. Moreover, financial inclusion of financially illiterate users would imply that said users would be vulnerable and would even pose a greater risk for the financial system (e.g. due to exposure to over-indebtedness and [hence usually] higher levels of NPLs).<sup>22</sup>

- (b) In this context, the main objective of financial literacy, which Ramakrishnan (2011) labels as '*the demand side of financial inclusion*', and Lusardi (2014) as '*knowing the ABCs of finance*', is to change the attitude of those potential users of financial services who have not made any use thereof so far. The categories of population targeted through a financial literacy initiative with the aim to achieve a greater level of financial inclusion include:

- persons not using any financial product whatsoever,
- persons only using a very restricted range of financial products<sup>23</sup> and
- new users not yet familiar with financial products.<sup>24</sup>

It is also considered that increased financial literacy can contribute to sustainable economic growth.<sup>25</sup>

- (c) Financial literacy and, in general, all relevant efforts with an aim to inform and educate are addressed to those segments of the general population that are excluded from the financial system, due to either ignorance or lack of trust. If exclusion is due to non-personal factors, such as the current regulatory framework or market practices, financial literacy is not conducive to the achievement of financial inclusion.<sup>26</sup>

## 4.2 In Particular: Financial Education

Financial literacy enhances the confidence of users formerly excluded from the system and enables them to make informed choices by comparing available financial products from different providers and by being aware of their respective rights and obligations. It is achieved through the provision of appropriate financial education.<sup>27</sup> Sources of financial education include friends and family, the state, school, the media, as well as consumer rights organisations.<sup>28</sup>

On the other hand, according to a recent survey in the USA,<sup>29</sup> financial education may also entail the risk of users making the wrong choices on available financial means, if they overestimate their abilities. This may be explained by the fact that even though financial education might enhance a user's confidence, it will not necessarily improve his/her abilities. It should also be noted that any effort to support financial literacy would be incomplete without a robust consumer protection framework also being in effect.<sup>30</sup>

# 5 The Case for Coordinated Efforts to Enhance Financial Inclusion

## 5.1 International Initiatives

- (a) In 2008, the Alliance for Financial Inclusion (the 'AFI') was founded as the first global knowledge-sharing network designed exclusively

for financial inclusion policymakers from developing countries. The AFI member institutions are central banks and other financial regulatory institutions from more than 90 economically developing countries, which have developed innovative financial inclusion policies while taking into account the stability and safety of the financial system.<sup>31</sup>

- (b) At the **G20 Toronto Summit**, in June 2010,<sup>32</sup> the G20 leaders reiterated their commitment to improve access to financial services for the poor. They endorsed a set of ‘Principles for Innovative Financial Inclusion’, aimed at forming the basis of a concrete and pragmatic action plan for improving access to financial services among the poor.<sup>33</sup> In addition, apart from approving the ‘Financial Inclusion Action Plan’, they also launched the ‘Global Partnership for Financial Inclusion’ to provide a systematic coordination and implementation structure for this action plan.<sup>34</sup>
- (c) In 2011, the World Bank Group launched the so-called ‘Project Greenback’. This is an initiative aiming at increasing efficiency in the market for remittances by promoting change inspired by the real needs of the ultimate beneficiaries of international money transfers (i.e. the migrants and their families at home). In this particular project, the following guiding principles apply:
- remittance champion cities are selected,
  - the World Bank is working towards implementing initiatives, which aim at increasing transparency and efficiency in the market for remittance services,
  - the main focus is on migrants and their needs and
  - cooperation between the stakeholders involved (i.e. migrants, remittance service providers and public authorities) is considered vital for the achievement of its objectives.<sup>35</sup>
- (d) In 2013, the Financial Action Task Force (the ‘**FATF**’) issued its Guidance on: *Anti-Money Laundering and Terrorist Financing Measures and Financial Inclusion*.<sup>36</sup> Under this, if a natural or a legal person only occasionally and infrequently engages in a specific activity and, hence, there is a low risk of money laundering, its Member



States have the discretion to provide for an exemption as regards the observance of AML/CFT requirements. The FATF has also issued a set of 40 Recommendations (the 'FATF Recommendations 2012'),<sup>37</sup> according to which every country, bearing in mind its specific economic and social circumstances, may adopt AML measures that do not unnecessarily hinder financial inclusion ('domestication of measures'), rejecting thus the 'one-size-fits-all' approaches.

- (e) Furthermore, given that migrants are an important part of the economy of both the country where they reside and their country of origin, the European Bank for Reconstruction and Development provides financial education to the recipients of remittances (usually family members who have stayed behind).<sup>38</sup> Relevant estimations in countries where recipients of such remittances reside show a large increase in the use of bank accounts.
- (f) Several initiatives have also been developed by the 'OECD' and its International Network on Financial Education (the 'INFE'), which provide a unique policy forum for national governments to exchange views and experiences on this particular issue. Typical examples include:
- the OECD Council 2005 Recommendation on Principles and Good Practices on Financial Education and Awareness,<sup>39</sup>
  - the OECD/INFE cross-country and gender survey on financial literacy and inclusion,<sup>40</sup>
  - the Programme for International Student Assessment, which evaluates education systems worldwide by testing the financial skills and knowledge of young students<sup>41</sup> and
  - the Policy Guidance on addressing women's and girls' needs for financial awareness and education by tackling the barriers pertaining to gender differences in financial literacy, as well as by financially empowering them.<sup>42</sup>
- (g) Finally, on 21 December 2015, the Basel Committee on Banking Supervision issued a consultative document for the regulation and supervision of institutions relevant to financial inclusion.<sup>43</sup> This document builds on the Committee's 2012 'Core principles for effective

banking supervision'<sup>44</sup> and its 2015 Report entitled 'Range of practice in the regulation and supervision of institutions relevant to financial inclusion'.<sup>45</sup> It provides guidance in the application of the Committee's Core principles to the regulation and supervision of financial institutions engaged in serving the financially unserved and underserved.<sup>46</sup>

## 5.2 Initiatives Relevant to Financial Inclusion at the EU Level

Even though the level of financial inclusion in the EU is generally high, due to the recent (2007–2009) international financial crisis and then the fiscal crisis in the euro area, there is a tangible and immediate risk of financial exclusion for a large share of the population. In order to avoid this development and to further enhance the current level of inclusion, measures of regulatory compliance were considered as necessary. Financial inclusion objectives are consistent with measures aimed at achieving a higher degree of European integration.<sup>47</sup> In this regard, two of them are the most important regulatory/self-regulatory developments:

(a) **Directive 2014/92/EU** of the European Parliament and of the Council of 23 July 2014 'on the comparability of fees related to payment accounts, payment account switching and access to payment accounts with basic features'<sup>48</sup> ensures access to a payment account with basic features for all EU citizens without discrimination.<sup>49</sup> In that regard, **Article 15** of this Directive, which must be transposed into the Member States' national law by 18 September 2016,<sup>50</sup> provides the following:

- Member States must ensure that credit institutions do not discriminate against consumers legally resident in the EU by reason of their nationality or place of residence or by reason of any other ground as referred to in **Article 21 of the Charter of Fundamental Rights of the European Union**,<sup>51</sup> when those consumers apply for or access a payment account within the EU.

- In addition, the conditions applicable to holding a payment account with basic features may, in no way, be discriminatory.
- (b) Another ambitious initiative was the establishment of the Single Euro Payments Area (the ‘SEPA’),<sup>52</sup> which was launched by the European banking and payments industry and is supported by the EU governments, the European Commission, the Eurosystem and other key stakeholders. Its aim is to overcome technical and market barriers between countries in order to create a single market of retail payments in euro. The transition towards the SEPA was completed in August 2014.

Since then, existing national euro credit transfer and direct debit schemes have been replaced with SEPA instruments, thus providing the basis for an integrated euro retail payment markets characterised by a harmonised set of basic payment instruments, transparent rules and standards. This development is expected to enable the entities involved in retail payments to realise economies of scale and to compete in terms of the quality of their services and henceforth foster financial inclusion.<sup>53</sup>

### 5.3 National Initiatives

Target groups for national initiatives, mainly, comprise low-income groups, residents of remote regions, SMEs, the younger generation and women. Some initiatives also target senior citizens, migrants or ethnic minorities, as all these categories are considered vulnerable to financial exclusion. By mere indication<sup>54</sup>:

- (a) In the *Philippines*, targeting younger persons and university students, a programme titled ‘Be a wise saver’ is being implemented. This programme aspires to encourage younger persons to become acquainted with banking services and also be cautious and only engage in transactions with authorised institutions.
- (b) *Mexico*, in an effort to support women interested in founding their own business, has created in 2006 the ‘Servicios Financieros

Alternativos Foundation'. This foundation is being implemented at community level and, among other activities, also provides financial education and technical assistance to both businesses and their customers.

- (c) In *Uganda*, since 2009, certain savings products have been especially designed for younger persons. An additional measure in this context is that lending can be made available to persons having saved money within the system for at least one year.
- (d) In *Australia*, an educational initiative has been implemented in 2011 targeting migrants of a different cultural and linguistic background. Experience gained from its implementation shows that the use of audiovisual channels can be very effective in reaching consumers that are not native English speakers. The main issues addressed through this programme are the frequent lack of knowledge exhibited by migrants, as regards the managing of their financial situation and their comprehension of their rights and obligations as consumers, as well as their tendency to resort to unofficial (usury) lending.
- (e) In *India*, within the context of the National Action Plan, an effort is being made to establish bank branches in areas where at least 2000 persons are resident and also to support actively the use of technology, where the physical representation of the financial system remains difficult. The Reserve Bank of India's decision to allow individuals to open bank accounts with a permanent address is expected to provide a boost to the process of financial inclusion (relaxation of KYC norms). This will not only bring migrant workers but also students and persons with a transferable job into the banking fold.
- (f) Of significance in this context is finally the UK Financial Inclusion Commission's (2015) Report on: *Financial Inclusion, Improving the Financial Health of the Nation*.<sup>55</sup>

## 6 Technology and Financial Inclusion

As regards rural and remote regions, the use of technological means offers a solution against financial exclusion and, in most cases, may even be the only solution. Technology can prove beneficial also in those cases where

a lack of confidence is being observed in relation to the safety of transactions due to cyber-crime and fraud (identity theft).

