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NON-PERFORMING LOANS: OPPORTUNITY OUT OF ADVERSITY?

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CONTENTS

Abstract

Non-performing loans have been recognized as an impediment to further financial integration in the Eurozone bringing to light a series of new challenges in the way towards the banking union and has also highlighted to a large extent the weaknesses of the project. This thesis revolves around the subject of credit risk management in the EU periphery, notably Greece and Italy who have most been affected by this issue. It constitutes an effort to provide an integrated analysis of the determinants and the role of NPLs in the operation of the banking system and an exhaustive taxonomy of the available solutions with their respective evaluation. The recent experiences of Greece and Italy along with their distinct characteristics are used as a comparative framework to facilitate the extraction of useful conclusions upon this topic.

Keywords: **NPLs – Greece – Italy - Banking Union - Financial Integration - Asset Management Company - Asset Protection Scheme**

List of Abbreviations

AMC: Asset Management Company

APP: Asset Purchase Programme

APS: Asset Protection Scheme

BCBS: Basel Committee on Banking Supervision

BIS: Bank for International Settlements

BRRD: Bank Recovery and Resolution Directive

BTS: Binding Technical Standards

BU: Banking Union

CDP: Cassa Depositi e Prestiti

CDS: Credit Default Swap

CRD IV: Capital Requirements Regulation and Directive

DGS: Deposit Guarantee Scheme

DGSD: Deposit Guarantee Scheme Directive

DTC: Deferred Tax Credit

EBA: European Banking Authority

EBF: European Banking Federation

EBRD: European Bank for Reconstruction and Development

EC: European Council

ECAI: External Credit Assessment Institution

ECB: European Central Bank

EDIS: European Deposit Insurance Scheme

EIOPA: European Insurance and Occupational Pensions Authority

ELA: Emergency Liquidity Assistance

EMU: Economic and Monetary Union

ESFS: European System of Financial Supervision

ESMA: European Securities and Markets Authority

ESRB: European Systemic Risk Board

EU: European Union

EUR: Euro Currency

GACS: Garanzia Cartolarizzazione Sofferenze

GDP: Gross Domestic Product

GMM: Generalized Method of Moments

HFSF: Hellenic Financial Stability Fund

JST: Joint Supervisory Team

MFI: Monetary Financial Institution

MROFEL: Minimum Requirements for Own Funds and Eligible Liability

NCA: National Crime Agency

NFC: Non-Financial Corporation

NPE: Non-Performing Exposures

NPL: Non-Performing Loan

NRA: National Resolution Authority

OMT: Outright Monetary Transactions

PIMCO: Pacific Investment Management Company

ROA: Return On Assets

ROE: Return of Equity

SME: Small to Medium Enterprise

SPV: Special Purpose Vehicle

SRB: Single Resolution Board

SREP: Supervisory Review and Evaluation Process

SRF: Single Resolution Fund

SRM: Single Resolution Mechanism

SSM: Single Supervisory Mechanism

TLTRO: Targeted Longer-Term Refinancing Operation

UTP: Unlikely-To-Pay

Introduction

The Eurozone and banking unification as a prerequisite for monetary union between Member States has brought to light a series of new challenges in the single banking system. The international financial crisis of recent years has also highlighted to a large extent the weaknesses of the project, while simultaneously demanding solutions to address the new developments. The effective management of non-performing exposures by financial institutions has been perhaps the biggest challenge, but also the essence and prerequisite for the exit from this crisis and the sustainable development of the banking system itself.

The issue of non-performing loans (NPLs) in the banking sector has lately come to the foreground of European public discourse mainly in relation to the completion of the banking union. It is claimed that the large stocks of non-performing loans[1] and fragmented financial markets that followed the financial crisis and ensuing recessions have hindered the completion of the banking union, placed non-bearable weight on bank profitability and ultimately hampered post-crisis economic growth in Europe. This hypothesis is spread, checked and explored in this entirety of this thesis while at the same time seeking the answer to the following question: how does the existence of large stocks of non-performing loans affect the effective functioning of the banking system as a whole?

The subject matter of non-performing loans in Greece is analyzed in further detail with emphasis on the structural and circumstantial environment that allowed for the emergence of this issue as well as specific precipitating factors followed by an analysis of the current state of affairs. The policies and exit strategies that have been proposed through institutions and public discourse are subsequently dealt with. The concept of

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[1] European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council and the European Central Bank: Third Progress Report on the Reduction of Non-Performing Loans and further risk reduction in the Banking Union*, 28 November 2018, COM (2018) 766 FINAL. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0766 [Accessed 2 Apr. 2019].

Asset Management Companies (AMCs) that would isolate non-performing loans and offer a swift cleaning-up of balance sheets[2] is described and its potential effectiveness and complications are examined. Other proposed initiatives related to the development of secondary markets for NPLs[3] are also evaluated.

Although the main subject matter of this undertaking will be the Greek economy and banking system, special comparative weight throughout this thesis is placed on the case of the positive trajectory[4] of the Italian economy, which offers specific valuable lessons for other countries.

The aforementioned issues will be approached on a qualitative basis assisted by comparative analysis where this is allowed by data and historical experiences. Based and built on the findings, the discussion concluding this thesis will attempt to evaluate the best possible solutions for the Greek case and provide blueprints for bridging the gap between the current financial landscape and a potential NPL-ridden EMU.

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[2] Παγουλάτος, Γ. (2018). *Μια κακή τράπεζα για να σώσει τις καλές*. [online] Kathimerini.gr. Available at: http://www.kathimerini.gr/989740/opinion/epikairothta/politikh/mia-kakh-trapeza-gia-na-swsei-tis-kales [Accessed 2 Apr. 2019].

[3] European Commission (2019). *Reducing Risk in the Banking Union*. [online] Available at: http://europa.eu/rapid/press-release_IP-18-1802_en.htm [Accessed 2 Apr. 2019].

[4] Dimarco, E. (2018). *NPLs in Italy: A gradual unwind*. [online] Cib.db.com. Available at: http://cib.db.com/insights-and-initiatives/flow/npls-in-italy-a-gradual-unwind.htm [Accessed 2 Apr. 2019].

Financial integration in Europe at a crossroads

The presence of the issue of non-performing exposures in the public discourse manifested in the form of a legacy handed down by the Eurozone sovereign debt crisis, an economic downturn that was triggered by a complex combination of factors, some of which were: the financial crisis that originated during 2007-2008 in the United States and close connections maintained between US banks and European banks, the need to bail out over-indebted banking institutions and unsustainable debt levels. A vicious circle with multiplicative effects on government debt levels became apparent between banks coming close to bankruptcy and governments having to step in and perform bail-outs, further increasing sovereign debt[5]. It was thenceforth that the need for detachment between the banking sector and potential disturbances of the public sector finances and vice versa, was identified[6].

Since then, the idea of a banking union has been progressively formulated and debated upon, – usually as a policy response to incidents indicating increased banking interdependence and fragility – guided by the distinctive needs of the financial sector: breaching the vicious circle between sovereign debt and the liquidity conditions of the banking sector; further integrating banking regulation to correspond with advanced integration in other areas; restructuring the model of banking supervision in order to achieve an effective level of forecasting and preventing or mitigating individual banking crises.

This is not the first time, however, that attempts at regulation and supervision of the banking system have taken place. There have been initiatives by the European Commission, during the 1960s and early 1970s as well as during the negotiations for the Maastricht Treaty (1991) and the Nice Treaty (2000). These initiatives, understood and paralleled largely to progressing monetary integration, failed. This is largely because they were not crisis-driven, unlike the ones that led to current developments, and also due to

[5] Commission Memo, Banking union: restoring financial stability in the Eurozone (Update to Memo 14-294), Brussels, 09/03/2015
[6] Katsimi, M. (2016). *Macroeconomic Policies of the European Union*. Athens: AUEB Publications.

the fact that they were based in an entirely different context[7] (multiple currencies, differentiated banking systems).

European supervisory architecture

In order for one to successfully define and comprehend the current state of affairs in the governance and supervision of the financial services sector in Europe, it seems only right to outline the existing framework in the overall context of institutions and regulations affecting – but not limited to – the European banks.

The Basel Committee on Banking Supervision (BCBS) is an institution that seeks to provide inputs regarding optimal practices and standards which central banks or similar authorities can impose on their respective banks[8] [9]. It was established by the central bank governors of the Group of Ten countries in 1974. The BCBS is responsible for the development of the Basel Accords – Basel I, Basel II and Basel III – which aim to provide recommendations to national authorities to adopt regulatory frameworks for the banking sector.

The Bank for International Settlements (BIS) is an international financial organization owned by 60 member central banks, whose respective countries accumulate 95% of world GDP. The BIS has assumed differentiated roles in history adapting to dynamic contexts and changing situations[10]. The declared aim of the BIS is to promote global financial and monetary stability[11] and it does so by conducting research and producing statistics, by facilitating communication and cooperation between central banks and monetary institutions, by offering services to other committees or agencies operating in

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[7] Mourlon-Druol E. (2016) 'Banking Union in Historical Perspective: The Initiative of the European Commission in the 1960s–1970s', *Journal of Common Market Studies*, Vol. 54, No. 4, pp. 913-927

[8] About the Basel Committee, Bank for International Settlements https://www.bis.org/bcbs/about.htm?m=3%7C14%7C573 Accessed: 26/11/2017

[9] Gortsos (2011), Introduction to International Financial Law, Nomiki Vivliothiki, p. 177

[10] This is the biz, *Booklet for the BIS's 75th anniversary exhibition*, Bank for International Settlements, 2005

[11] Overview, Bank for International Settlements https://www.bis.org/bcbs/about.htm?m=3%7C14%7C573 Accessed: 26/11/2017

its establishments or under its patronage and last, by acting as an international think-tank for financial issues[12].

The European System of Financial Supervision (ESFS) is a network comprised of the European Banking Authority (EBA), the European Securities and Markets Authority (ESMA), the European Insurance and Occupational Pensions Authority (EIOPA), the European Systemic Risk Board (ESRB) and national supervisors. It was introduced in 2010 as a response to the developing financial crisis[13]. The structure of the ESFS has been formulated on the basis of the distinction between micro-prudential and macro-prudential supervision[14]. The ESRB has been tasked with the macro-prudential supervision of the financial system in the European Union, particularly: collecting and analyzing relevant data, identifying and prioritizing possible risks, communicating findings, issuing recommendations and monitoring developments. The EBA, the ESMA and the EIOPA on the other hand, are responsible for the micro-prudential supervision of the European finances, mainly by facilitating the functioning of the internal market through coordinated supervision and consistent and effective regulation.[15] An example of the latter is the role of the EBA in the development of the Single Rulebook[16] by producing a large number of Binding Technical Standards (BTS) for the implementation of the Capital Requirements Regulation and Directive (CRD IV) package (in accordance with the capital requirements set in the Basel III framework), the Deposit Guarantee Scheme Directive (BRRD) and the Bank Recovery and Resolution Directive (DGSD) [17].

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[12] Ibid.

[13] European Central Bank, *European System of Financial Supervision*, https://www.bankingsupervision.europa.eu/about/esfs/html/index.en.html Accessed: 26/11/2017

[14] The micro-prudential approach seems to prioritize the safety of individual financial institutions, while the macro-prudential approach puts the attention on the welfare of the financial system as a whole. Borio, C. (2003). Towards a Macroprudential Framework for Financial Supervision and Regulation? *SSRN Electronic Journal*.

[15] European System of Financial Supervision, European Central Bank https://www.bankingsupervision.europa.eu/about/esfs/html/index.en.html Accessed: 26/11/2017

[16] The Single Rulebook is the term for the European Union pieces of legislation that collectively govern the financial sector.

[17] The Single Rulebook, European Banking Authority http://www.eba.europa.eu/regulation-and-policy/single-rulebook Accessed: 26/11/2017

Towards the creation of a "banking union" for Europe

The Single Supervisory Mechanism

On the 12th of September 2012, the European Commission proposed the creation of a new set of powers for the ECB regarding supervision of the Eurozone banks along with national supervisory authorities, through the creation of the Single Supervisory Mechanism (SSM)[18].

The SSM assumed supervisory responsibilities in November 2014 over the banks of the Eurozone countries, which automatically became members the SSM with participation, not being limited to Eurozone members but also to EU non-Eurozone members in the form of a "close cooperation" [19].

At this point, it is important to mention that the set of responsibilities related to financial institutions' supervision had traditionally belonged to national supervisors. Under that light, it was made clear during the first steps of the establishment of the SSM that banks would remain under the supervision of national supervisory bodies "*while the ECB would assume ultimate responsibility over the supervision in order to prevent the banking crises from escalating*[20]". However, as the SSM is becoming fully operational, there has been questioning and public discourse on how will the SSM handle potential conflict of opinions with national regulatory authorities[21]. In any case, prospects of success rely on the expertise of the ECB on financial stability and the extensive knowledge of national

[18] Commission Press Release, IP/12/953, 12 December 2012

[19] The ECB cannot enforce any measures in non-Eurozone countries due to absence of jurisdiction. This means that a potential "close cooperation" would depend on technical agreements determining the mechanisms and ways through which the decisions of the ECB could have a binding effect. The Single Supervisory Mechanism, Banking Supervision, European Central Bank https://www.bankingsupervision.europa.eu/about/thessm/html/index.en.html Accessed: 26/11/2017

[20] Rehn: Schedule for single supervisory mechanism feasible", Helsinki Times, September 2012 http://www.helsinkitimes.fi/finland/finland-news/politics/3588-rehn-schedule-for-single-supervisory-mechanism-feasible.html Accessed: 26/11/2017

[21] The future of banking in Europe: regulation, supervision, and a changing competitive landscape, Bank Governance Leadership Network January 2016

supervisory authorities regarding the various specificities of banks within their jurisdictions[22].

As mentioned before, upon its creation, the SSM became responsible for the supervision of the financial institutions of all the Eurozone member countries. Due to the existence of more than 6000 credit institutions in the Eurozone[23], the huge cost in efficiency due such a workload brought about an allocation of the latter based on the significance of the credit institutions supervised. Under this notion, credit institutions are divided into those of significance that are monitored directly by the ECB (approximately 120 groups) and those of less significance that are monitored by the national supervisory authorities.[24] The main structure and form of cooperation for the supervision of the significant credit institutions are the Joint Supervisory Teams (JSTs), which are comprised of staff from both the ECB and the NCAs and are each allocated one significant credit institution for which they are responsible and carry out the largest part of the supervision workload.