Taking into consideration that the vast majority of the global population uses the Internet and mobile phones, there is already a good background for the development of time-and-money saving applications which would enable users to safely keep track of their financial products and receive information on new services.<sup>56</sup> However, new technologies cannot equally benefit everyone. According to a 2013 survey conducted in five EU member states, the most vulnerable social groups show a preference for traditional transactional channels and refuse to avail themselves of new possibilities, either out of ignorance or out of distrust.

Furthermore, alternative (non-bank) financial service providers are typically not within the purview of the supervisory umbrella and are therefore often left out of data collection. Not only does that represent a gap in the assessment of financial inclusion, it may also result in risks to financial stability going undetected. Financial transactions made through cost-effective transmission channels such as mobile networks may offer little customer protection.<sup>57</sup>

## 7 Concluding Remarks

- (a) A concrete measurement of financial inclusion (and exclusion) is far from simple as it concerns a multidimensional phenomenon that is difficult to assess.
- (b) A common example of voluntary financial exclusion is the choice on the part of over-indebted individuals to receive their incomes, whenever possible, in cash rather than in a dedicated bank account in order to avoid the risk of having their income withheld or seized by their creditors.
- (c) Financial inclusion facilitates ‘consumption smoothing’, as households are able to adjust their saving and borrowing in response to interest rate changes and unexpected economic developments.
- (d) Financial inclusion may support the central bank’s task of safeguarding financial stability through the (i) increased aggregate savings; (ii)

- diversification of the banks' depositor and loan base and (iii) lower credit risk average of loan portfolios.
- (e) When AML/CFT measures are particularly demanding, access to financial services is also affected negatively, especially for financial service providers working with low-income people. Accordingly, it is important to ensure that relevant measures are indeed proportionate and necessary to achieve their intended purpose.
  - (f) A low level of financial literacy is considered as an important obstacle to financial inclusion. However, if exclusion is due to non-personal factors, such as the current regulatory framework or market practices, financial literacy is not conducive to the achievement of financial inclusion.
  - (g) Financial inclusion of financially illiterate users would pose a greater risk for the financial system, for example, due to exposure to over-indebtedness and hence higher levels of NPLs.
  - (h) Financial education is commonly understood as the process through which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of (financial) risks and opportunities to make informed choices, know where to seek assistance and take other effective actions to improve their financial well-being.
  - (i) Coordinated efforts to enhance financial inclusion at international, the EU and national level were particularly strengthened in the last decade.
  - (j) The link between technology and financial inclusion is not straightforward. On one side, the use of technological means offers a solution against financial exclusion. However, it may also result in risks to financial stability and offer little customer protection.

## Notes

1. For a detailed overview, see Irving Fisher Committee on Central Bank Statistics (2016).
2. For a detailed overview, see World Bank (2014) and Irving Fisher Committee on Central Bank Statistics (2016).

3. See OECD (2005).
4. See United Nations Capital Development Fund (2006).
5. See Committee on Payments and Market Infrastructures (2016).
6. See European Commission (2008).
7. On this aspect see Ambarkhane et al. (2014a, b), Cámara and Tuesta (2014) and Demircuc-Kunt et al. (2015).
8. See on this below, under 3.
9. See World Bank (2014).
10. For example, if a new unreasonable obligation is added within the framework of “Customer Due Diligence—Know Your Customer” rules, certain segments of society (such as young persons, migrants, no-fixed addressed persons or persons seeking asylum) would be irrevocably excluded.
11. See Committee on Payments and Market Infrastructures—World Bank Group (2015), pp. 8–9.
12. Ibid., p. 9.
13. On the current Greek fiscal crisis, see, by mere indication, Stephanou (2013), Kazakos (2014) and Zimmermann (2015).
14. On enterprises’ access to finance in the euro area, which currently is partly also linked to financial exclusion, see European Banking Authority (2014).
15. On the issue whether financial inclusion can meet multiple macro-economic goals, see Sahay et al. (2015).
16. See Mehrotra and Yetman (2014) and (2015).
17. On this aspect, see Khan (2011), GPFI (2012), Han and Melecky (2013), Morgan and Pontines (2014), Rahman (2014), Basel Committee on Banking Supervision (2015), Dema (2015) and Irving Fisher Committee on Central Bank Statistics (2016), pp. 13–14, with further references.
18. On this crisis, see Gortsos (2012), pp. 127–129, with extensive further references.
19. See on this aspect Consultative Group to Assist the Poor (2005).
20. See on this aspect FATF (2013) and Shehu (2012).
21. On financial education, see in particular just below, **under 3.2**. On why *financial* advice cannot substitute for financial literacy, see Debbich (2015). On financial literacy and retirement planning, see

- Lusardi and Mitchell (2006a) and (2006b). On the role of banks' information policies on financial literacy and households' financial assets, see Fort, Manaresi and Trucchi (2014).
22. On the link between financial literacy and mortgage credit, see Geraldini, Goette and Meier (2010), Lusardi and Scheresberg (2013), Ooijen and Rooij (2014), Agarwal et al. (2015) and An et al. (2015). On whether financial literacy leads to smarter financial decisions, see Tew and Tew (2014).
  23. It is worth noting that knowledge of available financial products is an important prerequisite to financial inclusion. Several current surveys have shown that persons who are aware of at least five financial products, regardless of whether they make use of those, have attained a higher level of financial literacy in comparison to others knowing fewer products.
  24. See on this, Samy et al. (2005), Lusardi et al. (2009) and Atkinson and Messy (2015).
  25. See on this, Tetangco (2014) and Mitchell and Lusardi (2015).
  26. One example is banks' "de-risking" behaviour, which consists of turning away low-income customers, closing existing accounts or exiting specific business lines in order to reduce regulatory compliance costs or possible litigation risks.
  27. According to the OECD (2005), financial education is commonly understood as the process through which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of (financial) risks and opportunities to make informed choices, know where to seek assistance and take other effective actions to improve their financial well-being.
  28. On the various aspects of financial education, see Palmer et al. (2009), Wentzel (2013), Ambuehl et al. (2014a) and (2014b), Gerrans and Heaney (2014), Brugiavini et al. (2015) and Neuberger (2015).
  29. See Ambuehl, Bernheim and Lusardi (2014).
  30. See details in OECD (2013a), OECD (2013b) and Tetangco (2014).
  31. On the AFI's work, see at: <http://www.afi-global.org>.
  32. See at: <http://www.g20.utoronto.ca>.



33. These principles are available at: <http://www.g20.utoronto.ca/2010/to-principles.html>.
34. On this forum's work (<http://www.gpfi.org>), see, by mere indication, GPF (2012) and (2014).
35. Additional information on this project can be found at: <http://remittanceprices.worldbank.org/en/project-greenback-20-remittances-champion-cities>.
36. See FATF (2013).
37. These are available at: <http://www.fatf-gafi.org/publications/fatfrecommendations>.
38. See on this at: <http://www.ebrd.com/what-we-do/financial-inclusion.html>.
39. See OECD (2005).
40. See on this OECD (2013a).
41. See on this OECD (2013b), Mancebon et al. (2015), and at: <http://www.oecd.org/pisa>.
42. See on this at: <http://www.oecd.org/daf/fin/financial-education/financialeducationandwomen.htm>.
43. Basel Committee on Banking Supervision (2015): "Guidance in the application of the Core principles for effective banking supervision to the regulation and supervision of institutions relevant to financial inclusion", Consultative Document, December, available at: <http://www.bis.org/bcbs/publ/d351.htm>
44. Basel Committee on Banking Supervision (2012): "Core principles for effective banking supervision" September, available at: <http://www.bis.org/publ/bcbs230.htm>.
45. See in the secondary sources Basel Committee on Banking Supervision (2015).
46. On the role of the Basel Committee (and the other international fora which are based in Basel under the auspices of the Bank for International Settlements [the 'Basel Process']) in financial literacy, see Caruana (2012).
47. See Gómez (2015).
48. OJ L 257, 28.8.2014, pp. 214–246. It is noteworthy that this Directive was adopted on the basis of Article 114 of the Treaty on the Functioning of the European Union (the 'TFEU') on the approxi-

- mation of laws and not of Article 14 TFEU on ‘services of general economic interest’. See on this, Ponce (2015).
49. This Directive is the by-product of a European Commission’s Report (see European Commission [2008]) and a Consultation Document (see European Commission [2009]).
  50. **Directive 2014/92/EU**, Article 29(1).
  51. OJ C 326, 26.10.2012, pp. 391–407.
  52. On the SEPA see at: [http://ec.europa.eu/finance/payments/sepa/index\\_en.htm](http://ec.europa.eu/finance/payments/sepa/index_en.htm), and at: <http://www.ecb.europa.eu/paym/retpaym/paymint/html/index.en.html>.
  53. See Committee on Payments and Market Infrastructures—World Bank Group (2015), p. 36.
  54. See on this Van den Bergh (2012).
  55. See Financial Inclusion Commission (2015).
  56. See on this Ambarkhane et al. (2014a, b), Financial Stability Institute (2014), Dhar (2015) and Chakraborti and Sanyal (2015).
  57. See Irving Fisher Committee on Central Bank Statistics (2016).

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# 16

## Post-Crisis Corporate Insolvency and Creditor Rights Greece: An Assessment of the Post-Crisis Corporate Insolvency Framework

Constantinos N. Klissouras

### 1 Introduction<sup>1</sup>

It is a precarious endeavor to write about insolvency and creditor rights law in Greece in the Fall of 2016.<sup>2</sup> The extraordinary circumstances, which have afflicted the domestic economy since the onset of the crisis, have pushed business<sup>3</sup> insolvency and creditor rights law into a state of flux and almost constant “reform”, stressed the capacity of the court system beyond its limits, and compromised the conceptual clarity, with which at least part of the legal community viewed insolvency law issues in the past.

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It is commonly accepted today that insolvency law did not assist to dampen the domestic economic crisis in the least. Powerless as any insolvency law system might be by itself as a remedy to *macroeconomic* imbalances, Greek insolvency law neither was, nor was perceived to be, an efficient instrument for redressing the *microeconomic* causes of business failure, by facilitating (a) an orderly market exit for non-viable businesses and (b) the elimination of the *causes* of distress in viable businesses, through financial *and* organizational restructuring and changes of asset ownership and control.