How is the supervision of the credit institutions conducted, however? The ECB, with the tools and institutions at its disposal, has been authorized to: conduct supervisory reviews, stress tests, on-site inspections and investigations; grant or withdraw banking licenses; assess banks' acquisition and disposal of qualifying holdings; ensure compliance with EU prudential rules; set higher capital requirements (*"buffers"*) in order to counter any financial risks; impose corrective measures and sanctions"[25].

Special attention is placed on the supervisory activities that are conducted under a common methodology through the Supervisory Review and Evaluation Process (SREP). They are coordinated by the JSTs continuously and results, as well as recommendations, are issued on an annual basis and in a tailored fashion for each bank. The SREPs examine individual credit institutions and assess risks and sustainability by looking at

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[22] Guide to banking supervision, European Central Bank, November 2014

[23] Monetary Financial Institutions (MFIs), Lists of financial institutions, Statistics, European Central Bank https://www.ecb.europa.eu/stats/financial_corporations/list_of_financial_institutions/html/daily_list-MID.en.html, Accessed: 30/11/2017

[24] Guide to banking supervision, European Central Bank, November 2014

[25] The Single Supervisory Mechanism, Banking Supervision, European Central Bank https://www.bankingsupervision.europa.eu/about/thessm/html/index.en.html Accessed: 26/11/2017

different aspects such as the business models in use, the capital and liquidity adequacy, the philosophy concerning risk management and the suitability of the managing bodies.

Although the set of tools that have been applied by the supervisors is common in type and harmonized – indicating further integration in the financial sector – in order to achieve supervision consistency, the differences in organizational structure, sectorial focus and potential financial amplitude of a credit institution are reflected in the intensity, frequency and scope of the SREPs[26].

The Single Resolution Mechanism

The previous SSM outline describes the first pillar of the banking union, as envisioned following the Eurozone crisis, which acts as a force of consistent supervision, timely intervention and progressive integration through common regulations and rules. But what happens when a credit institution reaches the point of no return in terms of failing? The notion of a *"banking union"* could not be fulfilled without the existence of tools that would promptly formulate the environment in which this could develop in an orderly manner with the maximum possible mitigation of cost bearing or other negative effects for the private and the banking sector.

Under this notion, in July 2013, the European Commission put a proposal forward for the creation of the Single Resolution Mechanism (SRM)[27], to constitute a significant complement to the first pillar of the banking union, the SSM. The SRM assumed responsibilities of resolution in January 2016 over banks already under the authority of the SSM. The SRM is open to any new members who have previously joined the SSM.

As noted above, the main objectives of the SRM are: the resolution of banks with minimal cost to the citizens; strengthen confidence in the banking sector; to prevent bank runs

[26] Guide to banking supervision, European Central Bank, November 2014
[27] Commission Press Release, IP/13/674, 10 July 2013

and contagion; to minimize the negative relationship between banks and sovereigns; to eliminate fragmentation in the internal market for financial services[28].

It seems difficulty to rely to an authority for the orderly resolution of failing credit institutions with the absence of any financial backing that would prevent the cost being bore by taxpayers or the public sector. Under this notion, the structure of the SSM consists of the Single Resolution Board (SRB), which is the decision-making authority responsible for determining the suitable resolution schemes for failing banks and the Single Resolution Fund (SRF), which is used for the resolving of failing institutions[29].

The SRB is directly responsible for the resolution of the banks that have been deemed of “higher significance” by the ECB[30] while the National Resolution Authorities (NRAs) are responsible for all the other banks within their jurisdiction. However, NRAs can request the assistance of the SRB, which can also occur automatically in case of resolution actions requiring the use of the SRF or by own initiative of the SRB[31].

The SRF is financed by levies from the banking sector. Over a period of 8 years, the contributions by the banks are scheduled to reach the goal of 1% of all covered deposits. The specific use of the SRF, the extent to which it will be mobilized and the range of effect it will have depend on the resolution scheme employed and the type of the credit institution under the microscope. It is generally viewed as a last-resort source and the applications it can have vary: it can be used to guarantee or purchase assets and liabilities; to finance secondary asset-management agencies; to issue compensations to shareholders and asset owners who incur out-of-proportion losses[32].

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[28] Single Resolution Mechanism, Council of the European Union http://www.consilium.europa.eu/en/policies/banking-union/single-resolution-mechanism/# Accessed: 27/11/2017

[29] Ibid.

[30] Also responsible for other cross-border groups (banks with subsidiaries in other member countries). List of other cross-border groups, Single Resolution Board, 6 June 2016

[31] The Single Resolution Mechanism Introduction to Resolution Planning, Single Resolution Board, September 2016

[32] What is the Single Resolution Fund?, The Single Resolution Board https://srb.europa.eu/en/content/single-resolution-fund Accessed: 27/11/2017

The use of the SRF implies that two conditions must be met: a bail-in of at least 8% has occurred with shareholders and private investors bearing the cost; the total contribution needed by the SRF does not exceed 5% of total liabilities of the failing institution[33].

A quite extensive portion of the work of the SRB is precursory and provisional as a means of operational readiness for potential banking crises and based largely on creating individual preliminary plans for bank resolution and establishing Minimum Requirements for Own Funds and Eligible Liabilities (MRELs), according to the regulations set in the BRRD[34].

The missing third pillar

When a generalized banking crisis occurs or an individual bank exhibits signs of instability and possible insolvency, it is very likely that the phenomenon of a "bank run" will occur. This means that customers will liquidate their assets due to fear of losing their deposits, further increasing the possibility of default for the credit institution. It is due to this phenomenon that most countries have enacted laws protecting deposits up to a certain amount.

Since 1994, EU directives have introduced Deposit Guarantee Schemes (DGS) and gradually increased – especially in response to the Eurozone crisis – the minimum standards for safeguarding deposits[35]. With Directive 2014/49/EU, the limit has been increased to provide cover for deposits up to €100.000 in case a credit institution is found in a situation of insolvency and defaulting. DGS are national and they are funded by the banking sector. This easily raises the question: what if national DGS prove vulnerable and unable to carry out the protection of deposits in case of widespread crises? Is the

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[33] Ibid.

[34] Minimum Requirement for own funds and Eligible Liabilities (MREL): Approach taken in 2016 and next steps, Single Resolution Board https://srb.europa.eu/en/content/mrel Accessed: 27/11/2017

[35] Deposit guarantee schemes, European Commission https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/deposit-guarantee-schemes_en Accessed: 27/11/2017

common economic environment of the DGS and credit institutions under its jurisdiction a possible amplifier of crises?

Under this notion, the third pillar of the "banking union" is an attempt to create a common European Deposit Insurance Scheme (EDIS) – aimed at the direction of furthering financial integration – that would protect deposits low and middle level deposits, however it would "*provide a stronger and more uniform degree of insurance cover in the euro area*[36]".

This is an ongoing process, nonetheless, and objections have been expressed. A common argument is that an EU-level deposit insurance scheme would trigger phenomena of moral hazard[37] as there would be stronger inclination to undertake more risks due to non-proximity of the institutions in question[38].

The arguments in favor of the EDIS seem more convincing, however. Wolff argues that size is an important issue since a potential common deposit insurance scheme would be less affected by a one-time payout event and the burden of replenishment would be significantly minimized for individual credit institutions when compared to a similar situation within a national DGS. Another argument deals with consistency: since supervision and resolution are centralized, it is only natural that deposit insurance should be too in order to avoid accountability complications[39].

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[36] European deposit insurance scheme, European Commission https://ec.europa.eu/info/business-economy-euro/banking-and-finance/banking-union/european-deposit-insurance-scheme_en Accessed: 27/11/2017

[37] Germany stands firm against EU bank deposit guarantee plan, Jim Brunsden, Financial Times, October 11, 2017 https://www.ft.com/content/58c9a172-ae7d-11e7-beba-5521c713abf4 Accessed: 27/11/2017, An insurance scheme that only ensures problems, Ludger Schuknecht, Frankfurter Allgemeine Zeitung, 8. February 2016, http://blogs.faz.net/fazit/2016/02/08/an-insurance-scheme-that-only-ensures-problems-7298/ Accessed: 27/11/2017

[38] It has been supported, however, that deposit insurance does not have the same moral hazard "*elasticity*" like fire or theft insurance, for example, as trust in deposits is a fundamental feature of developed economies. Nicolas Véron, European Deposit Insurance: a response to Ludger Schuknecht, Bruegel, February 16, 2016 http://bruegel.org/2016/02/european-deposit-insurance-a-response-to-ludger-schuknecht/ Accessed: 27/11/2017

[39] The European Deposit Insurance Scheme, Guntram B. Wolff, Bruegel, May 23, 2016 http://bruegel.org/2016/05/the-european-deposit-insurance-scheme/ Accessed: 27/11/2017

European response to rising NPLs

Since the prevalence of the issue of NPLs in the public discourse, a necessity developed for stricter rules and more detailed instructions for the mitigation of potential shortcomings of financial institutions and for safeguarding the financial stability of a post-crisis Europe. Under any other circumstances, this would be a contractive task upon banks themselves and national regulatory authorities. The high level of integration and codependence, in conjunction with potential spill-over effects, of a monetary union such as the Eurozone, confers upon the European institutions responsibilities for initiatives addressing and tackling the issue systemically.

This realization of the urgency of the matter led to a "package" of legislative measures by the Commission in March 2018 with the purpose of relieving the balance sheets of European banks as a policy response to the Action Plan, published by the Council in July 2017, calling upon the EU institutions to take appropriate action on the issue at stake. The package included: the Proposal for a Regulation of the European Parliament and of the Council on amending Regulation (EU) No 575/2013 as regards minimum loss coverage for non-performing exposures, setting a framework for dealing with new nonperforming loans (NPLs) in the sense of reducing the risk for further consequent accumulation; the Proposal for a Directive of the European Parliament and of the Council on credit servicers, credit purchasers and the recovery of collateral, aiming to establish an efficient out-of-court mechanism with the purpose of facilitating debt recovery procedures; a Commission services' staff working document containing a Blueprint on the set-up of national asset management companies (AMCs), provides non-binding principles and guidance to national authorities on setting up AMCs.

In March 2017, the ECB published a document with guidelines on the drafting of NPL strategy, governance and operations, forbearance, NPLs recognition, NPLs impairment measurement and write-offs, and collateral valuation for immovable properties. The guidance is addressed to significant credit institutions that are under direct supervision of the ECB and is non-binding in nature. The impetus of the 2018Q1 resulted in an addendum to the 2017 guidance specifying the quantitative risk protection expectations for new NPLs.

What are non-performing loans?

The widespread establishment of the term "*non-performing exposures/loans*" occurred as part of a policy response to the Eurozone sovereign debt crisis that started in 2009 and the literature related to the developing of methods and policies to diagnose and address the new-found problem.

The prior absence of a uniform definition for a non-performing exposure between banks and financial systems inhibited the swift identification of such assets. The European Banking Authority offered a definition in 2013 according to which "*non-performing exposures are those that satisfy either or both of the following criteria: material exposures which are more than 90 days past-due; the debtor is assessed as unlikely to pay its credit obligations in full without realization of collateral, regardless of the existence of any past-due amount or of the number of days past due*[40]".

The definition of the EBA employs two distinct criteria to identify non-performing exposures. Relying principally on quantitative knowledge, the "*past-due*" criterion dictates that "*material exposures with amounts more than 90 days past due are considered to be non-performing. An exposure can only be past due if there was a legal obligation to make a payment and payment is compulsory*." The "*unlikeliness-to-pay*" criterion is by nature more subjective since the identification of a NPE relies less on quantitative criteria and requires manual assessments of a possible customer's creditworthiness and capacity to repay a debt, while at the same time providing some leeway for interpretation[41].

[40] European Banking Authority (2013). *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*.

[41] European Systemic Risk Board (2018). *Approaching non-performing loans from a macroprudential angle*. Reports of the Advisory Scientific Committee, No 7. [online] Available at: https://publications.europa.eu/en/publication-detail/-/publication/ced49d66-d800-11e8-90c0-01aa75ed71a1 [Accessed 2 Apr. 2019].

A distinction touching on the incentives triggering failure to comply with the obligations stemming from a loan is necessary at this point between a borrower's "*forced default*"[42] and a "*strategic default*", a notion especially relevant when examining the Greek case[43]. A strategic default differs from a failure to repay a debt in the sense that the solvent borrower chooses not to repay[44] usually exploiting surges of moral hazard. A useful example to comprehend how moral hazard can lead to increased manifestations of the strategic default phenomenon can be drawn from the foreclosure moratorium and personal bankruptcy process that were introduced in Greece in 2010 in the form of legislation. Research performed by Artavanis and Spyridopoulos (2019) indicates that "*the introduction of a universal foreclosure moratorium on primary residences had a significant impact on strategic defaults*" and "*it is estimated that 28% of defaults in the sample period (2006-2014) are strategic, corresponding to over 5 billion euros (3% of Greek GDP) in non-performing loans, a cost that has mainly moved to the public through bank recapitalizations*"[45]. However, the two driving forces behind defaulting, negative equity - the value of an asset used to secure a loan being less than the outstanding balance on the loan – and lack of liquidity are not mutually exclusive[46]. Additionally, as demonstrated by Schiantarelli, Stacchini and Strahan (2019), on average, banks with weaker balance sheets due to past (and non-collectable) bad loans are more prone to experience future defaults[47]. Chronically bad financial health of the lender in conjunction

[42] Trautmann, S. and Vlahu, R. (2011). *Strategic default and "borrower runs"*. [online] Voxeu.org. Available at: https://voxeu.org/article/strategic-default-and-borrower-runs [Accessed 2 Apr. 2019].

[43] Papadoyiannis, Y. (2018). *Strategic defaulters are now believed to account for 40 pct of NPLs*. [online] Ekathimerini.com. Available at: http://www.ekathimerini.com/226601/article/ekathimerini/business/strategic-defaulters-are-now-believed-to-account-for-40-pct-of-npls [Accessed 2 Apr. 2019].

[44] Trautmann, S. and Vlahu, R. (2011). *Strategic default and "borrower runs"*. [online] Voxeu.org. Available at: https://voxeu.org/article/strategic-default-and-borrower-runs [Accessed 2 Apr. 2019].

[45] Artavanis, N. and Spyridopoulos, I. (2018). Behavioral Attributes of Strategic Default: Evidence from the Foreclosure Moratorium in Greece Available at: https://ssrn.com/abstract=2946595 [Accessed 2 Apr. 2019].

[46] Gerardi, K., Herkenhoff, K., Ohanian, L. and Willen, P. (2017). *The causes of mortgage default*. [online] Voxeu.org. Available at: https://voxeu.org/article/causes-mortgage-default [Accessed 2 Apr. 2019].

[47] Schiantarelli, F., Stacchini, M. and Strahan, P. (2019). *Bank Quality, Judicial Efficiency and Borrower Runs: Loan Repayment Delays in Italy*. [online] NBER. Available at: https://www.nber.org/papers/w22034 [Accessed 2 Apr. 2019].

with perceived praxis drives borrowers to resort to default doubting the ability of the lender to follow-up.

Lengthy insolvency proceedings ranging from "*more than 6 years on average*" in Italy up to "*a de facto unlimited stay on enforcement against individual borrowers*" in Greece provide incentives for borrowers to turn to strategic defaults[48]. In fact, in the same study by Schiantarelli, Stacchini and Strahan (2019), a correlation between the efficiency of the judicial institutions and the probability of defaulting on a loan is identified. According to the study, "*a lower probability of recovery of principal interest through weak courts reduces the cost to borrowers of delaying repayments*". Vice versa, there is "*no effect of past bad loans on current default in provinces where legal enforcement is strong*".

Determinants of non-performing loans[49]

This chapter identifies and assesses the main factors affecting the level of NPLs. Although analytical emphasis is placed on the country-specific macroeconomic conditions and the respective strand of bibliography, an analysis is also conducted on the subject of corporate and bank-specific determinants of NPLs. An insight on the extent to which financial fragmentation in post-crisis Eurozone affects the proportion of NPLs within a particular economy is also offered.

Macroeconomic factors

Macroeconomic developments do not affect the quality and life of all financial products equally and to the same extent. It is possible that divergent effects of the macroeconomic

[48] Demertzis, M. and Lehmann, A. (2017). *Policy Contribution: Tackling Europe's crisis legacy: a comprehensive strategy for bad loans and debt restructuring*. 11th ed. [ebook] Bruegel. Available at: http://bruegel.org/2017/04/tackling-europes-crisis-legacy-a-comprehensive-strategy-for-bad-loans-and-debt-restructuring/ [Accessed 2 Apr. 2019].

[49] The idea for the structure of this chapter is based on the analysis of the determinants of non-performing loans and the investigation of the dependency of the latter from financial fragmentation between core and periphery: Anastasiou, D., Louri, H. and Tsionas, M. (2018). Nonperforming loans in the euro area: Are core-periphery banking markets fragmented?. *International Journal of Finance & Economics*, 24(1), pp.97-112.

environment are witnessed on the size of the NPLs taking into account varying institutional settings, a large assortment of types of loans and the individual sensitivity of each type of financial product to fluctuations of the macroeconomic variables[50]. For this reason, the overview of the macroeconomic variables that follows will discern the effects of the latter between three distinct types of loans: business, consumer and mortgage loans, drawing to a significant extent from the study on this premise by Louzis, Vouldis and Metaxas (2012).

- GDP

Empirical studies [Louzis et al. (2012), Anastasiou et al. (2018)] have shown that there is a strong inverse relationship between the phase of the business cycle and the number of NPLs in the banking system. During periods of recession and contraction of the business cycle, corporations and households are more likely to fall behind with the repayment of their loans, leading to a rise in the share of NPLs in banks' balance sheets[51]. Similarly, in periods of expansion of the business cycle, borrowers find themselves with an increased stream of revenue and higher levels of income and can therefore service their debts.

- Unemployment

Studies indicate a positive and strong relationship between the fraction of NPLs in the economy and the level of unemployment. An increase in unemployment affects directly the borrower's solvency and ability to fulfill any due obligations, including loan servicing. According to Anastasiou et al. (2018), there is a larger probability of the discouraged worker effect occurring when the unemployment rate peaks and workers are excluded from the market. Such a development further decreases the chance that their debt will be serviced.

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[50] Louzis, D., Vouldis, A. and Metaxas, V. (2012). Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios. *Journal of Banking & Finance*, 36(4), pp.1012-1027.

[51] Anastasiou, D., Louri, H. and Tsionas, M. (2018). Nonperforming loans in the euro area: Are core-periphery banking markets fragmented?. *International Journal of Finance & Economics*, 24(1), pp.97-112

- Interest rates

The study by Louzis et al. (2012) and Anastasiou et al. (2018) indicate that the interest rate has a strong positive relation with the level of NPLs. The assumption is that volatility in the case of floating rate loans can sway the borrower from an increase in disposable income to a state of insolvency and inability to service their debt leading to default.

- Inflation

According to findings by Nkusu (2011), there can be a positive or negative relation between the level of inflation and the share of NPLs in the economy. In the case of fixed-rate loans, a higher level of inflation reduces the real value of the debt which makes them more affordable. If the increase in inflation is accompanied by an increase of wages, the financial position of the borrower is further improved. On the other hand, a decrease in inflation shrinks the purchasing power of borrowers and loan servicing becomes a larger part of their income than it was before and can therefore lead to defaults. A similar scenario unfolds in the case of variable-rate loans and sticky wages that do not adjust to the rate of inflation. Findings by Charalambakis et al. (2017) that inflation and unemployment were the main driving forces of NPLs in Greece following 2012 will be discussed in further in a later chapter.

- Exchange rate

The effect of the exchange rate on NPLs remains an undetermined issue. In countries where there is a high degree of lending denominated in foreign currencies an exchange rate depreciation can lead to an increase of NPLs[52] as confirmed by Beck, Jakubik and Piloiu (2019), who use data from the BIS as a proxy for this purpose. Accordingly, an appreciation of the exchange rate improves the position of borrowers who have financial

[52] During the general economic decline that started in 2009, there was a significant increase in the fraction of NPLs in Ukraine. The share of loans denominated in foreign currency at the time, in conjunction with the large depreciation of the Ukrainian “hryvnia”, can serve as an explanatory basis for the rise in the share of NPLs. During the same period, Latvia maintained its currency board arrangement vis-à-vis the euro and no significant effect of the exchange rate was placed on the share of NPLs. Beck, R., Jakubik, P. and Piloiu, A. (2013). Non-performing loans: What matters in addition to the economic cycle? *ECB Working Paper*, [online] (1515). Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2214971 [Accessed 2 Apr. 2019].

obligations denominated in foreign currency. Another aspect of the exchange rate regime concerns export-oriented sectors of an economy. According to Klein (2013)[53], an exchange rate depreciation strengthens the competitiveness of local firms and facilitates their ability to service their debts and therefore leads to a lower share of NPLs. Similarly, an exchange rate appreciation hampers the competitiveness of export-oriented firms hence their ability to repay their debts leading to an increase of NPLs[54].

According to Louzis et al. (2010), a differential impact of the macroeconomic fundamentals on the quality of loans can be observed with respect to their specific category they belong to: consumer, business and mortgage loans. They find that the growth rate of the economy "*seems to govern the relationship between the NPLs and the macroeconomic factors across all three categories of loans*". Consumer and business loans are found to be the most sensitive towards changes in GDP. While there is also a negative function of the GDP growth rate and the coefficient of the variable in the model is statistically significant, there is much less sensitivity and impact than the other two types of loans.

As far as the unemployment rate is concerned, the same applies here as well. Both business and consumer loans are sensitive to changes in the unemployment rate (1 lag in the model) and Louzis et al. (2010) state explicitly that "*it may be inferred that a rise in unemployment affects households' ability to service their debts with a three-month time delay*". Again, mortgages loans are the least sensitive portfolio. According to Mitrakos [cited in Louzis et al. (2010)], "*this could be explained by the fact that mortgage loans are mostly extended to public servants and high-skilled workers of the private sector and consequently unemployment does not have any noticeable effect on the corresponding NPL ratio*".

In the model by Louzis et al. (2010), there is a strong relationship between lending rates and the share of NPLs. The statistical significance of the interest rate coefficient is

[53] Klein, N. (2013). *Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance*. International Monetary Fund.

[54] Fofack, H. (2005). *Nonperforming loans in Sub-Saharan Africa : causal analysis and macroeconomic implications*. [online] Ideas.repec.org. Available at: https://ideas.repec.org/p/wbk/wbrwps/3769.html [Accessed 2 Apr. 2019].

stronger for consumer and business loans than it is for mortgage loans. It is important to mention, however, that consumer and business loans tend to be in floating rate regimes while a significant share of mortgages are placed in fixed rate regimes. Nevertheless, the long-run interest rate coefficient is statistically significant for mortgage loans as well.

The explanation provided by Louzis et al. (2010) regarding the insensitivity of mortgage NPLs to the macroeconomic fundamentals has to do with the pledged collateral that usually accompanies this particular type of financial product, in contrast with the other two types of loans. They add that “*home ownership is highly valued in Greece, a feature that may be considered as a social specificity*”.

<u>Bank-specific determinants</u>

There is a strand of bibliography focusing on the determinants of non-performing loans that stem from the “distinctive features of the banking sector and the policy choices of each particular bank with respect to their efforts for maximum efficiency and improvements in their risk management [55]”. Such factors are considered to affect the quality and evolution of NPLs.

One of the initial studies that attempted to investigate the factors affecting NPLs belongs to Berger and DeYoung (1997). The study checked for correlations between loan quality, cost efficiency and bank capital by testing the flow of causality between four hypotheses referred to as: “bad luck”, “bad management”, “skimping” and “moral hazard”.

- “*Bad Luck*” hypothesis

The “bad luck” hypothesis suggests that exogenous developments can accelerate the accumulation of NPLs in banks’ balance sheets, further raising the costs associated with handling these loans and decreasing the overall cost efficiency of the financial institutions involved.

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[55] Louzis, D., Vouldis, A. and Metaxas, V. (2012). Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios. *Journal of Banking & Finance*, 36(4), pp.1012-1027

- "*Bad management*" hypothesis

The variables of this hypothesis are the same as in the "*bad luck*" hypothesis but the opposite flow of causality and temporal order are implied. A positive link is observed on this hypothesis, indicating that poor management in terms of credit scoring, appraisal of pledged collaterals and monitoring of borrowers leads to an increase in the share of NPLs[56]. Berger and DeYoung (1997) find the strongest support for this hypothesis which by extension confirms the "*bad luck*" hypothesis. In an empirical study concerning the nexus between cost efficiency and non-performing loans for Czech banks (1994 to 2005), Podpiera and Weill (2008) also find support for the "*bad management*" hypothesis[57]. Louzis et al. (2010) employ another hypothesis, dubbed "bad management II", expecting to find a negative relation between performance and future NPLs using indicators of past performance (ROE, ROA), as the latter can serve as a proxy for the quality of management. They find support for the hypothesis that worse performance is positively associated with increases in future nonperforming loans.

- "*Skimping*" hypothesis

The "*skimping*" hypothesis suggests that banks tend to sacrifice loan quality in the long run in order to achieve short run increases of cost efficiency. According to Louzis et al. (2012), "*there exists a trade-off between allocating resources for underwriting and monitoring loans and measured cost efficiency*". Studies by Reddy (2011) and Williams (2004) that have checked the "*skimping hypothesis*" on banks that have been constantly cost efficient have not found support for this premise[58].

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[56] "Bad" managers (1) may perform poorly in credit scoring and bring about a disproportionally high number of loans with negative NPV, (2) are inadequately qualified to estimate the value of loan collateral guaranties or (3) have trouble in monitoring and controlling borrowers after granting a loan. Nikolopoulos, K. and Tsalas, A. (2017). Non-Performing Loans: A Review of the Literature & the International Experience. In: P. Monokroussos and C. Gortsos, ed., *Non-performing loans and resolving private sector insolvency: experiences from the EU periphery and the case of Greece*. Palgrave Macmillan.

[57] Podpiera, J. and Weill, L. (2007). Bad Luck or Bad Management? Emerging Banking Market Experience. *SSRN Electronic Journal*.

[58] Reddy, K. (2011). Management Behaviour in Indian Commercial Banks. *International Review of Accounting, Banking and Finance*, 3(3), pp.70-92. Also, Williams, J. (2004). Determining management behaviour in European banking. *Journal of Banking & Finance*, 28(10), pp.2427-2460.

- "*Moral Hazard*" hypothesis

According to Berger and DeYoung (1997)[59], banks with low capitalization tend to respond more to moral hazard incentives – unnecessary risk taking when other parties bear the risk – to increase the riskiness of their loan portfolio which ultimately leads to a larger share of NPLs in the long run. Therefore, low and inadequate capitalization is positively associated with increased NPLs. Correspondingly, banks with ample capitalization tend not to respond to moral hazard incentives.

- "*Size effect*" hypothesis

A study by Salas and Saurina (2002) cited in Louzis et al. (2012) with data for Spanish banks (for the period 1985-1997) found that the size of a particular bank is negatively related to the share of NPLs. Specifically, larger banks tend to have lower levels of NPLs. Data by the ECB and the EBA seems to confirm this hypothesis [See Table 1], although it remains unclear "*if and to which extent the size effect is actually driven by a country effect, as the underlying data is not made available on entity level*"[60].

In particular, Anastasiou, Louri, and Tsionas (2016) examine the determinants of NPLs using a sample of European banks in the period 1990–2015. GMM estimators showed that taxes as well as the output gap are two new variables, which together with the usual bank and country-specific characteristics are found to significantly affect NPLs and should be taken into account when formulating macroprudential policies.

The dynamics of spillovers

We have analyzed most of the known determinants that affect the quality of loans in an economy with examples stemming mainly from the European Union. But what happens in the case of a deeply integrated area such as the European Union if, ceteris paribus, there is an economic or financial distress in one of the Member States? Berti et al. (2017)

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[59] Berger, A. and DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, 21(6), pp.849-870.

[60] Economic Governance Support Unit (2018). *Non-performing loans in the Banking Union: Stocktaking and challenges*. Briefing. European Parliament.

collect evidence[61] from numerous relevant empirical studies, most of which use price measures, including banking stock prices, credit default swaps and sovereign bond yields but also quantity-based measures, such as cross-border bank exposures, since "*the evidence suggests the importance of co-movement between these measures reflecting [..] potential for unwelcomed cross-border spillovers*". According to Berti et al. (2017), there are various channels through which spillovers can be transmitted across national borders and manifested in other economies.