Publicly available data are scarce, as a result of the absence of central insolvency and court proceedings registers. There are assumed to have been<sup>4</sup> under 500 insolvency proceedings annually since 2011, but there are no hard data on the outcome, duration, cost, and recovery rate, overall and per creditor class. The Athens Court of First Instance records show a dismal picture in relation to *restructuring* (art 99 IC) applications.<sup>5</sup> The World Bank Doing Business Report 2016<sup>6</sup> ranks Greece 54th, with an average proceeding duration of 3,5 years and an average recovery of under 35%, ahead only of developing Asian, African, and Latin American countries and way behind the rest of the world and OECD high-income country averages.

This limited data significantly understates the degree to which insolvency proceedings have become practically *irrelevant*, despite remaining legally mandatory, for the resolution of insolvency. A rough comparison with the number (ca 452,000 loan files) and aggregate nominal value (ca €64,8 bn) of non-performing wholesale loans (“NPLs”) to the banking system<sup>7</sup> and with the aggregate debt of businesses for taxes (ca €63,3 bn for commercial *companies*)<sup>8</sup> provides at least high level corroboration to the empirical observation that a vast majority of insolvent debtors never resorts to formal insolvency proceedings.

## 2 Institutional Constraints

Both under the older punitive and stigmatizing models and under the modern “efficient restructuring or orderly exit” forms, insolvency law is a quintessentially *liberal* legal institution, where the risk associated with

business failure is placed on the shoulders of creditors, who form a “loss sharing society” founded on the principle of *pari passu* and are given practically complete decision-making powers for the future of the insolvency estate.

Modern theory, and the law and jurisprudence in the more advanced economies, attributes a clear *unidirectional* function to insolvency law: not to “maintain employment”, and not to extend the life cycle of uncompetitive businesses, but to *preserve value*, by facilitating (a) an orderly market exit for non-viable businesses, so that their assets and the financial (and human) capital engaged in their operation may be put to more productive uses, and (b) the restructuring of viable businesses without major disturbance to their going concern value and operations, through the elimination or reduction of the *microeconomic* (financial, operational, governance, ownership or other) constraints, which are the causes of distress.

Although this now constitutes an integral part of applied EU and international legislative policy,<sup>9</sup> it would be fair to say that in Greece neither this nor any other consistent paradigm about the function of insolvency law was ever really shared between legislators, courts, academics, and practitioners.

It should, therefore, be unsurprising that insolvency law has never been the preferred or the dominant method for organizing collective creditor action and exercising creditor rights upon the occurrence of business failure. As creditor autonomy and the principle of *pari passu* are compromised, and incentives to resort to insolvency proceedings are weakened through “special” protection of significant classes of creditors, insolvency proceedings become a less efficient, less attractive, and less relevant debt recovery path.

Generally preferred claims are a case in point. The value available for recovery to secured and unsecured creditors has for decades been eroded by the introduction of general preferences, that is, super-priority for classes of debt largely irrelevant for preserving value (taxes, social security, long overdue wages and severance indemnity, agricultural collective claims). Since public sector creditors have never engaged in the restructuring of any debtor, and in fact have opposed most restructuring proceedings for bureaucratic reasons, both secured and unsecured creditors have been much less interested to pursue early filing and early restructuring.

Another example may be found in 1923 and 1959 legislation,<sup>10</sup> which exempts security interests in favor of *banks* created in the period approaching insolvency (“suspect period”) and securing *both* pre-existing debt and new financing from both automatic and discretionary avoidance by the liquidator. Not only have these rules aggravated the late filing or filing avoidance biases, which are intrinsic to an owner-manager economy, but they have also significantly weakened the incentives of banks to initiate insolvency proceedings; banks being the most significant creditor class by reason of their control over real assets, this has diminished the importance of insolvency law as a market exit and restructuring instrument.<sup>11</sup>

The dominance of micro-enterprises, with negligible hard assets and weak or no governance structures, inevitably fostered the development of primitive forms of security (e.g. check financing, leveraging criminal liability, and mortgages on the property of owners, rather than of businesses), resulting in further classes of holdouts, that is, creditors disinterested in pursuing recovery through insolvency and restructuring.

The crisis years added further constraints as a result of the domestic *banking* crisis. Restructuring debt in a contracting and deflationary economy requires capital necessary to record losses by liquidating collateral below the nominal loan amount, or selling the loan outright at a discount to a buyer, who is more fit to take control of and restructure the debtor. It also requires assets to finance new capital and operating expenses. Finally, in a market dominated by SMEs and owner-managers, it presupposes readiness to manage assets hands-on, replace management, and enforce ownership and control changes. As none of these conditions held for Greek banks once the banking crisis set in, the most significant creditor class generally neither sought nor accepted a decisive role in insolvency and restructuring proceedings.

Institutional constraints have been equally strong on the debtor side. While a handful of domestic groups may boast modern governance and management independence, the “owner-manager” culture, which continues to prevail even in mid-sized and larger businesses, is fundamentally hostile to insolvency in general and to associated management and control changes in particular. For this group of stakeholders, poorly designed restructuring filings have most frequently had the sole function of staving

off creditor measures for such periods of time as were needed for the implementation of owner-manager plans, more often than not without regard to the preservation of value for creditors and other stakeholders.

Personal liability of directors, and, recently, also of shareholders,<sup>12</sup> for tax, social security, and labor claims practically eliminates the incentives of managers and owners to open insolvency and restructuring proceedings, since this neither improves their personal debt position nor relieves them from administrative and criminal liability.

Many of these (and other) constraints have government interventionism as their ultimate common denominator. Outcomes, however, might have been substantially superior if better insolvency law, applied under better rules for the trial of private disputes, had provided market participants with better tools to enforce and to restructure.

A comprehensive framework for the out-of-court restructuring of non-performing business debt has just been tabled in the form of a bill as this chapter is being sent to print, which aims to provide tangible solutions to a series of attendant issues, including creditor organization; commercial, banking, tax and related confidentiality and secrecy obstacles, which obstruct the objective assessment of a debtor's position outside formal insolvency proceedings; selecting between competing restructuring plans proposed by the debtor and one or several creditors (including employees); and the abolishment of (feared) personal liability for directors and officers of banks, NPL managers, and public officers for proposing or accepting write-downs and write-offs, where these are considered necessary and appropriate.

## **3 The Current State of Insolvency Law and Creditor Rights Law**

### **3.1 Origins and the Insolvency Code**

In historical time, Greek insolvency law has made considerable progress since 1990: having fallen into obsolence for decades in relation to significant corporate insolvencies and been limited in practical significance to individual merchants and completely non-viable companies, the

Napoleonic precursor<sup>13</sup> to current law was repealed in 2007 with the enactment of the IC.

This was preceded by several attempts to enact better insolvency law for larger businesses: creditor administration and going concern liquidation under supervision by the Bank of Greece in the 1950s,<sup>14</sup> the State-funded restructuring model of 1983,<sup>15</sup> and, importantly, the paradigm-shifting framework for market-driven restructuring agreements and going concern business and asset sales of 1990.<sup>16</sup>

In its original 2007 form, the IC remained uninformed of the political and economic developments, which had necessitated past legislation for the efficient conduct of larger and complex insolvencies, and did not seek to use the knowledge and experience gained from its application. While it modernized *substantive* insolvency rules, codified them into a single statute, and aligned them with EU law and international legislative guidance,<sup>17</sup> it remained captive to the antiquated model of its precursor as regards rules of process.

The IC still envisaged a lengthy filing, opening, liquidator appointment, asset “sealing”, and claims verification process, alongside a system of appeals against acts of the liquidator and the supervising judge, which arrested the progress of the insolvency. The function of liquidator continued to be restricted to lawyers with five years of practice, even though it was well understood at least since 1983 that significant organization and resources are required to perform liquidator duties in a timely, efficient, and value-preserving fashion. Although, in theory, restructuring was (and is) one possible outcome of an insolvency proceeding, *not one* such restructuring has taken place in the already nine years since the IC was enacted.

Departing from a good idea, the IC included a thoughtless implementation of a workout process known as “insolvency mediation”: on the debtor’s application, the court would appoint a mediator to negotiate a restructuring agreement between the debtor and its creditors; for the duration of the process, the court could, and invariably did, order a stay of action, to protect the debtor’s assets from individual creditor measures; however, even if concluded, such an agreement was *not* binding on dissenters and holdouts.

Quite predictably, this proceeding led to a wave of debtor filings and stay orders, which were kept in place much longer than intended or allowed by statute, and paralyzed individual and collective enforcement for four years,

until it was repealed in 2011 and replaced with an improved version of older 1990s law on restructuring agreements and going concern asset sales.

### 3.2 Perpetual Reform Without a Paradigm

Insolvency law has been substantially amended six times since enactment of the IC,<sup>18</sup> and a seventh major reform was enacted at the end of 2016.<sup>19</sup> Greece adopted the UNCITRAL Model Law on Cross Border Insolvency in 2010,<sup>20</sup> although the Model Law had been around since 1997 and could have easily been incorporated in the main body of the IC.

In 2011,<sup>21</sup> insolvency mediation was repealed altogether, and two types of proceeding previously abolished were re-enacted in improved form<sup>22</sup>: restructuring agreement proceedings and going concern sale proceedings (known as “special liquidation”), both previously legislated in 1990 (based on older models of 1983 and 1956) and used with considerable—by no means complete—success.

Restructuring agreement proceedings provided a framework for assisting the conclusion of a workout between the debtor and the statutory quorums of creditors (60% overall, of which at least 40% secured), which is subject to approval by the court and thereafter binding on dissenters and holdouts. They were foreseen as either “one-phase” proceedings (“prepacks”), where the debtor would apply for court approval of an agreement with creditors already made out-of-court, or as “two-phase” proceedings, where the debtor would apply for the opening of the proceeding and customarily request a stay of action and the appointment of a mediator to facilitate debtor-creditor negotiations, leading up to a second hearing for court approval of an eventual workout, or the closure of the unsuccessful proceeding.