Macroeconomic conditions

A generalized deterioration of the macroeconomic environment of a particular country can be translated to increased NPLs in another in multiple ways. A slump in the economic growth of one country can be transmitted to another through two channels and therefore affect their share of NPLs. Through the trade channel, a decline in the economic growth can result in less import demand and can easily translate to "*a deteriorating value of cross-border holdings of equity and debt of NFCs in the same country*" through the financial channel and consequently affects other Member States as well. Effects of a decline in the economic growth "*will also have an effect on public finances with a likely weakening of the sovereign debt risk profile, generating additional cross-border effects in the financial system*". According to the EC (2016), consumer confidence shocks can also place an effect on domestic consumption and therefore retain the potential to be transmitted through spillovers[62].

Cross-border lending effects

There are two concepts with regard to the lending behavior of banks and the possible spillover effects that can be produced due to the latter. Spillover effects can be generated via domestic bank lending or the lending of foreign banks.

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[61] Berti, K., Vasicek, B. and Engelen, C. (2017). A macroeconomic perspective on non-performing loans (NPLs). *Quarterly Report on the Euro Area (QREA)*, [online] 16(1), pp.7-21. Available at: https://ideas.repec.org/a/euf/qreuro/0161-01.html [Accessed 2 Apr. 2019].
[62] European Commission (2016), 'Confidence spillovers in the euro area', Quarterly Report on the Euro Area, Vol. 15, No 2, pp. 33-38.

When a domestic bank operates in foreign banking sectors with significant exposures (such as loans issued in that market), increases in the NPL share in the foreign banking sector can affect the domestic banks and place upon the latter the same structural deficiencies that they suffer from, which hinder the resolution of the issue. The mechanism at play in this case is that capital is tied and not put to use for financing healthy investment activities in the bank's home market. On the other hand, there is also another transmission mechanism through which NPLs can cause adverse effects in other banking systems. This is related to a mandatory reduction of cross-border lending activities and by extension of the credit supply in other countries due to constraints caused by high levels of NPLs in their balance sheets. There is a possibility to offset such effect by compensating the reduced lending with an increase from competitor markets to avoid the probable result of a reduced credit supply.

Studies have showed that it is possible to assess least which Member States could demonstrate increased vulnerability to such spillover effects based on their cross-border exposure of bank assets. Pertaining to the first scenario, of spillovers transmitted via cross-border exposures of domestic banks, banks in Romania have demonstrated an increased exposure to Greek banks, British banks to Ireland and German banks to Italy. The second scenario, related to spillovers via foreign banks, can be applied, for example, to Croatia, Austria and Hungary which have shown an increased exposure and vulnerability to changes in the lending activity of Italian banks [See Table 5].[63]

At a first glance, these findings indicate increased cross-border risk sharing which is a quite essential prerequisite for the advancement of banking integration in Europe, they also reveal the importance of a timely resolution of NPLs to avoid adverse side-effects in the form of spillovers.

[63] Berti, K., Vasicek, B. and Engelen, C. (2017). A macroeconomic perspective on non-performing loans (NPLs). *Quarterly Report on the Euro Area (QREA)*, [online] 16(1), pp.7-21. Available at: https://ideas.repec.org/a/euf/qreuro/0161-01.html [Accessed 2 Apr. 2019].

NPLs and the real economy: a two-way relation[64]

It has been established that the soundness of the financial system is strongly inter-related with the fluctuation of macroeconomic fundamentals. Regarding the matter in hand, during economic downturns, it is more likely that businesses and individuals will fall behind the repayment of their debts, which will ultimately lead to an increase in the share of NPLs in banks' balance sheets. However, this relationship is not unilateral. Issues that arise in the financial sector and can be characterized as inherent to the latter in this sense, can also have negative effects on the macroeconomic environment through various channels. This effect "*has been (until recently) largely omitted in mainstream macroeconomic thinking*[65]*"* and as such, the strand of literature devoted to this aspect of the nexus between the financial and macroeconomic developments has been quite recent.

According to Berti et al. (2017), whether such a feedback effect will manifest itself and the extent to which it will affect the macroeconomic environment is strongly related with the operational profile of banks and the extent to which they continue to adequately perform their principal functions: channeling savings from creditors to borrowers; distributing risks; unimpaired transmission of the monetary policy to the real economy facilitating in this way the fulfillment of its goals.

The empirical studies that have investigated this issue tend to find a strong and significant relationship between macroeconomic developments and asset quality and credit risk with results that are two-sided and highly non-linear [See Table 7] while it is shown that the main channel of transmission of feedback effects from NPLs to the real economy is the reduced lending to the corporate sector.

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[64] Berti, K., Vasicek, B. and Engelen, C. (2017). A macroeconomic perspective on non-performing loans (NPLs). *Quarterly Report on the Euro Area (QREA)*, [online] 16(1), pp.7-21. Available at: https://ideas.repec.org/a/euf/qreuro/0161-01.html [Accessed 2 Apr. 2019].

[65] European Commission, Directorate-General for Economic and Financial Affairs (2016). *Quarterly report on the euro area, Volume 15, No 2*. Luxembourg: Publications Office.

State of Play

European Union

The global financial crisis brought about high stocks of NPLs in the balance sheets of many European banks hindering bank profitability and interfering with market confidence. A closer look at the statistical data is an important supplement to the analysis of the development of non-performing loans and a prerequisite for a thorough comprehension of the status quo as well as the trajectories that depict the course of NPLs. In 2016, it was estimated that 826 billion euros of non-performing loans (NPLs) were sitting on the balance sheets of the most significant credit institutions in the Eurozone.[66] The upward trajectory of NPLs in Europe during the crisis resulted in an NPL ratio peak of 7.2% in 2012 while in 2017, it stood at 3.7%, just below the world average[67].

Although €800 billion - the number representing cumulative NPLs at the end of 2017 - seems substantial, a further breakdown of the composition of total NPLs shows that only a percentage of that is truly problematic. A categorization of countries on the basis of the intensity of the problem, brought forward by the EC[68], assists in identifying these differences: Member States belonging to Group 1 demonstrate low levels of NPLs and have witnessed no significant fluctuation throughout the crisis; countries falling under Group 2 demonstrate a relatively low level of NPLs but have experienced a significant increase during the crisis; countries in Group 3 demonstrate high level of NPLs [See Table 2].

[66] The future of banking in Europe: regulation, supervision, and a changing competitive landscape, *Bank Governance Leadership Network* January 2016

[67] European Banking Federation (2019). *Banking in Europe; the 2018 Facts & Figures*. [online] BRUSSELS: European Banking Federation. Available at: https://www.ebf.eu/ebf-media-centre/banking-in-europe-ebf-publishes-2018-facts-figures/ [Accessed 2 Apr. 2019].

[68] Berti, K., Vasicek, B. and Engelen, C. (2017). A macroeconomic perspective on non-performing loans (NPLs). *Quarterly Report on the Euro Area (QREA)*, [online] 16(1), pp.7-21. Available at: https://ideas.repec.org/a/euf/qreuro/0161-01.html [Accessed 2 Apr. 2019].

By the end of the 4th quarter of 2017, it was estimated that NPLs of a total value of €329 billion were sitting on the balance sheets of banks located in countries of Group 1. Given the fact that these countries are mostly large economies (France, Germany, UK), the resulting ratio of NPLs to total loans is "*considered low and not uncharacteristic of the typical functioning of an economy*[69]". A large part of the loans in Groups 2 and 3, namely €237 billion are provisioned, "*meaning that a significant part has already been absorbed by banks*". In the same group, approximately €266 billion worth of loans are either collateralized or non-covered NPLs. According to the EBF, "*it is estimated that the real problem to tackle is a portion between €150 billion and €200 billion, which are those neither provisioned nor collateralized*", a fraction constituting less than one fourth of the current NPLs stock.

Why are different patterns in the development of loans between groups of countries observed? These differences stem from: individual characteristics and problems, specific to each national banking system, such as differing provisioning ratios between countries; varying levels of proactive (and reactive) measures to deal with the issue (changing supervisory guidance, accounting requirements or the establishment of public Asset Management Companies); diverse macroeconomic environments and the relative intensity of the connection of the latter with NPLs.

In general, the stock of NPLs has seen a considerable decrease in the past years due to increased efforts for their reduction. In particular, €256 billion was the difference in the total value of NPLs between the end of 2015 and mid-2017, most of which was a result of various implemented reforms in countries that experienced alarming levels of NPLs following the crisis, such as the optimization of the efficiency of enforcement and insolvency procedures.

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[69] European Banking Federation (2019). *Banking in Europe; the 2018 Facts & Figures*. [online] BRUSSELS: European Banking Federation. Available at: https://www.ebf.eu/ebf-media-centre/banking-in-europe-ebf-publishes-2018-facts-figures/ [Accessed 2 Apr. 2019].

Greece and the EU periphery

Until the moment that Greece was hit by the crisis, banks enabled extensive issuing of loans[70] and yet, NPLs did not exceed a ratio of 5% of total lending and in recent years reached ratios that are almost 10 times larger[71]. As far as Greece is concerned, by the end of the 2nd quarter of 2018, the ratio of NPLs to total gross loans was still at 44.8%.[72]

Despite the accelerated return of deposits, the enhancement of liquidity and the discontinued dependence of Greek banks from the Emergency Liquidity Mechanism[73], the financial system still lacks the ability to support growth by returning to normal lending conditions due to the persistently high rate of NPLs[74].

According to the annual report the Bank of Greece, “it is recognized that there have been significant financial sector reforms that have begun to bear fruit. The stock of NPLs was reduced to €81.8 billion at the end of December 2018 (or 45.4% of total loans), from EUR 107.2 billion at its peak in March 2016.[75]”

A distinction needs to be made between different portfolios: mortgage loans demonstrate a percentage of non-performing 44.5%, consumer loans are at 53% and business loans at 44.6%. With regard to the sectoral distinction of non-performing business loans, large corporations (25,8%) and the marine services (22.6%) exhibit the lowest shares of non-

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[70] Αντζουλάτος, Ά. (2011). Τραπεζική - τάσεις (πριν) και προοπτικές (μετά την κρίση). In: Γ. Χαρδούβελης and Χ. Γκόρτσος, ed., *Η διεθνής κρίση, η κρίση στην ευρωζώνη και το ελληνικό χρηματοπιστωτικό σύστημα*. [online] Available at: https://www.hba.gr/Publications/FinancialDetails/75 [Accessed 2 Apr. 2019].

[71] Brunsden, J. (2016). *Greece’s central bank boss speaks on grappling with debtors*. [online] Ft.com. Available at: https://www.ft.com/content/0c1614a8-b727-11e6-961e-a1acd97f622d [Accessed 2 Apr. 2019].

[72] Economic Governance Support Unit (2018). *Non-performing loans in the Banking Union: Stocktaking and challenges*. Briefing. European Parliament.

[73] Ekathimerini.com. (2019). *Moody's: Greek banks repayment of emergency funding a credit positive | Kathimerini*. [online] Available at: http://www.ekathimerini.com/239221/article/ekathimerini/business/moodys-greek-banks-repayment-of-emergency-funding-a-credit-positive [Accessed 2 Apr. 2019].

[74] Naftemporiki.gr. (2019). ΤτΕ: Η ακτινογραφία των κόκκινων δανείων και πώς θα μειωθούν. [online] Available at: https://www.naftemporiki.gr/finance/story/1460154/tte-i-aktinografia-ton-kokkinon-daneion-kai-pos-tha-meiothoun [Accessed 2 Apr. 2019].

[75] Τράπεζα της Ελλάδος (2019). Έκθεση του Διοικητή για το έτος 2018. Αθήνα: Τράπεζα της Ελλάδος, pp.216-218.

performing loans while the largest fraction of NPLs is found to be with self-employed individuals at the high percentage of 67.4%. This is mainly explained by the fact that large firms and corporations “that are facing difficulties in servicing their debt possess greater bargaining power to renegotiate interest payments on their loans” than smaller businesses and individuals[76].

The great patient following the crisis in terms of the proportions of the NPL issue has undoubtedly been the Italian banking sector. The NPL volume of the Italian banks reached a peak and simultaneously a record for the whole European market in November of 2015 with a total worth of €341 billion. In the past years following the peak of 2015, credit risk has been gradually decreasing and adjusting to pre-crisis levels. New non-performing loans stand at 1.7% of total loans albeit the latter are substantially smaller in absolute terms. Specifically, the past two years were critical for the development of the NPL issue for many banks with gross disposals of €47.3 billion in 2017 and €103.6 billion in 2018 achieving a volume equal to €222 billion towards the end of 2018 while the profitability indicators of the Italian banks have been improving. Concurrently, the Italian banking sector has been undergoing a restructuring with the purpose of further consolidation, driven mainly by ongoing developments, the changing regulatory environment, the intra-sectoral technology spillovers and the palpable need for the optimization of the organizational and internal structure of the banking system.

A similar narrative has taken place for Spanish banks who are in the last phase of the resolution of the issue. The Spanish banking sector has seen a reduction of more than 60% since the peak that manifested in 2013 with the positive development principally owed to supervisory pressure by the financial authorities and the establishment of a public-private “bad bank” that absorbed bad assets, increased investor interest and facilitated the accumulation of capital as a result of increased bond sales.

[76] Louzis, Dimitrios P. and Vouldis, Angelos T. and Metaxas, Vasilios L., Macroeconomic and Bank-Specific Determinants of Non-Performing Loans in Greece: A Comparative Study of Mortgage, Business and Consumer Loan Portfolios (November 4, 2010). Bank of Greece Working Paper 118. Available at SSRN: https://ssrn.com/abstract=1703026 or http://dx.doi.org/10.2139/ssrn.1703026

The point has already been made that significant differences are observed in the way NPLs developed within the euro area. The countries that were by comparison affected more by the crisis (Cyprus, Greece, Ireland, Italy, Portugal, Spain) almost invariably witnessed exacerbated levels of NPLs, which is consistent with the hypotheses that have been already analyzed investigating correlations between NPLs on banks' balance sheets and the macroeconomic environment. An innovative investigation into this issue is offered by Anastasiou et al., whose study confirms that NPLs of the banks located in the periphery react more strongly to macroeconomic variables[77] and are therefore more vulnerable than the banks of the core, which is an obvious indication of financial fragmentation.

Exit strategies for NPLs

This section examines and evaluates the resolution instruments that have been proposed by the bibliography and in some cases have been applied in certain countries. The section is divided between bank-focused solutions, namely those that operate on an aggregate level, focusing on banks as the main point of interest and debtor-focused resolution mechanisms which mainly revolve around debt restructuring schemes. The notion that bank-focused solutions do not capture the systemic aspect of the issue and therefore do not adequately deal with the latter is discussed as well and explanatory points are presented.

Debtor-focused resolution mechanisms

Debtor-focused resolution mechanisms include assessments and measures at the level of individual borrowers and can be an important tool in dealing with NPLs. Such mechanisms, however, tend to be more effective in times of fiscal and financial normality simply because banks cannot pursue multiple judicial processes under the pressure of the market and the additional surge of NPLs. Moreover, the classification of a loan as non-performing, which is a prerequisite for starting the process, is associated with higher

[77] Anastasiou, D., Louri, H. and Tsionas, M. (2018). Nonperforming loans in the euro area: Are core-periphery banking markets fragmented? *International Journal of Finance & Economics*, 24(1), pp.97-112.

provisioning requirements, carries by itself a stigma for the bank and its clients and therefore there is a tendency on behalf of the banks to postpone this process as much as possible.

“Debt restructuring is a standard way of restoring a creditor’s repayment capacity and allows a non-financial company to reduce and renegotiate its non-performing debts.[78]” There are variations of this mechanism depending on the involvement of the judicial sector: out-of-court workouts are more time-efficient and allow for the company under restructuring to continue operating; hybrid approaches include the preparation of a workout plan by the lender which is only submitted to a court for approval. According to BIS, monitoring and constant evaluation are an important element for the success of such processes since the bank continues to retain the credit exposure vis-à-vis the customer – and therefore the risk of credit deterioration remains on the balance sheet of the bank - and in order to reduce the risk of moral hazard phenomena from the borrower’s side.

<u>*Bank-focused resolution mechanisms*</u> [See Table 8]

- Write-offs

When a write-off is performed, loans are written off from banks’ balance sheets, meaning the bad asset has been removed from the financial statements of the bank. This is not a frequent practice as usually the scales tilt towards waiting for better macroeconomic conditions or possibilities for restructuring. Low provisioning and capital levels constitute a major impediment when deploying the write-off measure since the latter translates into immediate losses and a weakened ability to absorb future losses.

- Direct sales

In a direct sale, the bank sells an asset to a counterparty which can be another bank, an investment fund or another type of financial institution. The international experience on

[78] Financial Stability Institute (2019). *FSI Insights on policy implementation No 3*. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS)

this method includes Ireland, Spain and the United Kingdom. Direct sales typically cover packages of loans and not individual loans due to the high costs of assessing each asset. It is also frequent that there are large bid-ask spreads between buyers who wish to buy at lowered prices, especially during crises, and sellers who pursue higher prices as close as possible to the book value of the assets due to the information asymmetries that exist prior to the transaction regarding the information that the originating bank had at the time of granting the loan.

- Securitization

"Securitization is the procedure whereby an issuer designs a financial instrument by merging various financial assets and then markets tiers of the repackaged instruments to investors. This process can encompass any type of financial asset and promotes liquidity in the marketplace.[79]" The added value of the concept of securitization is that risk that was previously encompassed in a single asset is diversified and the very existence of tranches/tiers with varying risk-reward combinations offers potential investors with the ability to choose the one which best suits their interests. Additionally, securitization turns NPLs into broadly marketable securities and can also be applicable to smaller loans such as those of individuals or SMEs due to the exploitation of economies of scale. An important element for the well-functioning of securities markets and the successful disposal of NPLs is the robustness of the local capital markets. The international experience has demonstrated that distressed capital markets have not allowed for the deployment of the securitization tool (securitization was inert during the US subprime mortgage crisis and was only moderately put to use following the global financial crisis) leading to initiatives[80] that attempt to rebuild the securitization market with respective regulatory adjustments in terms of transparency and availability of information.

[79] Investopedia. (2018). *Securitization*. [online] Available at: https://www.investopedia.com/terms/s/securitization.asp [Accessed 2 Apr. 2019].

[80] European Union: European Commission, *Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on credit servicers, credit purchasers and the recovery of collateral*, 14 March 2015, COM/2018/0135 final, [online] Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52018PC0135 [Accessed 2 Apr. 2019].

Case study - GACS and Atlante Fund

Italy has been the forerunner in the use of securitization schemes in an effort to deal with the internal crisis created by non-performing loans. In 2016, the Italian government introduced a guarantee scheme to incentivize the sale of NPLs to private sector Special Purpose Vehicles (SPVs), known as GACS (Garanzia Cartolarizzazione Sofferenze), by providing a state guarantee on the senior debt tranches.[81] The European Commission approved the GACS and decided that the measure would not involve state aid on the following basis: the risk for Italy would not be significant since the measure applied only to senior tranches of the securitization assets that have been awarded at least an investment-grade rating by an "ECAI" independent rating agency[82]; "the risk distribution of the tranches and the set-up of the securitization entities will be tested and confirmed by the market before the State assumed any risk"; the GACS guarantee fee would be "based on a market benchmark (a basket of credit default swap prices of Italian based companies)".

At the same time, an investment fund was established by private sector entities[83], called Atlante 1, with the purpose of injecting capital in regional banks and stabilizing their shares. It was also entrusted with the purchase of the mezzanine and junior tranches of securitized non-performing loans. Most of the resources of the fund (EUR 4.25 billion) were however quickly used in the recapitalization of two regional banks, Banco Popolare di Vicenza for EUR 1.5 billion, and Banca Veneto for EUR 1 billion. The successor, Atlante 2, was established in August 2016 with an investment capacity of around EUR 3 billion and had a much narrower scope of investing solely in NPLs.

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[81] Dimarco, E. (2018). *NPLs in Italy: A gradual unwind*. [online] Cib.db.com. Available at: http://cib.db.com/insights-and-initiatives/flow/npls-in-italy-a-gradual-unwind.htm [Accessed 2 Apr. 2019].

[82] External Credit Assessment Institutions (ECAI), Esma.europa.eu. (n.d.). CRA Authorization. [online] Available at: https://www.esma.europa.eu/supervision/credit-rating-agencies/risk [Accessed 2 Apr. 2019].

[83] The third largest shareholder was Cassa Depositi e Prestiti (CDP) with EUR 500 million, an investment bank in which the Italian state has a majority shareholding). Humblot, T. (2017). *Non-performing loans in Italy: an overview*. Conjoncture. [online] BNP Paribas, pp.3-13. Available at: https://economic-research.bnpparibas.com/html/en-US/performing-loans-Italy-overview-3/30/2017,29709 [Accessed 2 Apr. 2019].

Securitization as a means of commercialization of bad assets in conjunction with structural reforms and ad hoc initiatives have encouraged investment interest and involvement and have stimulated the decline of NPLs in Italy.

[See Table 3][84]

Case study - Securitization in Greece

Instigated by Italy, the Greek financial authorities have been developing a plan in a similar fashion for the securitization of NPLs with state-backed guarantees. The plan was drafted with the collaboration of the Hellenic Financial Stability Fund (HFSF) and JP Morgan and is at the time of writing pending approval by the Directorate General for Competition of the European Commission with the controversial issue being the cost banks will have to bear to make use of state guarantees in the Commission's investigation on the existence of state aid in the form of a preferential commission. In Italy, the cost was determined by market terms, namely a basket of credit default swap prices of Italian based companies. In Greece, however, the CDS price is higher indicating a cost above 4%, which is unacceptable to local banks.[85] The initiatives, in conjunction with the satisfactory results published by banks for 2018, have attracted increased interest from international investors[86] for the 20 billion euros of NPLs that will be put up for securitization and sale following the ongoing plan whilst banks are preparing for these developments by formulating portfolios and mapping out short to medium term sales opportunities.[87]

[84] Deloitte United Kingdom. (2019). Italian Non-Performing Loans | Deloitte UK. [online] Available at: https://www2.deloitte.com/uk/en/pages/financial-advisory/articles/italian-non-performing-loans.html [Accessed 2 Apr. 2019].

[85] Τζώρτζη, Ε. (2019). *Στην DG Comp το σχέδιο του ΤΧΣ και του υπ. Οικονομικών*. [online] Kathimerini.gr. Available at: http://www.kathimerini.gr/1010686/article/oikonomia/ellhnikh-oikonomia/sthn-dg-comp-to-sxedio-toy-txs-kai-toy-yp-oikonomikwn [Accessed 2 Apr. 2019].

[86] Σακελλάρη, Ε. (2019). *Πυκνώνουν οι εξελίξεις στη διαχείριση των NPLs*. [online] Naftemporiki.gr. Available at: https://www.naftemporiki.gr/finance/story/1460726/puknonoun-oi-ekselikseis-sti-diaxeirisi-ton-npls [Accessed 3 Apr. 2019].

[87] Euro2day.gr. (2019). *Alpha Bank: Τρεις πωλήσεις και μια τιτλοποίηση στο επόμενο δωδεκάμηνο*. [online] Available at: https://www.euro2day.gr/news/enterprises/article/1672896/alpha-bank-treis-polhseis-kai-mia-titlopoihsh-sto.html [Accessed 2 Apr. 2019].

- Asset Management Companies

Asset management companies (AMCs) have been widely utilized in the resolution of distressed assets caused by crises in the financial sector[88]. AMCs are entities to which banks can transfer their bad assets and, in that way, contribute to the swift cleaning-up of their balance sheets. They can vary from being privately or publicly owned, centralized (more suitable for systemic problems) or bank-specific (for issues restrained to one or a few banks), and asset-specific or generalized.[89] As far as state involvement in AMCs is concerned, the EU legal framework governs state aid in the financial sector through the Bank Recovery and Resolution Directive (BRRD) and the State Aid communications of the European Commission[90]. Among other things, it is specified that public capital can under circumstances support banks and one of the ways the latter can occur is indirectly, through the participation in an AMC.

The essence of the function of an AMC is captured by Fell et al. (2017): "*The main function of systemic AMCs is to provide a "bridge" for the inter-temporal pricing gaps which emerge when market prices for NPLs and the underlying collateral are temporarily depressed.* […] *Bridging this inter-temporal pricing gap is accomplished by removing a significant share of NPLs, usually belonging to a specific asset class such as commercial real estate, from*

Euro2day.gr. (2019). *Τιτλοποιήσεις 6 δισ. ετοιμάζει η Πειραιώς*. [online] Available at: https://www.euro2day.gr/news/enterprises/article/1673107/titlopoihseis-6-dis-etoimazei-h-peiraios.html [Accessed 2 Apr. 2019].

Euro2day.gr. (2019). *Εθνική Τράπεζα: Ο χάρτης μείωσης των NPEs*. [online] Available at: https://www.euro2day.gr/news/enterprises/article/1672908/ethnikh-trapeza-o-harths-meioshs-ton-npes.html [Accessed 2 Apr. 2019].

Τζώρτζη, Ε. (2019). *Τιτλοποιήσεις στεγαστικών αξίας 2 δισ. ευρώ ξεκινάει η Eurobank*. [online] Kathimerini.gr. Available at: http://www.kathimerini.gr/1002607/article/oikonomia/epixeirhseis/titlopoihseis-stegastikwn-a3ias-2-dis-eyrw-3ekinaei-h-eurobank [Accessed 2 Apr. 2019].

[88] AMCs were established following financial distress episodes in Sweden (in the early 1990s), in Korea (in the late 1990s), in Ireland (2010), Spain (2012) and Slovenia (2013). In all of these instances, "*the governments have been strongly involved in their creation, by providing capital, facilitating funding, and passing legislation governing the design and operations of the AMCs*". Neyens, R. and Cerruti, C. (2016). *Public Asset Management Companies: A Toolkit*. World Bank.

[89] Fell, J., Grodzicki, M., Martin, R. and O'Brien, E. (2017). A Role for Systemic Asset Management Companies in Solving Europe's Non-Performing Loan Problems. *European Economy: Banks, Regulation, and the Real Sector*, [online] 3(1), pp.71-86. Available at: https://european-economy.eu/book/non-performing-loans/ [Accessed 2 Apr. 2019].

[90] For more see Fell et al. (2017) p. 75

bank balance sheets and working them out over a specified time horizon to maximize their recovery value. The transfer price paid to banks by the AMC is usually set at long-term (real economic) value, thus avoiding the fire sales that would result from NPL disposals into illiquid markets where the risk premia required by outside investors are unusually high."

According to Fell et al. (2017), there are specific elements that need to be considered during all stages of setting up an AMCs in order to achieve optimal recovery values whilst keeping the risk borne by the state at minimal levels and to avoid adverse countereffects of a poorly designed AMC.

"Asset perimeter"

This notion behind this point is that careful consideration must be carried out prior to the transfer of assets to the AMC in terms of the homogeneity of assets for the exploitation of possible economies of scale, the dissimilarity in the size of assets and potential operational challenges, prior track record in value recovering of similar AMCs with their respective associated portfolios, specified timetables and quantitative goals.

"Participation perimeter"

Banks tend not to recognize losses upfront willingly[91]. For this reason, voluntary participation in an AMC could possibly lead to "inaction, on account of first-mover disadvantages or cherry-picking of NPLs by participating banks". The international experience has seen mandatory transfers being used as an approach[92]. In the case of voluntary transfers, however, the introduction of worthwhile incentives, in conjunction with objective and transparent information related to the procedures and scope of the AMC, can mitigate and possibly eliminate such tactics.

"Asset valuation"

[91] Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 26

[92] See SAREB (Spain, 2012) Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 22

Another important aspect is the fixing of the price at which banks would transfer their bad assets to the AMC. According to the EU state aid provisions, a valuation by an independent financial expert following an EU Commission approved methodology needs to be performed prior to the asset transfers[93], to determine the market price and real economic value of the assets. Although acquiring bad assets above their market price could be considered state aid, it may however be mandatory to allow the bank to remove the assets from its balance sheet[94]. The AMC could accept the price corresponding to the real economic value of the asset[95] and therefore the valuation should produce the intrinsic value of the asset considering legal, tax, maintenance and servicing costs that potentially accompany the asset.

"Capital structure"

This point refers to the composition of the capital base of the AMC with relation to the effects on the general government sector. The international experience has demonstrated that public-private hybrid models with the majority being private equity stake have been quite successful in forming a balance that kept the government equity at low levels and therefore its effective control over the AMC but also minimizing the risk borne by the latter[96]. The total capital level should be pertinent to the asset and participation perimeters and enough to withstand unplanned losses on the AMC's assets.

"Governance and operations"

According to Fell et al. (2017), "strong and sound governance is a critical success factor for an AMC. It should strike the right balance between the business flexibility needed to

[93] Fell, J., Grodzicki, M., Martin, R. and O'Brien, E. (2017). A Role for Systemic Asset Management Companies in Solving Europe's Non-Performing Loan Problems. *European Economy: Banks, Regulation, and the Real Sector*, [online] 3(1), pp.71-86. Available at: https://european-economy.eu/book/non-performing-loans/ [Accessed 2 Apr. 2019].