This framework was enacted as (and in part continues to be)<sup>23</sup> a “special” or “parenthetical” chapter in the IC, and—against any systematic logic and principle—art 99§11 IC proclaims the general part of the IC *inapplicable* to this chapter unless specifically provided otherwise.

Many rules of the general part of the IC of critical importance for the speed and efficiency of an insolvency proceeding fell victim to this approach. *Vis attrativa concursus*, that is, the rule (art 53) that as of the opening of insolvency proceedings, the insolvency court becomes the



competent court for substantially *all* disputes arising out of or related to the insolvency, is one notable example: by purporting to disapply the general part of the IC, the law now allows a restructuring agreement proceeding to be thwarted by individual creditor measures before another court.

This “special” proceeding was in fact *identical* in substance and had the same purpose and objective with the “restructuring agreement” (art 106a IC), which creditors could reach with the same quorums and the same results *after* verification of claims in the course of an ordinary insolvency, failing which going concern or piecemeal liquidation would be attempted in the same proceeding, before the same court and supervising judge, by the same liquidator, on the basis of the same (usually voluminous) evidence, and with already constituted creditor groups and committees.

By setting restructuring agreement proceedings apart from the main corpus of insolvency law, by forcing separate applications, opening judgments, court composition, supervising judge, liquidator, creditor meetings, notices, and all else associated with conducting two proceedings, rather than one, the legislator created a *less* efficient and effective whole: not only did this conservatively add around two years to the period of time required to complete an insolvency cycle, but it also detracted *seriousness and finality* from the process: debtors quite commonly opened restructuring agreement proceedings in order to gain time for the benefit of shareholders, rather than to actually resolve, one way or another, the microeconomic causes of insolvency.<sup>24</sup> The law maker’s effort to resolve this important issue in the 2016 reform is briefly discussed in §3.3.

The same analysis applies to the now repealed “special liquidation” proceeding, that is, going concern sale, also enacted as a “special” proceeding, in one extremely long and verbose article (106.11 IC), while in fact it is identical in substance and objective to the going concern sale, which may be attempted in the course of an ordinary insolvency proceeding after claims verification.

The historical idea<sup>25</sup> behind all variants of a “special”, rather than an “ordinary”, going concern sales, is simple: going concern value *cannot* survive long and inefficient general insolvency proceedings; therefore, it should be possible to put “larger” or “more significant” debtors through a more efficient process. But if “general” insolvency proceedings are slow and inefficient, then they can’t possibly be “more” suitable for *smaller*

insolvencies, where there is *less* value available to pay for skilled and well-resourced liquidators, process costs, and future trading; and the proper way to fix a bad framework is to improve the rule, rather than to introduce a series of exceptions.

The policy implication is equally simple: efficiency and effectiveness may be improved through the integration of *all possible outcomes* of an insolvency into a single proceeding, driven by the same actors, on the basis of the same factual material, without repetitive steps and stages, and in a manner which will *arrive at a final solution*, whatever form that might take, consistent with the decisions of creditors: a workout, failing which an attempt at a going concern sale, failing which a piecemeal liquidation, followed by distribution of the proceeds.

The 2011 legislator acknowledged that shareholders rarely support, and usually thwart, restructurings, as evidenced by the new rules for cramming down equity *post-judgement*, if shareholders refuse to vote corporate action—commonly, their own dilution and new governance structures—contemplated in the restructuring agreement ratified by the court.

However, the law maker elected to ignore the generalized *lack of management independence* in the vast majority of Greek companies, and provided that only the debtor, *but not* creditors, should be entitled to *open* a restructuring agreement proceeding. As a result, restructuring agreement proceedings continued to be abused for the protection of old equity and owner-managers, rather than for the efficient restructuring of debtors, at the initiative of any interested stakeholder. The law maker of end-2016 took a bold step to redress this: the same creditor quorums may now conclude and file for court approval “creditor only” restructuring agreements, made without the debtor’s participation, if the debtor is insolvent, as further discussed in §3.3.

Until 2015 the IC was oblivious to the importance of post-petition and post-opening finance and did not provide for priority ranking, except in the very limiting case where such finance had been extended at the lender’s own risk during a restructuring agreement proceeding *and* an agreement was eventually approved by the court. We are not aware of *any* debtors financed in reliance on this ranking rule (rather than in reliance on other collateral).

In the 2015 reform, the rule was revisited, and the legislator decided in part *not to decide*, but—we infer—leave it to the courts: post-opening

financial and trade credit enjoyed super-priority *to the extent so provided* in restructuring agreements (whether of the “parenthetical” or of the “ordinary” variety), but under the ambivalent wording of (old) art 154(a) IC, it benefited “to the extent provided by the restructuring *proceeding*”.

This wording was literally meaningless<sup>26</sup> (“proceedings” don’t provide for claim priorities—rules of law and creditor agreements do), and the law maker must have resigned to it, in order to pass to the courts the problem of when post-insolvency credit should take priority over insolvency claims; however, court judgements effectively “writing” such a ranking rule will be directly unconstitutional in the event a restructuring agreement is *not* concluded or approved: no rule or principle of law entitles courts to write the substantive rules on who gets what out of the proceeds of any enforcement. A clear and comprehensive ranking rule enacted in the 2016 reform now creates super-priority for post-petition and post-opening financial and trade credit, as discussed in §3.3

An antiquated doctrine, which survives in the IC to date, perplexes things further in relation to post-opening trading and the treatment of associated claims. Under art 16 IC, the insolvency estate includes the debtor’s assets *at the time of the opening*.<sup>27</sup> Therefore, in theory, post-opening assets remain outside the liquidator’s reach and immune to creditors, while insolvent trading is misleadingly encouraged by the “prospect” of a restructuring agreement, but without a prior decision of the group of creditors.

Originally serving the purpose of a “fresh start” by positing a “segregated” group of post-acquired real and financial assets, which could be used to operate and to obtain credit, this construct is today neither useful nor necessary: simply putting new credit ahead in the ranking order not only achieves the same objective but—subject to policy considerations—may increase transparency, improve governance and accountability, and foster debtor-creditor trust and cooperation.

There is no conceptual solution to the problem of post-insolvency (post-petition/post-opening) trading, that is, the *overt* (rather than the “guerrilla”) continuation of the debtor’s operations, and the treatment of claims associated with it, other than *accelerating creditor decisions* for both parts of this equation; this is something, which qualified liquidators with appropriate resources, may achieve. Once rules to this effect are in place, significant legal complication, and significant transaction costs, simply disappear.

Another well-intended, but overall bad, reform idea took the form of yet another “variety” of restructuring agreements and going concern sales (this time called “special administration”) in 2014.<sup>28</sup> Aside from being the first attempt at a solution to the treatment of post-opening financial and trade credit,<sup>29</sup> the new “extra special” rules differ in no meaningful way from the “special” proceedings of the IC, except in respect of the size and composition of the creditor quorums required: not “60%/40%” this time, but 50.1% of creditors (secured and overall), which must include “at least two banks, if the debtor has been financed by more than one bank, holding at least 20% of the debtor’s overall obligations”.

It remains a mystery whether the law maker intended this variety or restructuring agreement and going concern liquidation proceedings to be a “temporary emergency” proceeding, in line with the emergency and temporary voluntary workout rules contained in previous articles of the same statute, or a permanent “extra special” to the “special” rules of the IC.<sup>30</sup> It is, however, obvious that the proliferation of “varieties” of restructuring agreements and going concern sales does not improve the quality of the law as a whole.

One lesson to draw from this example is that insolvency law is not “regulatory” law of transient and changing importance but a basic pillar of a market economy; it is, therefore, not an instrument for solving problems unrelated to insolvency—in this case the well-known problem of coordination between several banks as creditors of the same debtor, which is now appropriately addressed in the recent amendment to the Banking Code of Conduct.<sup>31</sup>

### 3.3 Latest IC Amendments

The IC underwent further significant amendments in 2015<sup>32</sup> and in the end of 2016.<sup>33</sup> Although these further waves of reform by no means eliminate all or most of the previous imperfections, they do include rules, which may dramatically improve efficiency and effectiveness of insolvency law in force.<sup>34</sup>

As a general note, the law maker once again declined to treat insolvency law as the liberal institution it needs to be for the maximization of

its efficiency and effectiveness. Among the many examples, instead of being given enhanced roles and responsibilities, creditor committees were abolished as a formal body, and the role of the liquidator and the supervising judge, rather than of creditors and creditor groups, were reinforced, while the State, the most important creditor after the banking system,<sup>35</sup> remains partially outside insolvency proceedings.<sup>36</sup> Both factors are likely to prove key impediments to speed, cost, and overall efficiency in many circumstances.

In the course of the 2015 amendments<sup>37</sup> the profession of insolvency administrator was regulated and opened to chartered accountants and accountancies (although not to financial institutions, and accredited specialists from the fields of finance, business administration and related disciplines, as originally expected), and the debtor's final release from insolvency claims three years as of the opening judgement (absent fraud and related insolvency offences) was legislated in line with EU recommendations.<sup>38</sup>

The 2016 reform has considerably broader scope and consequences, and a number of important new rules must be highlighted.

Partially in line with the recommendations made in this chapter,<sup>39</sup> the new law makes a fair attempt to integrate restructuring agreement proceedings with general insolvency proceedings, and eliminate the procedural duplication and substantive overlap noted. If the debtor is insolvent, then both the debtor and creditors, concurrently with the filing of a pre-pack restructuring agreement (or application for the opening of a two-stage restructuring proceeding), must file an application for the opening of general insolvency proceeding, for the event the restructuring agreement is not achieved or not ratified by the insolvency court. This should lead to very considerable savings of time and resources, as well as add seriousness and finality to restructuring filings, which have previously been abused for the protection of the shareholders of insolvent debtors.<sup>40</sup>

The law maker took a further bold step in the direction of cramming down old equity *pre-filing*: if a debtor is legally insolvent (as is the rule for most relevant businesses), then creditors may conclude and file a restructuring agreement for court approval *without* the debtor's participation (new art 100§1 IC), while a court-appointed special representative exercises voting rights belonging to shareholders, who refuse to vote corporate action required to implement the agreement approved by the court (new art 101 IC).