[94] Galand, C., Dutillieux, W. and Vallyon, E. (2017). Non-Performing Loans and State Aid Rules. *European Economy: Banks, Regulation, and the Real Sector*, [online] 3(1), pp.137-160. Available at: https://european-economy.eu/book/non-performing-loans/ [Accessed 2 Apr. 2019].

[95] Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 26

[96] See NAMA (Ireland, 2009) and SAREB (Spain, 2012) Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 25

maximize recoveries, and constraints preventing diversion from the core mandate of the AMC." The right balance should also be achieved between the autonomy in terms of political interference and the necessary supervision by the regulatory authorities concerning restraint within its own mandate. The "sunset clauses", determining a closure time for AMCs, are an important element as well since they neutralize phenomena of moral hazard[97] – if there were expectations that asset prices may rise according to economic developments, there could be a tendency by AMCs and also their staff to postpone their disposals – especially if they are accompanied by meaningful incentives for the staff of the AMCs.

Financial integration and NPLs?

Considering the general climate towards financial integration in Europe and the enduring commitment of the Eurosystem towards its advancement, the obvious question arising from the comprehensive analysis of NPLs that has been presented is: how and to what extent does the existence of NPLs affect the broad process that is financial integration? Prior to attempting to answer this question, a brief overview of the most recent developments is necessary in order to outline the status quo in EU financial integration.

Following extensive fragmentation during the crisis period, the euro financial structure entered into a re-integration trend in 2012 after the ECB announced its Outright Monetary Transactions (OMT) framework and the after the euro area Heads of States published the declaration of intent with respect to the initiative of the banking union. The trend was reinforced by the materialization of the SSM in 2014 and the SRM in 2015[98]. Two composite indicators were introduced by the ECB to measure and graphically represent the progress of financial integration in the euro area, one that is price-based and one that

[97] Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 27

[98] European Central Bank (2016). *Financial integration in Europe*. [online] European Central Bank. Available at: https://www.ecb.europa.eu/pub/pub/prud/html/index.en.html?skey=integration [Accessed 2 Apr. 2019]

is quantity-based[99] [See Table 4]. According to the ECB, the digression that started during 2015Q1 and 2015Q2 can be "explained by differential developments for prices and quantities in various segments of the euro area financial system" and in particular it can be attributed to divergence of corporate and covered bond rates and the dispersion found in the equities market, which in turn "can be explained to a large extent by increasing risk aversion in global financial markets amidst the slowdown in growth in emerging market economies and diverging economic outlooks across euro area countries" and did not so much reflect genuine impediments to the furtherment of financial integration.

There was no considerable improvement in the level of financial integration during 2016 as demonstrated by the composite indicators of the ECB, which experienced only marginal variance. Factors such as political uncertainty (result of the UK European Union membership referendum that was held in June of 2016) and heightened global risk aversion inevitably affected market participants' perceptions. The expected effect of the latter on the composite indicators was possibly mitigated by the implementation of non-standard monetary policy measures by the ECB [targeted longer-term refinancing operations (TLTROs) and its expanded asset purchase programme (APP)] with the purpose of "*smoothing out frictions in monetary policy transmission across euro area countries in a wide range of market segments*" [100].

The latest data by the ECB on financial integration[101] for the year 2017 indicate a strong resumption of the post-crisis reintegration trend in the euro area in terms of prices,

[99] Greek data was not included in particular sub-indices (money market, bond market) due to "unusual developments observed in the Greek financial system in the second half of 2015 in the context of the negotiations between Greece and its official creditors and the referendum held on 5 July" to avoid distortion of the content of the composite indicator. European Central Bank (2016). *Financial integration in Europe*. [online] European Central Bank. Available at: https://www.ecb.europa.eu/pub/pub/prud/html/index.en.html?skey=integration [Accessed 2 Apr. 2019]

[100] European Central Bank (2017). *Financial integration in Europe*. [online] European Central Bank. Available at: https://www.ecb.europa.eu/pub/pub/prud/html/index.en.html?skey=integration [Accessed 2 Apr. 2019].

[101] European Central Bank (2018). *Financial integration in Europe*. [online] European Central Bank. Available at: https://www.ecb.europa.eu/pub/pub/prud/html/index.en.html?skey=integration [Accessed 2 Apr. 2019].

attributed principally to decreased dispersion in equity returns and bond yields caused by the betterment of economic conditions. there is no such trend resumption in terms of quantities as a result of reduced cross-border interbank lending[102].

There is a strand of literature seeking to capture the quality of financial integration by measuring the respective economic benefits and assessing its resilience against substantial asymmetric shocks and its ability to foster cross-country risk sharing within the euro area[103]. A larger part of the public discourse deals with the various pathways to greater financial integration mainly revolving around the completion of the banking union that would ultimately encourage further risk reduction and risk sharing.

In order to answer the initial question of this chapter, this perspective is deemed best: how do efforts to reduce NPLs support financial integration? The presence of financial actors with large shares of NPLs creates distrust between counterparties which in turn leads to further disintegration of banking markets within and across Member States. The distrust has been manifested in the following context: countries with jurisdiction over credit institutions with higher quality assets on their balance sheets are reluctant to support the integration trend of the banking sector (e.g. EDIS) until other members with large NPL ratios – which inevitably pose a greater risk to the system – place significant efforts into initiatives tackling NPLs[104]. This reveals another tendency that is very common, “entire banking systems being tarred with the same brush”[105] due to heightened skepticism and

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[102] This can be explained by large amounts of excess reserves held by a significant number of banks in the euro area (1,900 billion, 17 percent of euro-area GDP, in September 2018) which in turns lowers the need to borrow from other banks. Darvas, Zsolt and Pichler, David (2018) *Excess liquidity and bank lending risks in the euro area. Bruegel Policy Contribution Issue n˚16* | *September 2018.* [Policy Paper]

[103] Allen, Franklin, Thorsten Beck, Elena Carletti, Philip R. Lane, Dirk Schoenmaker, and Wolf Wagner (2010). Cross-Border Banking in Europe: Implications foor Financial Stability and Macroeconomic Policy

[104] Ft.com. (2019). *Hazardous non-performing loans obstruct Europe’s banking union | Financial Times*. [online] Available at: https://www.ft.com/content/5dd6562e-662a-11e7-9a66-93fb352ba1fe [Accessed 2 Apr. 2019]. Also Nouy, D. (2018). Risk reduction and risk sharing – two sides of the same coin. In: *Financial Stability Conference*. [online] Available at: https://www.bankingsupervision.europa.eu/press/speeches/date/2018/html/ssm.sp181031.en.html [Accessed 2 Apr. 2019].

[105] Enoch, C., Everaert, L., Tressel, T. and Zhou, J. (2014). *From Fragmentation to Financial Integration in Europe*. International Monetary Fund, p.129.

concern about the soundness of banking systems of countries that were most affected by the crisis.

In the chapter “NPLs: a market for lemons?” that follows, this study refers to the added value of transaction platforms in the efforts to mitigate the high information and transaction costs that cause wide bid-ask spreads in the NPL market. At this point, however, it is important to underline the notion that transaction platforms, apart from reducing NPLs, could also further promote financial integration as a result through standardization of data and processes, implementation of transparency standards and increased accessibility[106].

The reduction of NPLs is seen as the last step to “*repair the EU banking system*” as the large stocks in banks’ balance sheets decelerate capital generation and significantly hinder bank profitability because of inert lending. By extension, economic growth is held back, and monetary policy is ineffective due to distorted transmission channels.

[106] European Central Bank (2018). *Financial integration in Europe*. [online] European Central Bank. Available at: https://www.ecb.europa.eu/pub/pub/prud/html/index.en.html?skey=integration [Accessed 2 Apr. 2019].

NPLs trading: A market for lemons?

Can market failures in the secondary market for non-performing loans be paralleled to Akerlof's popular concept of defective and premium cars and the asymmetric information existing between seller and potential buyer[107]? This is manifested in the case of NPLs through a wide bid-ask spread between sellers and potential buyers which is principally a result of "market frictions and asymmetric information challenges for investors which further increases their required return, and thus the fixed cost of executing the transaction"[108]. This phenomenon is more frequent in the case of secured and more complex loans that tend to have qualities of opaqueness and confidentiality than simpler, unsecured retail loans. It is evident that the issue at stake is related to the extent to which information on assets is available equally to both parts of a transaction to avoid uncertainties and informational asymmetries.

Transaction platforms could especially target the aforementioned issue and have been proposed as a possible remedial measure[109]. In this context, a transaction platform would be an electronic marketplace where sellers of NPLs and potential buyers could exchange information and trade. The extent of its function could vary from simply serving as a data depository to covering and finalizing transactions.

It is important to note that such a scheme could function complementarily to other instruments that have been put forward in the effort to promote growth in NPL trading,

[107] In Akerlof 's concept, the seller of a used car knows whether or not his car is defective (lemon) or premium (peach) while the buyer does not. Not having this information, the buyer will be willing to pay no more than an average price, assuming he will purchase a "lemon". Likewise, the seller will only sell "lemons". Due to this information asymmetry, disadvantages are thrust upon sellers of premium vehicles since they are unable to strike good prices until they ultimately exit the market. Akerlof, G. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, [online] 84(3), pp.488-500. Available at: https://www2.bc.edu/thomas-chemmanur/phdfincorp/MF891%20papers/Ackerlof%201970.pdf [Accessed 12 Apr. 2019].

[108] Fell, J., Grodzicki, M., Martin, R. and O'Brien, E. (2016). Addressing market failures in the resolution of non-performing loans in the euro area. *Financial Stability Review*, pp.134-146.

[109] Economic and Financial Affairs Council, Banking - Non-performing loans, 11/07/2017, https://www.consilium.europa.eu/en/meetings/ecofin/2017/07/11/

such as AMCs, which could greatly benefit by the availability of data, the facilitation of securitization and the larger pool of investors.

Concluding remarks - Lessons from Italy?

In the years following the crisis, Greece and Italy have undoubtedly demonstrated some of the most alarming shares of NPLs creating challenges for policymakers to produce initiatives tackling this issue. In 2018, NPLs were 45% of loans in Greece while in Italy, NPLs were 11.1% of loans. Of course, due to the proportionally large size of the Italian economy, the latter ratio equals to €224.2 billion – roughly 25% of the total stockpile of NPLs in the Eurozone – while the ratio pertaining to Greece equals to €112.3 billion.

If the issue is approached from a macroscopic perspective, the countries at hand offer two differing approaches to NPL resolution that can provide valuable insights in the search for effective exit strategies. The efforts of Greece have been focused primarily on legislative initiatives, from the moratorium on repossessions in the form of law 3869/2010 – Katseli law – to legislative initiatives guided by compliance rules laid out in the third adjustment programme and requirements of post-memoranda supervision[110]. Although Italy has also put forward legislative initiatives to optimize the regulatory and supervisory frameworks[111], the overall approach included market-oriented measures and public-private partnerships that provided guarantees, incentives and rebooted the sector, such as the GACS scheme - which is currently being renewed[112] - and the Atlante Fund.

[110] Κουκάκης, Θ. (2019). *Πυρετώδεις προετοιμασίες για την πλατφόρμα του διάδοχου σχήματος του Νόμου Κατσέλη*. [online] CNN.gr. Available at: https://www.cnn.gr/oikonomia/story/171224/pyretodeis-proetoimasies-gia-tin-platforma-toy-diadoxoy-sximatos-toy-nomoy-katseli [Accessed 2 Apr. 2019].

[111] Marcucci, M., Pischedda, A. and Profeta, V. (2015). The changes of the Italian insolvency and foreclosure regulationadopted in 2015. *Notes on Financial Stability and Supervision*, [online] (2). Available at: https://www.bancaditalia.it/pubblicazioni/note-stabilita/2015-0002/No2-note-financial-stability.pdf?language_id=1 [Accessed 2 Apr. 2019].

[112] Fonte, G. and Bernabei, S. (2019). *Italy to approve new bad loan guarantee scheme by Tuesday: sources*. [online] Reuters. Available at: https://www.reuters.com/article/us-italy-bad-loans-scheme/italy-to-approve-new-bad-loan-guarantee-scheme-by-tuesday-sources-idUSKBN1QU2D9?il=0 [Accessed 2 Apr. 2019].

Drawing from the Italian experience, Greek policymakers have begun to produce blueprints for similar initiatives. In November 2018, the Bank of Greece published a proposal for the establishment of Special Purpose Vehicle (SPV)[113], essentially an AMC, that would obtain almost 50% of the NPL stock from the four largest banks. AMCs have also been used as a means of disposal of NPLs in other Eurozone countries apart from Italy[114] but the outline from the Bank of Greece is formulated with certain fundamental distinctions: the “participation parameter” that was explained earlier in this text would allow for various asset types due to loan delinquency in Greece being evenly spread across sectors, which inevitably generates fair doubts about the structure effectiveness and the exploitation of economies of scale; due to disparities between net book values (after provisions) and market prices, banks would cover the difference with an aggregate transfer of €7.5 billion “*deferred tax credits*” (DTCs)[115] which is generally capital of lower quality and although it would cleanse the capital base of banks it is unclear whether there would be investor interest for asset backed by tax claims[116].

A virtue of this scheme that needs to be emphasized has to do with the possibility to clean up the balance sheets of banks swiftly and redistribute the risks while at the same time consolidating the capital base by virtue of the opportunity to use the DTCs for this purpose as stipulated in the plan by the Bank of Greece. This could be especially beneficial for the

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[113] BANK OF GREECE (2018). *Special feature: a systemic proposal for the management of non-performing exposures (NPES)*. Overview of the Greek financial system. [online] Available at: https://www.bankofgreece.gr/BogEkdoseis/OVERVIEW%20OF%20THE%20GREEK%20FINANCIAL%20SYSTEM_NOV%202018.pdf [Accessed 2 Apr. 2019].

[114] Examples include the Sociedad de Gestión de Activos procedentes de la Reestructuración Bancaria (NAREB) in Spain and the National Asset Management Agency (NAMA) in Ireland. Financial Stability Institute (2019). FSI Insights on policy implementation No 3. Resolution of nonperforming loans – policy options. Bank for International Settlements (BIS), p. 21

[115] in.gr. (2014). *Τι είναι ο αναβαλλόμενος φόρος των τραπεζών | in.gr*. [online] Available at: https://www.in.gr/2014/10/20/economy/ti-einai-o-anaballomenos-foros-twn-trapezwn/ [Accessed 2 Apr. 2019].