Consistently with the election to give to defined creditor quorums pre-filing the power to decide *any* restructuring and rehabilitation measures for insolvent debtors, *including* the sale of the debtor's business as a going concern, *without* the debtor's participation, the law maker *abolished* the 'special liquidation' proceeding, which had been enacted in 2011,<sup>41</sup> but shied away from permitting the implementation of such restructuring measures *pre-verification*, that is prior to completion of claim filing, verification, adjudication of challenges and final ranking, thereby eliminating the possibility of fast restructurings for insolvent, but viable, debtors even after the statutory creditor quorums have decided and even designed such restructuring pathways.

The IC now has a clear ranking rule for post-petition, post-opening and post-approval financial and trade credit (which includes the value of goods and services provided to the debtor) extended to permit the continuation of the debtor's business pending conclusion and/ or court approval of a restructuring agreement for up to six months from filing, as well as post-approval for the event the restructuring agreement is subsequently terminated or set aside for any reason, without a time limit. Such credit now ranks ahead of all other generally preferred and secured claims *whether the restructuring agreement is approved or not*, as well as in the event it is subsequently set aside. This clear general preference should now permit the isolated assessment of a debtor's credit risk (quite apart from legal risk, which no longer impacts ranking) for the purposes of distressed financing, and make substantially more funds available to viable debtors with bad balance sheets.

The law simplifies stay of action in the course of restructuring proceedings, subject to evidence that there is sufficient creditor commitment to permit a *prima facie* inference that the proceeding will be successful: stay is now *automatic* (without the need for a court order) for up to four months upon the filing of a restructuring agreement for court approval and may be granted by court order if creditors representing 20% of total claims, regardless of class, claims state in writing that they participate in negotiations towards an agreement, if the court assesses that an agreement is likely and will avert insolvency.

Several other new rules simplify, and limit permissible opposition to,<sup>42</sup> going concern sale proceedings and, under the caveats already set out about having such "special" proceedings, solve technical issues in a correct direction.

New rules purporting to shorten the deadlines for the various stages and acts of the process will predictably be ineffective, not only because of current court docket loads but also in view of standard jurisprudence that “deadlines” in statute, which impose duties on a judge, are construed as *indicative and not mandatory*. Jurists have long called such rules “wishes for a speedy decision” with good cause: institutional change occurs as a result of appropriate incentives and resources, which no mandated deadline may substitute.

A new rule (art 28 IC) purports to invalidate terms, which provide for automatic termination of current contracts upon a party’s insolvency. Although it does not directly affect contractual rights to terminate *by notice*, it does introduce conceptual uncertainty as to what parties may validly agree, under what conditions a termination by notice would be deemed ineffective, and to what extent a court is entitled to order the post-petition and/or post-opening continuation of current contracts.

The new rule (art 99§1 IC) on the substantive conditions for the opening of restructuring proceedings permits debtors (but not creditors) to apply not only subject to “present or threatened inability to meet monetary obligations as they fall due”, but also “even if the debtor faces no present or threatened inability to meet monetary obligations as they fall due, if, in the opinion of the court, there exists a simple possibility of insolvency, which may be remedied with this proceeding”. An almost identical<sup>43</sup> rule was considered and rejected in the 2011 reform.

As we had opportunity to point out elsewhere,<sup>44</sup> rules purporting to dissociate collective proceedings from economic insolvency are particularly harmful. Under previous law, as under most modern insolvency laws, the opening of proceedings premised on economic insolvency (under whatever name) was invariably premised on a fundamental deficit in either or both of a debtor’s net position and cash flows, with elements of permanence and/or irreversibility suggesting a present or impending collective action problem.

By contrast, the new rule blurs the line between “individual enforcement” is a category / technical term, encompassing a large number of procedural acts and measures, as well as entire proceedings / non-countable, so-called individual enforcement, that is, the remedies available to each individual creditor, and collective proceedings, which entail any form of a stay of action and/or other consequences to the rights and overall legal position of non-participating and dissenting parties.

The concept “simple possibility of insolvency” is manifestly devoid of specific or quantifiable content, and the IC sets out no normative criteria for its specification. Thus, the very formulation of the applicable substantive rule (“what is the condition of eligibility for restructuring proceedings, other than present or threatened insolvency?”) is deferred to the judgement of the insolvency court.

Aside from its latent unconstitutionality (Greek courts apply, but are not entitled to write, law), the new rule is a source of uncertainty *ex ante* (before any specific judgement) on whether any given business is or is not likely to become subject to a restructuring proceeding and thereby have its creditors bound by a stay of action and/or sustain the qualitative and/or quantitative modification of their substantive rights and claims. At the limit, the new rule casts uncertainty on the binding force of private agreements (*pacta sunt servanda*) and the effectiveness of any trial and individual enforcement measure.

Since this condition for the opening of a restructuring proceeding is not clearly specified in statute, the right of creditors to oppose it, in exercise of fair trial rights, is compromised. Thus the new rule treads on the verge of both direct and indirect violation of the rights of fair trial and private property, protected by the Greek constitution and the European Convention on Human Rights, all of which prevail over ordinary law.

While the factual circumstances, which may give rise to the “simple possibility of insolvency”, are conceptually infinite, there is no normative or policy ground for the elevation of a class of unknowns into statutory conditions of stays and cram-downs, if a debtor is able to meet its obligations fully: such circumstances neither present a collective action problem to be solved through a collective proceeding nor warrant the granting to debtors of “discretion” over the punctual performance and overall enforceability of their obligations.

### 3.4 The New Code of Civil Procedure

Greek insolvency and creditor rights<sup>45</sup> law is strongly court driven. Therefore, it can only be as efficient and effective as the procedural framework for the adjudication and enforcement of private property rights embedded in the Code of Civil Procedure (“CCP”).



The importance of efficient and effective civil procedure law as a pillar of market economies based on property rights is now universally recognized as a matter of applied legislative policy<sup>46</sup>; in the case of Greece, this is not reflected in the frequency and unsystematic nature of amendments to the CCP. “Accelerating” the adjudication of disputes is the ubiquitous reason cited for each of the 38 laws recently counted to have been passed in recent years, including 3 major and many more minor amendments of the CCP,<sup>47</sup> none of which has apparently succeeded in improving either speed or quality of trial.

Enacted in its original form in 1968 as the artful product of proceduralist erudition, liberal in letter and spirit, and a direct descendant of the (law on) Civil Procedure of Georg Ludwig von Maurer of 1834, the CCP gradually fell behind the exponential increase of the complexity of markets and transactions, the sheer quantity of written domestic and European law in force, and the number and complexity of actions brought before the courts.

Failing to acknowledge the *causes* of the progressive deterioration of the speed *and* of the quality of trial, which lies precisely in that the law creates perverse incentives for all the actors involved repetitive, successive reforms failed to redress it, leading Greece to become one of the least predictable and efficient environments for the adjudication and enforcement of rights in Europe. In 2015 the average time for adjudicating a commercial dispute was a dismal 1580 days *only for the first instance* (up from 817 days in 2011).<sup>48</sup>

We have still not solved the problem of legal uncertainty born out of *contradictory jurisprudence*. It is “case law” is non countable. standard case law of the European Court of Human Rights that contradictory jurisprudence is in principle a violation of the right to a fair trial protected by article 6 ECHR,<sup>49</sup> which may be tolerated only to the extent it is caused by the geographical organization of jurisdiction (i.e. because it is impossible and prohibited to “harmonize” the concurrent interpretation and application of the law by different judges trying different matters in different places, but not in the case of contradictory jurisprudence *by one and the same court*, and definitely not by one and the same judge, trying different cases), and *provided that* there exist superior courts with the task of establishing the appropriate single and unitary position on the true meaning of the law.<sup>50</sup>

Oblivious to this imperative of modern trial, our CCP tolerates the casual interpretation of the law in force in contradictory ways, not only by different courts but also by one and the same court; to take but one example, for over a decade, the First Chambers of our Supreme Court holds that you *cannot* stop the payment of a demand guarantee alleging abuse; the Second Chambers holds that, in fact, you can.<sup>51</sup>

Implementing obligations undertaken to its international creditors, Greece adopted a new CCP in 2015 (in force as of January 1, 2016). There are no *travaux préparatoires*, no impact assessment, and only a rudimentary explanatory report. Once again, the intention behind the reform is to accelerate trial; and, once again, this is sought in paternalist ways, in some cases simply by wishfully “instructing” shorter hearing dates and faster handing down of judgements and in other cases by purporting to restrict aspects of the fundamental right to a fair trial.

Examples abound. The new CCP practically *eliminates* the obligation for conservatory measures judgements to be *reasoned*,<sup>52</sup> in direct violation of art 93§3 of the Constitution; more precisely, it proclaims “summary” reasons to be sufficient, but in a culture where “complete” reasoning is dramatically lacking (on which more below), this is equivalent to a *carte blanche* to hand down judgements without stating reasons.

The importance of conservatory measures judgements has risen exponentially in recent years, as a result both of technological change and the acceleration of transactions and of the bottleneck in the court system, which has transformed interim relief into a longer-term remedy. Aside from being a cornerstone of justice in a democracy, the obligation to state reasons for *all* judgements underpins judicial discipline in making correct ones, which embody the strict application of the law, rather than personal moral, philosophical, economic, or political convictions. Regardless of the personal integrity or erudition of any number of judges, once this discipline is removed, the risk of negative externalities arising out of wrong or biased judgements, and therefore of generalized legal uncertainty, rises uncontrollably.

The new CCP makes the examination of witnesses in ordinary proceedings *subject to the discretion of the court*, allegedly in order to end the wasteful abuse of oral evidence by litigants and thereby expedite hearings in open court. Instead of efficiently organizing the taking of oral evidence *outside* the court, the law now relegates a main aspect of the fundamental

right to a fair trial to a matter of judicial discretion. It no longer matters whether a litigant *elects* to use oral evidence (not only adduce her own but also cross-examine adverse witnesses) but whether a judge believes this is necessary.

It is quite true that the old rules on oral evidence were altogether little more than institutionalized charade: courts, litigants, and lawyers first obtained knowledge of the identity of witnesses in open court; only one witness per litigant per case was allowed, a rule which made hearsay inevitable and invited direct perjury; parties were under no obligation to give notice of the identity of witnesses or the subject matter of direct testimony, or to procure direct testimony in writing, so as to permit meaningful cross-examination and challenges to a witness' impartiality and to the truth or evidentiary value of testimony. But even so, it was never the giving of oral evidence in open court, which really delayed trial.

Most developed jurisdictions have adopted simple, principled, and practical processes for the taking of oral evidence (and written evidence, through pretrial discovery), which serve the discovery of substantive truth and the maximization of litigant opportunities to obtain, give, and challenge opponents' evidence, *without wasting judicial effort or open court time*: pretrial exchange of evidence, written direct testimony, followed by oral cross-examination by way of deposition (i.e. in a freely chosen venue, with the participation of lawyers, witnesses, and a stenographer), sometimes followed by limited oral testimony in open court on issues specified by the court.

The new CCP did not adopt any of these ideas or address other fundamental flaws of old law with a dire impact and the quality and speed of trial.

Pretrial discovery, although in theory part of existing law,<sup>53</sup> has long fallen into obsolescence, and the new CCP makes no effort to revamp and integrate it into the pretrial process, although doing so would streamline the exchange of evidence *prior* to the filing of briefs by the parties, discourage moot arguments, and even cause the outright closure of some trials, where a party determines not to pursue a matter further in view of evidence adduced by an adversary.

Trials of private disputes remain in effect *non-public*. The letter of the Greek Constitution (art 93§2), conceived at a time when the entire trial

took place *at the hearing*, where documents were read out aloud, witnesses testified, argument was orally made, and everything was transcribed into the court's public record of the hearing, mandates a public hearing, but, read literally, not necessarily public access to trial proceedings conducted almost exclusively in writing.

Under the impact of widespread misconstruction of personal data protection laws, access to trial documents is subject to the permission of the court administrator (a judge exercising administrative functions), which is not reasoned. As a result, interested parties are often unable to secure access to judgements, party filings, and evidentiary documents, which may be critical for arguing or proving (especially) in insolvency proceedings. Insolvency judges with a strong predilection for personal data protection have sometimes gone so far as to deny insolvency creditors the right to obtain evidence of claims filed by other creditors, although this is manifestly a necessary precondition for challenging the ranking of claims in law and fact.

There continue to exist no detailed rules on *pleading and proving cases*, while the multiplication of the numbers of lawyers and disputes has eroded professional custom, which used to fill this void at least in part. This has a dire impact on the *reasoning of judgements*, the rules on which also remain inadequate, and this further impacts the *scope and function of appeals* to the superior and supreme courts.

Procedural laws, which allow the sequential specification of claims, and discourage litigants from disputing moot issues of law or fact (through court-assisted specification of the *disputed* points of law and fact, as well as through rules on costs and penalties on parties and lawyers for procedural misconduct), provide more tools, and a more natural procedural framework, for a judge to examine complex issues in an analytical manner and sequence and to deliver properly reasoned judgement at each stage of the process.

Conversely, the CCP continues to envisage a single "hearing"—which is now nothing more than a trial date where no "hearing" takes place—and a single, all-encompassing, judgement on *all* issues, whether disputed or not, ranging from jurisdiction, standing, merit in law, admissibility and evidentiary value of evidence, adjudication of objections, and detailed assessment of the quantum.

As a consequence, the formidable efforts, erudition, and bench experience of many Greek judges notwithstanding, the vast majority of judgements are in fact *not reasoned in law and fact* in any strict logical sense. For instance, the standard wording of judgements in the opening section on the assessment of facts is something to the effect that “from the entirety of the evidence submitted, bar none, it was proven that [...]”, followed by the judge’s composition of the evidentiary basis (minor clause of the syllogism) of the ordering part (conclusion). Some judgements are good, some are not, but most are not *reasoned* in any strict logical sense.

Under Greek law, an *appeal* is a remedy against *errors* in the first instance judgement. By logical necessity, an appeal must *specify the error*, and this is indeed the theoretical description on an appeal, which is *not* articulated as a *carte blanche* to seek a different or more favorable judgement from a superior court.

However, it is logically difficult to specify errors in a judgement, which is not logically reasoned in law and fact in the first place. In order to set aside manifestly wrong first instance judgements, the courts of appeal have developed case law, which runs against the letter of statute, holding that an appeal need not specify the error(s) of the first instance judgement, it being sufficient to allege “wrong interpretation or application of the law” and “wrong assessment of evidence”.

With such a *carte blanche* to appeal, and although data are, again, not publicly available, it is no surprise that *almost all* first instance judgements are appealed against, as if no first instance court ever made a *correct* judgement; most appeals *don’t* specify the alleged errors of the first instance judgement in any strict sense and are therefore hard to defend *as appeals*; thus, most appellate trials have the function of a *full retrial* of a dispute already tried. Not only is this today clearly inconsistent with art 6 of the ECHR, but it is also extremely wasteful, since it postpones enforceability and increases costs *without* even a *prima facie* indication that there is something wrong with the first instance judgement.

Further manifest defects of the old law were left uncorrected. Jurisdiction remains highly fragmented, and different judges will continue to be routinely called to different hearings of the same action and of related conservatory measures applications. Lower courts continue to

have no set of rules for referring significant issues of law to the Supreme Court for final resolution binding on all other courts and cases.

The above in no way diminishes the significance of reforms in the correct direction, such as the abolition of a multitude of “special” trial processes and the significant reduction of procedural opportunities to thwart enforcement (after final judgement or based on other enforceable titles).

## 4 Liberalization of the Market for Bank Debt

It has already been noted<sup>54</sup> that the efficiency and effectiveness of insolvency and creditor rights law, and of its development and improvement over time, is strongly correlated with the incentives of important creditor classes to use it, or avoid its use, and with their actual choices in the selection of means of enforcement and recovery. The evidence on the number of debtors and loans in distress versus the number of insolvency and restructuring proceedings<sup>55</sup> corroborates the empirical observation that banks, perhaps the most important creditor class (which controls collateral and, in normal circumstances, provides new funding), simply don't see insolvency proceedings as an efficient and effective recovery path.

While causation in one direction (bad law discourages its use) is fairly well understood, causation in the opposite direction (institutional constraints discourage use and improvement of the law) seems only to have caught the legislator's attention in the aftermath of the banking crisis.

Since mid-2015, there is some, by no means universal, consensus that banks are not the optimal active managers of their own NPLs, because of political obstacles, institutional capture, and agency costs. The response, which slowly found its way into law as of December 2015,<sup>56</sup> was the liberalization of the market for the management and transfer of bank credit, allowing specialist non-bank financial institutions to manage, acquire, and refinance debtors and loans in distress in more focused, active, and efficient ways.

Several reasons are perceived as obstacles to the banks' ability to optimally manage their own NPLs: banks are effectively limited in their ability to offer and accept debt write-downs and restructurings by moral hazard

and adverse selection concerns, that is, the fear of the consequences of NPL restructurings on the behavior of currently performing credits; staff interest in longer-term job security does not always align well with the objective of NPL portfolio rundown; fear of lender liability (to debtors, shareholders, other creditors, and employees) and career consequences for officers who authorize active NPL management strategies are perceived as sources of friction and disincentives; and institutional capture arising out of past non-arm's length lending practices poses complex problems for individuals and organizations.

We have elsewhere proposed the term “syndicate ethos”<sup>57</sup> to describe the idiosyncratic Greek market circumstances, where *most* corporate debtors have borrowed from *most* banks. Although seniority of security interests and other rights varies from case to case, actual recovery strategies often resemble the behavior of a “lender syndicate”, where each lender acts in concert, rather than in competition, with each other, as none of them has meaningful incentives to pursue any specific restructuring more actively or diligently than any other, but only an incentive to avoid, on average across all borrowers, losses greater than any other lender. We are not aware of published data, but our experience is consistent with the widespread impression that this has resulted in value-dissipating stalemates in a significant number of cases.

Against this backdrop of institutional constraints, we believe it is difficult to overstate the transformational force of the liberalization of the bank debt market for resolving the domestic banking crisis and for revamping the Greek economy: multiple independent creditors (and managers) in competition with each other must return to the enforcement arena before some form of equilibrium becomes attainable, and specialist, independent, and determined managers and new investors using optimal recovery strategies are the optimal agents for this change.

As forecast elsewhere in this volume, internal devaluation and structural reform make it almost inevitable that huge amounts of assets must change hands in the next several years; and the transition of control over operating and capital assets from large generalist organizations, still strongly preoccupied with their own balance sheet, asset, and governance issues, into the hands of specialist funds and fund managers with an aptitude for hands-on involvement and the ability to inject new capital, may develop a powerful cascading effect.<sup>58</sup>

Fixing the balance sheets of the banks is a key prerequisite for their return to normality and the business of financing the economy; it's not easily conceivable how this may be done while an overwhelming part of organizational energy is devoted to managing non-performing exposures.

Taking out businesses, which are uncompetitive, whether because they lagged commercially or technologically, or because they evolved on a malevolent enterprising paradigm, will not only free up capital for better uses but will also do much to *reshape the paradigm*, redirecting entrepreneurial energy and capital to internationally competitive activities attractive to foreign direct investment.

Bending the owner-manager culture has the potential to create champions in certain sectors but also to raise the standards for transparency, efficiency, ethics, and entrepreneurship across the spectrum.

Liquidity and fixed investment may free many solid businesses from the growth and competition constraints, which have limited their potential for several years, and expert guidance, assistance, and control will strengthen their governance, broaden their access to international capital markets, and enable many of them to shift to an internationally competitive mode of operation.

And finally, the principled and relentless exercise of creditor rights should eventually propagate awareness of the social cost of subsidized and uncompetitive businesses and non-arm's length credit, cast light on institutional failures in the public administration and the justice system, promote the culture of honoring agreements, and thereby enhance faith in the rule of law and social support for the institutions, which guard it.

## 5 Assessment and Policy Recommendations

Against this backdrop, what can insolvency law do for the economy, and what is one to do about the current state of insolvency law? Alongside political stability and macroeconomic policy, there is universal consensus in the applied policy recommendations of the EU, the IMF, and the WB<sup>59</sup> that insolvency and creditor rights law are a key pillar for development. Yet our own law-making record in this, as in other fields, is hardly encouraging.