[116] Lehmann, A. (2019). *After the ESM programme: Options for Greek bank restructuring | Bruegel*. [online] Bruegel.org. Available at: http://bruegel.org/2019/01/after-the-esm-programme-options-for-greek-bank-restructuring/ [Accessed 2 Apr. 2019].

Greek banking sector where a large share of the core capital of banks is comprised of DTCs[117].

Concurrently with the Bank of Greece, the Hellenic Financial Stability Fund drafted a plan involving the transfer of non-performing loans of €7.5 billion to an Asset Protection Scheme (APS) guaranteed by the Greek State. Financed by sales of securities to private investors, SPVs – that would be established by each of the four systemic banks – would purchase NPL portfolios from the banks[118]. As in the case with GACS, state guarantee would be provided only on the senior debt tranches of the securities and only once a large enough share of the riskier tranches has been sold to other investors.

The international trials (Italy, Spain) that this scheme has undergone can be considered an advantage, not only in the sense of accessible expertise and know-how but also with respect to the demonstrated interest and involvement of investors that predicts that there will not be much hesitation as far as Greece is concerned if the mechanism characteristics remain similar.

The essence in both the Italian and the Greek schemes is that state guarantee facilitates the narrowing of the gap between the book values of the NPLs and market prices, but this is also where the problem with this plan lies. Due to the persistent low credit rating of Greece, which is 4 levels below investment grade in the best case[119], if the pricing method was based on the Italian model, the corresponding Greek CDS would have a yield of 4.28%, which would probably be deemed not viable due to excessive burdens on banks

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[117] For example, at the end of 2018Q2, 76% of the core capital of Eurobank was made up of DTCs. Sanderson, O. (2019). *There's only one way forward for Greek NPLs*. [online] Globalcapital.com. Available at: https://www.globalcapital.com/article/b1d6j35zzc7vlc/theres-only-one-way-forward-for-greek-npls [Accessed 2 Apr. 2019].

[118] Lehmann, A. (2019). *After the ESM programme: Options for Greek bank restructuring | Bruegel*. [online] Bruegel.org. Available at: http://bruegel.org/2019/01/after-the-esm-programme-options-for-greek-bank-restructuring/ [Accessed 2 Apr. 2019].

[119] Ekathimerini.com. (2019). *S&P refrains from raising Greece's credit rating citing election risks | Kathimerini*. [online] Available at: http://www.ekathimerini.com/239956/article/ekathimerini/business/sp-refrains-from-raising-greeces-credit-rating-citing-election-risks [Accessed 2 Apr. 2019].

Bloomberg. (2019). *Greece Wins Moody's Upgrade as Reforms Start to Bear Fruit*. [online] Available at: https://www.bloomberg.com/news/articles/2019-03-01/greece-wins-moody-s-upgrade-as-reforms-starting-to-bear-fruit [Accessed 2 Apr. 2019].

which is especially important due to the voluntary participation. In any case, the proposal by the EFSF would cause a milder blow to banks than the proposal of the Bank of Greece that would swiftly create a deficit of €5-6 billion euros in their capital base[120]. The response to this issue has been the formulation of quite "hybrid" approaches that raise concerns about the nexus between inert banks and state aid.

Whether it is decided that one proposal is materialized or both, additional initiatives and further capacity building would be necessary to optimize the determined function and goals. In the case of a central AMC, independent loan servicing agents should be used to achieve more effective restructuring solutions and avoid non-specialized treatment of loans due to their heterogeneity and staff overburdening. Additional human capital and special legal privileges could be necessary to deal with sensitive sectors, such as the "zombie firms", a known Greek issue[121].

It is evident that these initiatives are being considered for the purpose of speeding up of NPL resolution and greater flexibility in bank balance sheet management. However, "copy-pasting" a mechanism needs appropriate evaluation of the contextual environment and careful consideration of prior feedback. On the account of multiple common elements in the approaches of Greece and Italy, specific points are offered as "lessons" from the latter experience.

Italy offered a roadmap for the use of securitization of with an emphasis on SME loans - that suffer most from asymmetric information and high transaction costs – including an institutional sales option, the Atlante fund. The fund was created with the purpose of purchasing the junior tranches of securitized NPLs – which are expected to be the least appealing in a risk averse investor pool – in order to facilitate capital accumulation for troubled financial institutions. Merler (2016) elaborates on certain critical flaws[122] that the

[120] bankingnews.gr. (2019). *Το ιταλικό μοντέλο (APS) για κόκκινα δάνεια έως 28/1 θα κοστίσει στις τράπεζες 260-300 εκατ ετησίως με βάση τα CDS στο 4,28%*. [online] Available at: http://www.bankingnews.gr/index.php?id=404327 [Accessed 2 Apr. 2019].

[121] Lehmann, A. (2019). *After the ESM programme: Options for Greek bank restructuring | Bruegel*. [online] Bruegel.org. Available at: http://bruegel.org/2019/01/after-the-esm-programme-options-for-greek-bank-restructuring/ [Accessed 2 Apr. 2019].

[122] Merler, S. (2016). *An Italian take on banking crisis | Bruegel*. [online] Bruegel.org. Available at: http://bruegel.org/2016/10/an-italian-take-on-banking-crisis/ [Accessed 2 Apr. 2019].

fund suffers from. First, the boost of Atlante on investors' confidence is probably minimal since ideally a backstop "should be reassuring enough for it never to be used" whereas Atlante has subscribed most of the capital it has received. Also, due to its capital structure, which is mainly comprised by banks, Atlante poses a danger to systemic risk in the longer term by reinstalling risk onto the balance sheets of a fragile and interconnected banking system. Additionally, the presence Cassa Depositi e Prestiti (CDP) – a investment bank under public control - in the shareholders list with a €500 million capital investment in Atlante raises genuine doubts[123] about the legitimacy of supervisory action.

A wider "lesson" concerns obsolete structures that are not in line with the ever-changing global financial norms and the necessary reforms of a banking system which, if not addressed timely, can have increased complexity and even adverse effects at the time of a reform. Italy has until recently[124] avoided any significant restructuring processes at the point of complacency and the approach to banking crises has largely been an ad hoc one. This issue is especially important in a banking system such as the Italian one where the banking structure is characterized by fragmentation, inefficiency and high structural costs. Of course, the consolidation of the banking sector would not solve the problem by itself; it could contribute, however, to the restoration of trust in the sector and would facilitate a turnaround of the overall economic outlook. The fragility of the banking sector in Greece and the inertia of lending, its basic function, only means that any resolution of non-performing loans needs to be accompanied by initiatives adjusting the legal environment to the urgency of the situation and improving the internal structure of banks ranging from the suitability of human capital to optimizing their structural efficiencies and costs.

The fact that Greece has recently entered a period of growth with the "Greek stock market savoring its best four-month period since 1999"[125] and ongoing efforts in place to relieve

[123] Merler, S. (2016). *Italy's Atlas bank bailout fund: the shareholder of last resort*. [online] Bruegel.org. Available at: http://bruegel.org/2016/04/italys-atlas-bank-bailout-fund-the-shareholder-of-last-resort/ [Accessed 2 Apr. 2019].

[124] CCB, R. (2016). *Reform of the mutual banks and the CCB*. [online] Ministero dell'Economia e delle Finanze. Available at: http://www.mef.gov.it/en/focus/sistema_bancario/riforme_banche.html [Accessed 2 Apr. 2019].

[125] Kourtali, E. (2019). *Investors see positive prospects in Greek stock market this year, Eleftheria Kourtali | Kathimerini*. [online] Ekathimerini.com. Available at:

banks' balance sheets constitute a prosperous and promising land for investor involvement. At the same time, banks have just recently settled all outstanding debt towards the ELA further strengthening depositors' confidence in the banking system. Concurrently, the credit rating upgrade by Moody's with the remark that "reform momentum appears to be increasingly entrenched, with good prospects for further progress and low risk of reversal[126]" can also be seen as a positive step towards a more attractive risk profile. The opposite scenario is in play in Italy, where the respective efforts for NPL reduction are accompanied by dire fiscal conditions and a worsening economic outlook following a dive into recession at the end of 2019.

The response from the EU level has mostly been embodied by the broader effort to consolidate the Banking Union and to create the Capital Markets Union and it has consisted of the revision of existing capital adequacy and provisioning requirements, the development of secondary markets for NPLs and the reform of the regulatory regime concerning insolvency and debt recovery procedures. These initiatives have facilitated the positive trajectories of certain countries and have played an important role in incentivizing further initiatives for the same purpose. It is important to stress, however, that the implementation part has largely remained at the national level and are still thought to be primarily responsible for the reduction of NPLs and the prevention of future build-ups, as the recent experience suggests.

This, however, does not constitute a safety valve neither in terms of the time available or in terms of the toolset that has been assembled for the purpose of developing a dynamic NPL market. Swiftness, consistency and out-of-the-box thinking are necessary for continued, effective and permanent reduction of non-performing loans (NPLs), the sine qua non of sustainable Greek economy with a banking system that can attract and finance much needed investment initiatives. Whichever formula is put to use, banks doing their part in gradually removing uncertainty from the banking system through adapting to new

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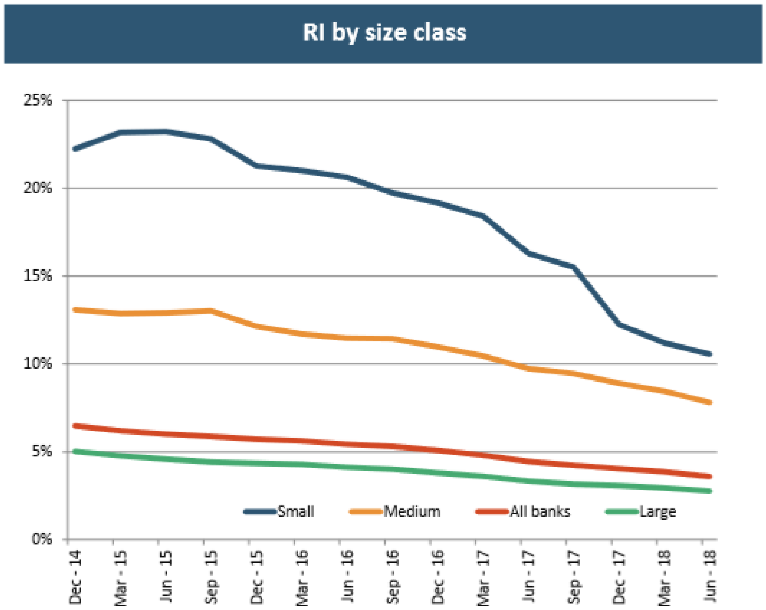
http://www.ekathimerini.com/239782/article/ekathimerini/business/investors-see-positive-prospects-in-greek-stock-market-this-year [Accessed 2 Apr. 2019].

[126] Ekathimerini.com. (2019). *Moody's raises Greece's rating by two notches on reforms boost | Kathimerini*. [online] Available at: http://www.ekathimerini.com/238240/article/ekathimerini/business/moodys-raises-greeces-rating-by-two-notches-on-reforms-boost [Accessed 2 Apr. 2019].

challenges and optimizing their internal processes is strongly interlinked with a successful outcome concerning NPLs management.

Annex

Table 1



Weighted average. Banks are classified in the size class according to their average total assets between Dec. 2014 and Jun. 2018.

Source: Risk Dashboard Data as of 2Q2018, EBA

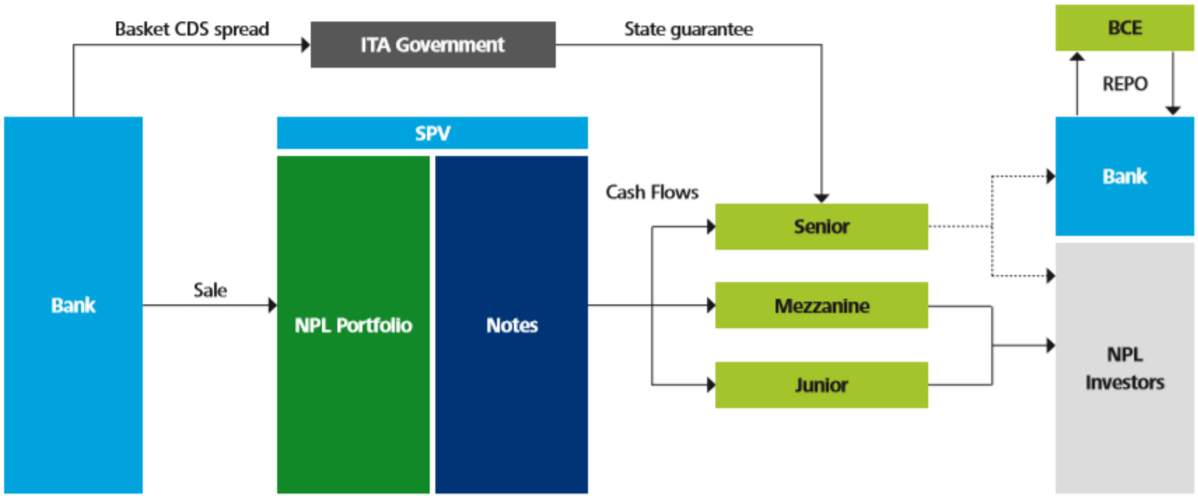
Table 2

Table I.1: **Categories of EU Member States based on NPL level and evolution**

Category	Member States
Category 1: currently not showing high NPL ratios (<=10% of banks' loan portfolio) and not done so in the last 15 years	BE, DK, FI, DE, LU, NL, FR, SE, UK
Category 2: currently not showing a high NPL ratio (<=10% of banks' loan portfolio) but have done so in the last 15 years and/or NPL ratios rose strongly in a short period of time (at least a doubling between 2008 and 2013)	AT, EE, CZ, PL, HU, SK, ES, LV, LT
Category 3: currently showing a high NPL ratio (>10% of banks' loan portfolio)	BG, HR, CY, EL, IE, IT, MT, PT, RO, SI

Source: Berti et al. (2017)

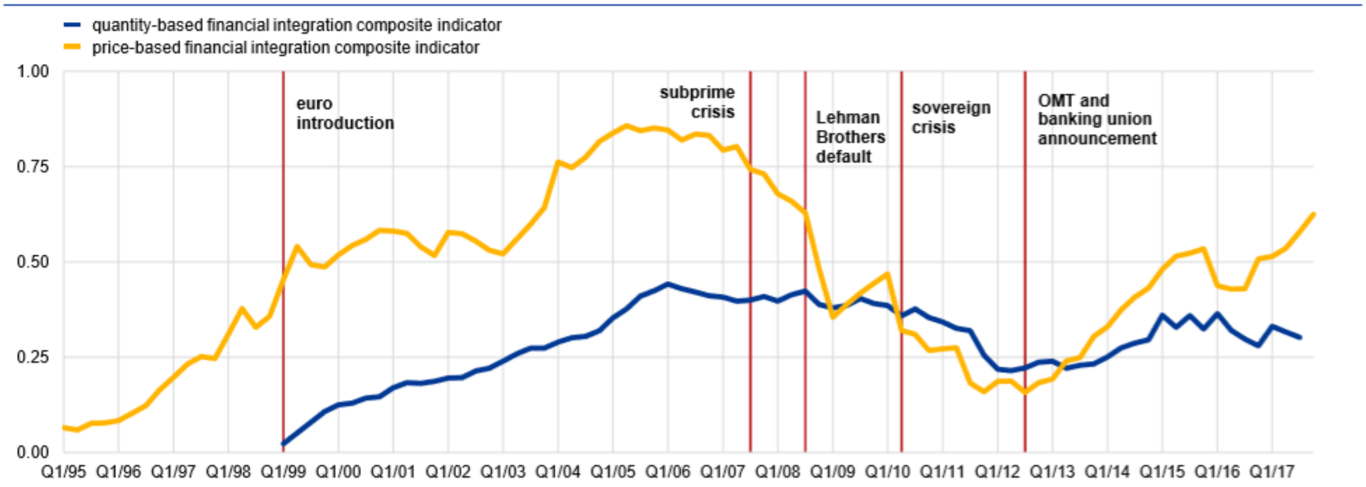
Table 3



Source: Deloitte UK (2019)

Table 4

Price-based and quantity-based composite indicators of financial integration



Sources: ECB and ECB calculations.