A growing number of voices advocate the EU-wide convergence or harmonization of insolvency (which includes restructuring) law, as evidenced by the European Commission's initiative already under way,<sup>60</sup> and one may be confident that, if and when this grand project bears fruit, Greece will also avail of an efficient and effective insolvency framework courtesy of the EU. However, this is likely to be a long process and will not address the shortcomings of our general rules of civil process.<sup>61</sup>

## 5.1 Improve the Law-Making Process

The first and foremost policy recommendation, therefore, is none other than that we need to bring our law-making processes into the twenty first century, especially in technical fields such as insolvency, creditors' rights, and the rules of civil trial, in line with Greece's soft EU law-making obligations.<sup>62</sup>

We should commission exhaustive independent expert reports and problem and impact assessment studies and involve significant market participants in the debate in a structured and transparent way. We should record more and better data on the outcomes of insolvency and trial proceedings, and make them publicly available, especially for the benefit of academic and industry research.

We should utilize the best global standards, which are embedded in the analysis and applied policy recommendations of specialist international organizations, and borrow the best elements from the most efficient EU legal systems. And we should cease to treat insolvency and creditor rights law and the laws of civil trial as policy instruments and "regulatory" law of transient and changing significance.

## 5.2 Simplify, Rationalize, Put Experts in Charge

In the domain of insolvency (including restructuring) law, we set out above some of the reasons why we consider it imperative to unify and simplify all of the laws in force, in and outside of the IC, into a single instrument, which would envisage single and unitary insolvency proceedings, with a single opening judgement, for all possible insolvency outcomes. A first bold step in the direction was taken in the reform of 2016.

The law maker's reasoning for abolishing in 2011 single and unitary proceedings introduced in 2007 was that the Greek word for bankruptcy (*πτώχευση*) "carries stigma",<sup>63</sup> and therefore "liquidation" insolvency law should be separate from "restructuring" insolvency law; whether this is true or not today, replacing a word in statute would clearly be a much more efficient response than splitting insolvency law into "main", "exceptional", and "super exceptional" rules and proceedings.

The rules on prepacks should be strengthened, and further elements of creditor organization should be permitted in the pre-opening stage. For example, creditors having signed a prepack restructuring agreement may be automatically recognized as a group (overall and per creditor class) and may be permitted to elect creditor committees with court standing prior to a filing.

Unless creditor groups and committees have been formed in the pre-opening stage, the organization of creditors should be among the first priorities in any insolvency proceeding. Creditor groups so formed should be required to decide promptly (under the same quorums), and in a way binding on dissenters, how the insolvency will proceed in all respects, that is, by way of a restructuring agreement, going concern sale, or piecemeal liquidation, as well as whether any of these recovery paths will be attempted *before or after verification of claims*.

The general clauses of civil law, which permit the judicial modification of current contracts (so-called "formative" rights of arts 288 and 388 CC), should be explicitly combined into substantive insolvency law. An 'enabling' rule enacting in the 2016 reform now provides that successful exercise of such rights *outside* a restructuring proceeding 'may' be provided as a condition precedent or subsequent to the validity of a restructuring agreement (new art 103§4 IC). Such 'enabling' rules are patently redundant (and damaging) in a constitutionally free economy, where anything not specifically prohibited for a valid reason, may become the subject of contract. Jurisdiction for the application of these rules (e.g. for the reduction of lease and rent payments, to cite one well-known example) presently vests with the ordinary courts, upon individual application of a party to the contract; restructuring agreements and going concern sales would become much more efficient, if jurisdiction were given also to the insolvency court directly, thereby allowing the court to solve substantially *all* matters pertaining to the continuation of the debtor's business in one judgement.

The distinction between the insolvency estate and post-insolvency assets<sup>64</sup> should be abolished; post-filing and post-opening trading should be explicitly authorized by specified creditor quorums, and should automatically obtain ranking super-priority, or should not take place at all.

### 5.3 Restrict Special Creditor Classes Further

The 2015 reforms to the IC (and the CCP) arrested the previous trend of multiplying generally preferred claims, especially in favor of the public sector (taxes and social security obligations) and special creditor classes (employees for up to two years before the insolvency, farmers and farming cooperatives for up to one year), but did not drastically reverse it.

The fiscal and political obstacles to a drastic reduction of such value-dissipating special preferences are probably quite significant. However, aside from the strong theoretical objections to the proliferation of special creditor classes<sup>65</sup> (indeed little else than the *inefficiency* of public sector bureaucracies advocates special preferences for public sector claims in insolvency) and its opposition to the principle of *pari passu*, there are no efficient alternatives for bringing all creditors and creditor classes to the table to decide the course of an insolvency, reduce or eliminate late filing biases, improve governance transparency and director accountability in the period preceding insolvency, and thereby maximize value preservation. In the same vein, the jurisdiction of the insolvency administrator, the supervising judge and the insolvency court to fully review State claims in law and fact should be reinstated.<sup>66</sup>

### 5.4 Directors

Only owner-managers, who stand to lose everything, will be willing directors of distressed businesses, as long as civil and criminal director liability for taxes, social security obligations, and unpaid wages is independent of fault, that is, exists not only in relation to claims of this nature, which arose during a director's tenure, but also to pre-existing claims, which arose under different management.

Regardless of the multitude of defenses raised against such liability with varying degrees of success, the sheer psychological and financial weight of having to defend oneself in court and the risk of personal liability regardless of management fault are insuperable obstacles for the hands-on active management of debtors in distress both by debtor-engaged turnaround professionals and by creditors, debt managers, and new investors. On this issue, release of post-insolvency-appointed directors and officers for such re-opening claims represents the minimum, which must be explicitly legislated.

Directors' duties in the period approaching insolvency must be explicitly legislated in line with current global standards<sup>67</sup> and made explicitly to prevail over general company law. Regardless of the current position under general law, which often imposes similar duties as a matter of high theory, directors should be explicitly required to protect the interests of creditors and other stakeholders in the period approaching insolvency and to inform themselves of these obligations in such circumstances.

Although there is, again, no hard data on the frequency or the outcome of actions against directors for breach of their duties, it is a rare case, where a liquidator, the only party now allowed to bring such action (art 98§3 IC), will devote energy and resources to this task. Perhaps the opening of the profession of liquidator to management specialists will improve the situation to a degree. However, we consider new rules necessary in at least one of two directions: the liquidator should be obliged to request and to follow creditor group decisions for the bringing of action against directors and/or creditors should be given individual standing to do so themselves.<sup>68</sup>

## 5.5 Improve the Quality of Civil Trial (Speed Will Improve Itself)

Finally, we consider comprehensive long-term reform of the rules of civil procedure imperative, not only for the efficiency of insolvency proceedings but also for the general strength and effective exercise of property rights and the improvement of overall faith in the rule of law.

This is a huge multidimensional topic, with constitutional parameters and a strong interconnection with the organization of courts.

Detailed policy recommendations far exceed the scope of this chapter; however, given the general nature of the shortcomings identified above<sup>69</sup> and the primary policy recommendation, that is, to improve the law-making process itself, we suggest that reform should explicitly aim at improving the *quality*, rather than only the speed, of trial, by (a) transferring to litigants as much of the work and responsibility for conducting trials efficiently and effectively and (b) creating appropriate incentives for all actors involved in trial to behave in ways, which are conducive to the quality, speed, efficiency, and effectiveness of trial and to the broader strengthening of property rights and overall faith in the rule of law.

## Notes

1. References to Greek statutes consist of the statute type, number, and year of enactment. “L” means Law, “PD” means Presidential Decree, “RD” means Royal Decree, and “LD” means Legislative Decree. Codified laws include the Civil Code (“CC”), the Code of Civil Procedure (“CCP”), the Insolvency Code (“IC”), and the Commercial Code (“ComC”). References to Greek literature have been kept to a minimum, as they would be of limited use to English-speaking readers.
2. The editors have kindly allowed the limited review of this chapter to reflect important reform to the IC enacted after the manuscript was completed, by Law 4446/22.12.2016.
3. This chapter focuses on *business*, rather than personal or consumer, insolvency, but many of the ideas set out below are equally applicable to the insolvency of non-merchants.
4. Rokas A., “The recent reform of insolvency proceedings by Law 4336/2015”, *Chronika Idiotikou Dikaou* 2015:657 (in Greek); Avgitidis D., “Restructuring proceedings: an interim assessment”, *Business & Company Law Review* 2014:291 (in Greek)
5. According to *Avgitidis, op. cit.*, between 2011, when the (“new”) restructuring proceeding was re-introduced (replacing the previous “insolvency mediation” process by essentially re-enacting art 44 of L

1892/1990 in improved form), and 2013, there were 229 restructuring applications in total, of which 197 (86%) non-prepacks and 27 (14%) prepacks; 30 non-prepacks were withdrawn, an indication that they were not made bona fide and 65 (33%) were rejected out of hand, 73 (37%) were pending for longer than is reasonable, and only 27 (13%) were granted by the court, leading to the *opening* of a two-stage restructuring proceeding; of those, only 4 (2%) led to a hearing for court approval of a restructuring agreement, while the rest essentially remained in limbo.

6. <http://www.doingbusiness.org/rankings>
7. Bank of Greece, Review of the Hellenic Financial System (in Greek), July 2016.
8. General Secretariat for Public Revenue, 6.7. 2016.
9. The 2016 EU Justice Scoreboard, European Commission, C(2016) 199 final, European Commission Communication to the EP, the Council, the EESC and the CofR, Towards the completion of the Banking Union, C(2015), 587 final, European Commission communication to the EP, the Council, the EESC and the CofR, Upgrading the Single Market: more opportunities for people and business, C(2015), 550 final, European Commission Communication to the EP, the Council, the EESC and the CofR, Action Plan on Building a Capital Markets Union, C(2015) 468 final, European Commission Green Paper, Building a Capital Markets Union, C(2015), 63 final, European Commission Report, Completing Europe's Economic and Monetary Union, 2014, European Commission Recommendation of 12.03.2014 on a new approach to business failure and insolvency, C(2014) 1500 final, The European Parliament's resolution of 15 November 2011 with recommendations to the Commission on insolvency proceedings in the context of EU company law (2011/2006, INI).
10. Art 52(b) of LD of 17.7/13.8.1923 and art 2 LD 4001/1959.
11. It will be rightfully observed that, in the past, this was almost a necessary concession to banks, in exchange for extending credit on the basis of political, rather than purely commercial, considerations, but today the result is sub-optimal nonetheless.
12. Arts 25§2(1)(a) and 31§1 L 4321/2015.

13. The Fifth Book of the Commercial Code On Insolvency enacted in 1835 was based on the Napoleonic *Code de Commerce* of 1807, itself based on the *Ordonnance de Commerce* of 1673—for example, *Kotsiris*, *Insolvency Law*, 8th edition, p. 22–23.
14. L 3562/1956 on the submission of corporations to the management of creditors and to special liquidation.
15. L 1386/1983.
16. Arts 44 through 46c of L 1892/1990.
17. For example, the UNCITRAL Legislative Guide on Insolvency Law (2005).
18. Laws 3858/2010, 4013/2011, 4055/2012, 4072/2012, 4307/2014 and 4336/2015.
19. Law 4446/22.12.2016.
20. Law 3858/2010.
21. Law 4013/2011.
22. It is quite indicative of the stranglehold not only on the economy but also on legal thinking, of the “owner-manager” culture that, in the 1990 iteration of the law on restructuring agreements (art 44 L 1892/1990), the rules provided for the agreement to be concluded *not* between creditors and the debtor but between creditors and the *debtor’s shareholders*. Equally indicative of this stranglehold is that the legislator of 2015 (Law 4346/2015) considered it necessary to state in statute (art 96§2 IC) that “where a legal person files for insolvency, the application be filed by management”—as if it were even remotely conceivable that it might be filed by other persons lacking the requisite management and representation powers.
23. See §3.3
24. Avgitidis (2014) found approximately 15% of restructuring applications to have been simply withdrawn, and a significant additional number simply in limbo, without procedural progress or recorded court data.
25. Since, and even before, Law 3562/1956.
26. Cf. a similar position in *Rokas* (2015), who considered the meaning of the old rule unclear and urges that the underlying dilemma “should be carefully considered”.

27. More precisely, at the time of cessation of payments, which the court may specify to be at a prior point in time, since this enables the liquidator to repatriate into the estate the value of void and avoidable transactions entered into during the period of imminent insolvency.
28. Law 4307/2014.
29. Art 65 Law 4307/2014.
30. Art 62§1 of Law 4307/2014 provides that these proceedings are available to “each person eligible to enter insolvency proceedings according to art 61§1 of the IC”. Art 61§1 of the IC concerns the liquidator’s powers to take testimony from the debtor and the debtor’s agents and employees, and is, therefore, a totally irrelevant rule (the subjective conditions of insolvency, i.e. the capacity of a merchant, are set out in art 2 IC). Art 60§2c of the *same* law specified the duration of the “emergency” voluntary workout measures, initially until the end of March and already until the end of September 2016.
31. Law 4224/2013 and Bank of Greece Credit and Insurance Matters Committee Act 195/29.07.2016.
32. Law 4336/2015 (‘Memorandum III’).
33. Law 4446/22.12.2016.
34. Several important rules enacted in 2015 were amended again in the end of 2016, and therefore reference is made here to the version in force.
35. See §1 and endnote 8.
36. Art 4§6c of L 3808/2009 re-enacted art 62§1 LD 356/1974, which prohibited any review in law or fact of State and public sector claims by the insolvency court, and obliged the insolvency administrator to appeal disputed claims in the administrative courts. This often has the dire consequence of arresting the progress of an insolvency proceeding for years, pending resolution of disputes outside of the insolvency.
37. Art 2.C.2§22 L 4336/2015 (Memorandum III) and PD 133/2016.
38. European Commission Recommendation of 12.03.2014 on a new approach to business failure and insolvency, C(2014) 1500 final.
39. Written before enactment of L 4446/22.12.2016, on the basis of a very different Insolvency Code Reform Bill of June 1, 2016.
40. See §3.2.



41. While for the moment retaining the ‘special special’ liquidation proceeding of L 4307/2014 – see §3.2.
42. By limiting the right to *oppose* a special liquidation application to creditors representing 60% overall, including 40% of secured, claims, that is, only to those creditor quorums, which are theoretically in the position to agree on an alternative, in the form of a restructuring agreement.
43. The 2011 rule, which was rejected, used the concept “serious economic problems”, instead of the current “simple possibility of insolvency”.
44. Klissouras C., “The pending reform of the Greek Insolvency Code”, *International Insolvency and Restructuring Review* vol 5 (2011), pp. 27–31.
45. Despite significant recent reform, which will simplify and streamline enforcement, Greek creditor rights law remains strongly formal and court-driven, as a result of the general prohibition of *self-enforcing* security interests and alternative liquidation processes (e.g. prohibition of *lex commissoria* in art 1239 CC, prohibition of private sale or retention in lieu of payment of collateral, etc.).
46. See footnote 8 above.
47. Dianeosis (2016), available at <http://www.dianeosis.org/research/polynomia-kai-kakonomia>.
48. World Bank, *Doing Business* 2016.
49. European Convention of Human Rights, done in Rome on 04.11.1950 (L.D 53/20.09.1974)
50. See, for example, ECHR C 38155/02 *Stefanica et al. v Romania*; C 63252/00 *Paduraru v Romania*, C 44698/06 *Vincic and 30 others v Serbia*.
51. For the first position: Areios Pagos 431/2015, 432/2015, 2018/2014, 1273/2014, 1884/2013, 884/2013, 1287/2012, Νόμος, 16/2008, 1793/2008, 1326/2007, 358/2004; for the exact opposite: Areios Pagos 75/2014, 1651/2013, 1403/2008, 952/1994, 585/1989.
52. New art 690 CCP.
53. Arts 450–452 CCP and 901–903 CC.
54. See §1.

55. See §01.
56. Law 4354/2015, subsequently amended in very significant ways by Laws 4389/2016 and 4393/2016, and Bank of Greece Executive Committee acts 82 and 95 /2016, all adopted as part of Memorandum III measures for the restructuring of the Greek banking system.
57. Klissouras C., “Promoting global solutions against fundamental inefficiencies of national civil procedure law: a case for international harmonization”, working paper, World Bank Law, Justice and Development Week, Washington DC, 20–24 October 2014, available at [http://siteresources.worldbank.org/EXTGILD/Resources/Klissouras\\_Insolvency\\_PanelDiscussionPaper.pdf](http://siteresources.worldbank.org/EXTGILD/Resources/Klissouras_Insolvency_PanelDiscussionPaper.pdf); Klissouras C., “An update on Greece: evolution during crisis and the road ahead”, working paper, 22th Annual Global Insolvency and Restructuring Conference of the Insolvency Section of International Bar Association, Milan, May 22–24, 2015, available at <http://www.int-bar.org/Conferences/conf709>.
58. Greek banks now have specific (and ambitious) quantitative targets for the reduction of non-performing exposures by roughly EUR 40bn, from ca. 51% to ca. 34% of their portfolio, through end-2019. See Bank of Greece, Overview of the Greek Financial System, January 2017, Chapter IV; available at [http://www.bankofgreece.gr/BogEkdoseis/OVERVIEW\\_OF\\_THE\\_GREEK\\_FINANCIAL\\_SYSTEM\\_Jan\\_2017\\_en.pdf](http://www.bankofgreece.gr/BogEkdoseis/OVERVIEW_OF_THE_GREEK_FINANCIAL_SYSTEM_Jan_2017_en.pdf).
59. See notes 9 and 62.
60. European Commission- Directorate General Economic and Financial Affairs: Insolvency frameworks in the EU, Note to the EPC, 9.12.2015, EP, Report with recommendations to the Commission on insolvency proceedings in the context of EU company law (2011/2006, INI).
61. Many voices also advocate the EU-wide harmonization of civil procedural laws. A well-documented summary of the law and economics of harmonization is set out in Vernadaki, Z (2013), “Civil Procedure Harmonization in the EU: Unravelling the Policy Considerations”, *Journal of Contemporary European Research* 9(2), 297:312. Professor Konstantine Kerameus, had joined his voice in noting since

1999 that “[...] cross-border harmonisation of procedural laws [...] becomes necessary whenever the various jurisdictions cooperate closely with each other or governments seek economic, social and/or political integration.” EP, DG for Research Working Paper, “The Private Law Systems in the EU: Discrimination on Grounds of Nationality and the Need for a European Civil Code”, Legal Affairs Series JURI 103 EN ([http://www.europarl.europa.eu/workingpapers/juri/pdf/103\\_en.pdf](http://www.europarl.europa.eu/workingpapers/juri/pdf/103_en.pdf)).

62. See European Council, European Governance: A White Paper, C(2001) final 428, “Mandelkern Report on Better Regulation”, C(2002) 278, “Simplifying and improving the regulatory environment”, C(2003), 71, “Updating and simplifying the Community acquis”, C(2005) 535, European Commission Communication to the Council and the EP, Better Regulation for Growth and Jobs in the EU”, 97 final.
63. Explanatory report to Law 4013/2011 amending the IC, §23.
64. UNCITRAL Legislative Guide on Insolvency, Chapter II, §4 and Recommendation 35.
65. See UNCITRAL Legislative Guide on Insolvency Chapter II, §53 and Recommendations 169–184.
66. See note 36.
67. UNCITRAL Legislative Guide on Insolvency Part IV, “Director’s Duties II”, §1–7 and Recommendations 255–256; World Bank Insolvency and Creditor / Debtor Rights Standard, revised Principle B2 on Director and Officer Accountability (available at <http://www.worldbank.org/en/topic/financialsector/brief/the-world-bank-principles-for-effective-insolvency-and-creditor-rights>).
68. Although technically perplex because of the subset of procedural rules applicable in insolvency proceedings (so-called voluntary jurisdiction), it might be desirable to give jurisdiction for actions against directors to the insolvency court: this court will by definition have the best knowledge of the causes and circumstances of the insolvency and is already competent (arts 168–170 IC) for the conditional release of debtors from insolvency claims.
69. See §3.2.

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