Notes: The price-based composite indicator aggregates ten indicators covering the period from the first quarter of 1995 to the fourth quarter of 2017, while the quantity-based composite indicator aggregates five indicators available from the first quarter of 1999 to the third quarter of 2017. The indicators are bounded between zero (full fragmentation) and one (full integration). Increases in the indicators signal greater financial integration. For a detailed description of the indicators and their input data, see the Statistical annex.

Table 5

Cross-border bank exposures (loans and advances) of domestic banks (1)

(2015Q2)

Cross-border bank exposure (in % of GDP of home MS)

Member State to which exposure is held

	BG	HR	CY	GR	IE	IT	RO	SI	MT	PT	CZ	PL	HU	SK	ES	LV	LT	EE	AT	BE	DK	FI	DE	LU	NL	FR	SE	UK
BG		-	-	3.9	-		-	-	-	0.0	-	-	-	-	0.0	-	-	-	0.8	0.2	-	-	0.0	-	-	-	0.0	0.0
HR	-		-	0.0	-	1.2	-	-	-	0.0	-	-	-	-	0.0	-	-	-	5.0	0.0	-	-	-	-	-	-	0.0	0.0
CY	-	-		4.4	-	0.0	-	-	-	0.0	-	-	-	-	0.0	-	-	-	0.3	0.0	-	-	0.1	-	0.1	-	0.3	0.0
EL	-	-	-		-	0.0	-	-	-	0.1	-	-	-	-	0.1	-	-	-	0.0	0.0	-	-	0.2	-	0.2	0.0	-	0.1
IE	-	-	-	0.1		0.3	-	-	-	0.7	-	-	-	-	0.4	-	-	-	0.2	3.0	-	-	0.9	-	1.4	1.3	0.1	3.1
IT	-	-	-	0.1	0.6		-	-	-	2.8	-	-	-	-	3.3	-	-	-	1.5	1.7	-	-	2.6	-	3.4	10.1	0.1	1.1
RO	-	-	-	5.8	-	0.5		-	-	0.0	-	-	-	-	0.0	-	-	-	5.8	0.0	-	-	0.0	-	0.7	-	0.0	0.0
SI	-	-	-	-	-	-	-		-	0.0	-	-	-	-	0.0	-	-	-	1.3	0.0	-	-	0.0	-	-	-	0.0	0.0
MT	-	-	-	0.3	-	0.0	-	-		0.1	-	-	-	-	0.0	-	-	-	0.1	0.0	-	-	0.1	-	0.1	-	0.0	0.2
PT	-	-	-	0.0	-	0.1	-	-	-		-	-	-	-	4.5	-	-	-	0.1	0.1	-	-	0.4	-	0.4	0.5	0.0	0.3
CZ	-	-	-	0.0	-	0.8	-	-	-	0.0		-	-	-	0.0	-	-	-	11.9	6.7	-	-	0.2	-	-	1.2	0.0	0.2
PL	-	-	-	0.1	-	2.1	-	-	-	7.6	-		-	-	2.5	-	-	-	5.1	0.3	-	-	1.2	-	3.2	1.5	1.1	0.3
HU	-	-	-	0.0	-	0.7	-	-	-	0.1	-	-		-	0.0	-	-	-	3.9	1.6	-	-	0.2	-	-	-	0.0	0.1
SK	-	-	-	-	-		-	-	-	0.0	-	-	-		0.0	-	-	-	1.3	0.0	-	-	0.0	-	-	-	0.0	0.0
ES	-	-	-	0.0	1.0	2.0	-	-	-	5.7	-	-	-	-		-	-	-	0.6	1.5	-	0.0	2.3	-	4.6	3.9	0.2	1.0
LV	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0		-	-	0.0	0.0	-	-	0.0	-	-	-	1.9	0.0
LT	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-		-	0.0	0.0	-	-	0.0	-	-	-	2.5	0.0
EE	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	0.0	-	-		0.0	0.0	-	-	0.0	-	-	-	3.1	0.0
AT	-	-	-	0.1	-	4.1	-	-	-	0.0	-	-	-	-	0.3	-	-	-		0.3	-	0.2	1.3	-	1.2	0.5	0.2	0.2
BE	-	-	-	0.2	0.3	0.4	-	-	-	0.2	-	-	-	-	0.3	-	-	-	0.4		-	0.4	0.7	-		6.4	0.8	0.5
DK	-	-	-	0.0	-	0.1	-	-	-	0.1	-	-	-	-	0.3	-	-	-	0.3	0.1		0.2	0.4	-	0.6	0.3	33.6	0.3
FI	-	-	-	0.1	-	0.1	-	-	-	0.0	-	-	-	-	0.2	-	-	-	0.5	0.3	-		0.5	-	1.1	0.3	20.2	0.4
DE	-	-	-	0.9	0.4	9.3	-	-	-	0.9	-	-	-	-	3.4	-	-	-	9.0	1.9	-	1.4		-	19.0	5.9	11.5	4.8
LU	-	-	-	0.7	-	1.0	-	-	-	1.9	-	-	-	-	0.5	-	-	-	1.0	1.1	-	0.2	1.9		2.0	3.0	1.3	0.8
NL	-	-	-	0.1	0.9	0.9	-	-	-	3.8	-	-	-	-	1.1	-	-	-	1.3	4.4	-	0.9	2.2	-		3.5	1.9	3.2
FR	-	-	-	0.5	1.9	2.1	-	-	-	2.0	-	-	-	-	3.2	-	-	-	2.2	4.6	-	1.0	4.3	-	10.0		1.9	6.1
SE	-	-	-	0.0	0.3	0.1	-	-	-	0.0	-	-	-	-	0.3	-	-	-	0.3	0.1	-	1.6	0.7	-	0.7	0.6		0.5
UK	-	-	-	4.7	32.4	2.1	-	-	-	1.3	-	-	-	-	29.9	-	-	-	2.9	3.4	-	0.6	10.7	-	10.5	8.1	10.5	

(1) The colours differentiate different level of exposures where green describes low vulnerability (0-0.99% GDP), yellow medium vulnerability (1-4.99% GDP) and red high vulnerability (above 5% GDP).

Source: Berti et al. (2017)

Table 6

Cross-border bank exposures (loans and advances) of foreign banks (1)

(2015Q2)

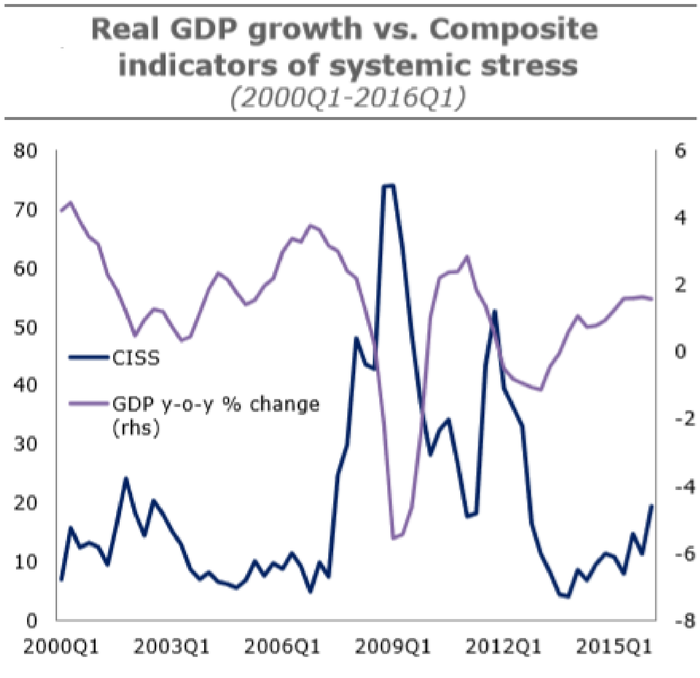
Recipient MS of cross-border bank exposure (in % of GDP of recipient MS)

Home Member State of Banks	BG	HR	CY	GR	IE	IT	RO	SI	MT	PT	CZ	PL	HU	SK	ES	LV	LT	EE	AT	BE	DK	FI	DE	LU	NL	FR	SE	UK
BG	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IE	-	-	-	-		0.1	-	-	-	-	-	-	-	-	0.2	-	-	-	-	0.2	-	-	0.0	NA	0.3	0.2	0.1	3.0
IT	-	44.7	3.6	0.3	3.0		6.0	-	6.3	1.4	8.3	8.7	11.6	-	3.1	-	-	0.4	20.4	1.6	0.5	0.5	5.3	NA	2.2	1.6	0.4	1.7
RO	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SI	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MT	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PT	0.0	0.0	0.0	0.1	0.6	0.3	0.0	0.1	1.7		0.0	3.3	0.1	0.0	0.9	0.0	0.0	-	0.0	0.1	0.1	0.0	0.1	NA	1.0	0.2	0.0	0.1
CZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ES	0.1	0.1	0.6	0.3	2.2	2.2	0.4	0.1	2.8	28.0	0.1	6.6	0.2	0.0		0.0	0.0	0.0	1.0	0.8	1.2	1.0	1.3	NA	1.8	1.6	0.7	15.7
LV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AT	6.7	37.6	4.8	0.1	0.4	0.3	13.2	11.8	3.4	0.2	24.9	4.3	12.7	32.1	0.2	0.2	0.2	0.2		0.4	0.3	0.7	1.1	NA	0.7	0.3	0.2	0.5
BE	2.4	0.1	0.1	0.0	6.8	0.4	0.1	0.3	0.3	0.2	17.3	0.3	6.3	9.6	0.6	0.4	0.2	0.4	0.4		0.1	0.6	0.3	NA	2.7	0.9	0.1	0.7
DK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
FI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	0.1	0.2	0.2		0.1	NA	-	0.1	0.8	0.1
DE	0.1	-	15.7	2.6	14.1	4.7	0.5	3.8	26.5	7.3	2.9	9.0	4.8	2.1	6.4	1.2	1.1	0.8	11.9	5.0	4.5	6.5		NA	10.0	5.9	4.6	15.4
LU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA
NL	-	-	3.9	0.6	5.2	1.4	3.3	-	7.6	1.5	-	5.3	-	-	2.9	-	-	-	2.5	-	1.4	3.6	4.5	NA		3.1	1.1	3.5
FR	-	-	-	0.5	15.6	13.4	-	-	-	6.1	15.9	8.0	-	-	8.0	-	-	-	3.6	34.6	2.8	3.3	4.4	NA	11.6		3.0	8.5
SE	0.0	0.0	7.6	-	0.3	0.0	0.0	0.0	0.8	0.0	0.1	1.2	0.1	0.1	0.1	35.0	30.7	69.0	0.2	0.8	57.0	42.7	1.8	NA	1.2	0.4		2.2
UK	0.0	0.3	5.7	1.3	38.2	1.5	0.0	0.8	51.3	4.6	2.6	1.5	1.2	0.2	2.1	0.2	0.1	0.0	1.4	2.9	2.3	3.9	3.8	NA	11.1	6.4	2.3	

(1) The colours differentiate different level of exposures where green describes low vulnerability (0-0.99% GDP), yellow medium vulnerability (1-4.99% GDP) and red high vulnerability (above 5% GDP).

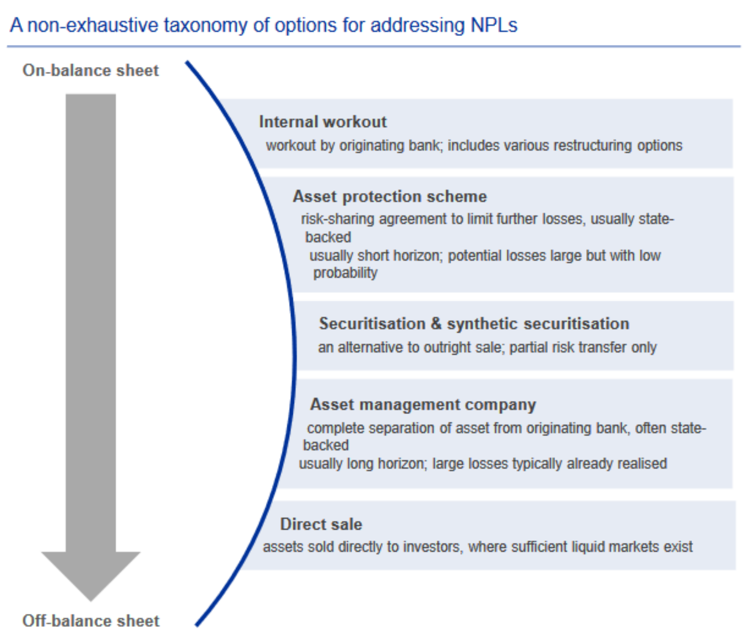
Source: Berti et al. (2017)

<u>Table 7</u>



Source: Berti et al. (2017)

<u>Table 8</u>



Source: Fell et al. (2016)

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